HYDROGEOLOGIC ASSESSMENT REPORT
REVISION 03

PLANT WANSLEY
HEARD AND CARROLL COUNTIES, GEORGIA

FOR

Georgia Power

REVISION 3 - MARCH 2023

Geosyntec consultants

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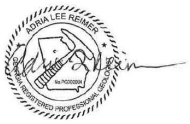
I. CERTIFICATION

This *Hydrogeologic Assessment Report (Revision 3) – Plant Wansley Ash Pond 1 (AP-1)* has been prepared by a qualified groundwater scientist or engineer with Geosyntec Consultants, Inc. (Geosyntec). References to the appropriate sections of 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) are incorporated throughout this document.

I hereby certify that this *Hydrogeologic Assessment Report (Revision 3)* 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 Chapter 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 information presented in this report was developed in compliance with Chapter 391-3-4-.10(3)(c).

Signature:

Date: 03/10/2023

Signature: 

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LIST OF ACRONYMS

ACC	Atlantic Coast Consulting
AP	Ash Pond
AQTESOLV	Aquifer Test Solver
ASD	Alternate Source Demonstration
CCR	Coal Combustion Residuals
cm/sec	centimeter per second
DSM	Deep-soil mix
ERM	Environmental Resources Management
FGD	Flue Gas Desulfurization
GA EPD	Georgia Environmental Protection Division
Golder	Golder Associates
Geosyntec	Geosyntec Consultants
Georgia Power	Georgia Power Company
HAR	Hydrogeologic Assessment Report
frac/ft	fractures per foot
ft	foot, feet
ft bgs	feet below ground surface
ft/day	feet per day
ft/ft	feet per foot
ft/sec	feet per second
ft/year	feet per year
ft^3/sec	cubic feet per second
K_h	horizontal hydraulic conductivity
K_v	vertical permeability
NAVD88	North American Vertical Datum of 1988
PWR	Partially Weathered Rock
PVC	polyvinyl chloride
SCS	Southern Company Services
SPT	Standard Penetration Test
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

1. INTRODUCTION AND GENERAL SITE AREA

1.1 Introduction

Plant Wansley (Plant), is an electric generating facility owned and operated by Georgia Power Company (Georgia Power). The Plant contains two coal fired units and is located adjacent to the west bank of the Chattahoochee River, in Heard and Carroll counties near Carrollton, Georgia. The physical address of the Plant is 1371 Liberty Church Road, Carrollton, Georgia, 30116. Constructed in the early 1970s, the Plant operated one coal combustion residual (CCR) pond identified as Ash Pond 1 (AP-1 or Site). **Figure 1-1** shows a plan view of the Plant.

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published in the Federal Register requirements regarding the management and disposal of CCR titled "*40 CFR Parts 257 and 261: Hazardous and Solid Waste Management System; Disposal of Coal Combustible Residuals from Electric Utilities; Final Rule*" (i.e., the USEPA CCR Rule). The USEPA CCR Rule, which became effective on October 19, 2015, established regulations regarding the design, operation, closure, post-closure care, monitoring, and corrective action for inactive, existing and new CCR surface impoundments and existing and new landfills. In November 2016, the Georgia Environmental Protection Division (GA EPD) adopted amendments to the state's Rules for Solid Waste Management that address CCR (GA EPD 391-3-4-.10, i.e., the State CCR Rule). The State CCR Rule incorporates by reference most of the provisions of the USEPA CCR Rule.

Historically, AP-1 received sluiced CCR including fly ash, bottom ash, boiler slag, and gypsum, along with other byproducts produced from flue gas desulfurization (FGD). As of April 2019, all process-related flows from the plant to AP-1 ceased. As part of the *2022 Integrated Resource Plan*, the Georgia Public Service Commission approved decertification and retirement of the Plant Wansley coal fired on August 31, 2022. As part of that plan, Georgia Power has elected to close Plant Wansley AP-1 by removal.

A Hydrogeological Assessment Report (HAR) was prepared for AP-1 and was submitted with the initial solid waste handling permit application in November 2018. This HAR update provides information regarding the hydrogeologic conditions at AP-1 and supports the siting of the monitoring well network for AP-1. This HAR update was prepared based on hydrogeologic information summarized from data provided in previous reports and documents by Southern Company Services (SCS), Golder Associates (Golder), Environmental Resources Management (ERM), Atlantic Coast Consulting (ACC), and Geosyntec Consultants (Geosyntec).

1.2 Description of the Area

The Plant property encompasses approximately 5,200 acres and is bounded on the east by the Chattahoochee River, and sparsely populated, forested, rural and agricultural land on the north, south and west of the Plant (**Figure 1-1**).

Northwest of the main Plant, two ponds were constructed as valley fill impoundments separated by a 3,000-foot long, 105-foot high earthen dam (Separator Dike) to support operations. A 590-acre pond (Storage Water Pond) was used to provide water to the Plant for use in the electric generating process whereas a 343-acre CCR pond (AP-1) was used for water treatment and disposal of CCR from electrical generation operations. AP-1 began receiving process water containing fly ash and bottom ash in 1976. In 2008, two temporary gypsum storage cells were constructed on top of the CCR delta in AP-1, adjacent to the Separator Dike. As of April 2019, all process-related flows from the Plant to AP-1 have ceased.

1.3 Topographic Description and Geology

The Plant is located within the Piedmont Physiographic Province (Piedmont) of western Georgia, which is characterized by gently rolling hills and narrow valleys, with locally pronounced linear ridges. As is characteristic of this province, the Site has two pronounced ridges on the northwest and southeast sides of the pond, as well as smaller rolling hills along the western property boundary. Other than these ridges and hills, the Site slopes gently south and southeast toward the Chattahoochee River. The Plant has a topographic relief of over 300 feet, with a high elevation of 960 feet relative to North American Vertical Datum of 1988 (NAVD88) on the northwest ridge and a low elevation of less than 600 feet near the Chattahoochee River. These features and the Plant location are depicted on the United States Geological Survey (USGS) Lowell, Georgia 7.5-minute topographic quadrangle map provided on **Figure 1-2**. Annual rainfall for the Site is approximately 50 to 54 inches, with the highest average rainfall occurring from December through March (SCS, 2007). Several small intermittent and perennial creeks and streams discharge into the Chattahoochee River along the southern and eastern property boundaries. The watershed surrounding AP-1 (291 acres) along with the AP-1 footprint (343 acres) comprises a total watershed area of 634 acres

The Piedmont is generally underlain by a variably thick blanket of overburden, which is comprised of residual and saprolitic soils derived from the in-place weathering of bedrock. Occasional deposits of alluvium are present in valleys and drainage features. A mantle of partially weathered rock (PWR) and the upper fractured surface of the bedrock in the Piedmont comprises a zone often referred to as the “transition zone.” This zone

typically exhibits a higher permeability than the residual soils above it as well as the competent crystalline bedrock below and is generally considered to be a preferential flow zone for groundwater in the region. The overburden soils and PWR are commonly referred to collectively as the regolith.

Four regional faults traverse northeast-southwest through this area, referred to as the Chattahoochee Fault, Orkin Lake Fault, Long Island Creek Fault, and the Katy Creek Fault. The Chattahoochee, Orkin Lake and Long Island Creek Faults are all characterized by near-vertical, strike-slip movement and were formed at significant depth within the crust. The Katy Creek Fault is a thrust fault, dipping at a lower angle than the strike-slip faults. The Chattahoochee Fault and Katy Creek Fault bound a regional zone of deformation, referred to as the Brevard Fault Zone that extends from Alabama to Virginia. Plant Wansley is located primarily in the Brevard Fault Zone, with AP-1 and the Storage Water Pond located entirely within the Brevard Fault Zone. These faults are ancient (molded 280+ million years ago), formed at great depth under high confining pressures and temperatures, and are no longer active. Furthermore, Holocene movement related to these faults is highly unlikely (Golder, 2018).

The Site is directly underlain by four lithologic units: (i) alluvial deposits, (ii) residual soils and saprolite, (iii) PWR, and (iv) metamorphic crystalline bedrock units. These units vary in extent and thickness across the Site and are described in greater detail below. For the purpose of this report, the term “lithologic unit” is used to refer to laterally extensive units of unconsolidated sediments, residual soils, and weathered or un-weathered bedrock. Regolith refers to the alluvial soils, residual/saprolite soils, and PWR collectively. The term “bedrock unit” is used to differentiate the various packages or units of metamorphic rock present at the Site (**Figure 1-3**). For simplicity, the engineering components of the closure permit application for the Site groups alluvial deposits and residual soil/saprolite into a group called native soils. Boring logs from field investigations are included in **Appendix A**.

AP-1 is located approximately one-mile northwest of the Chattahoochee River and approximately 0.5 mile southeast of Lake Gentry. Several small unnamed tributaries that flow into AP-1 and the Storage Water Pond are located along the northwest perimeter of the Site. The headwaters of Pink Creek and another unnamed tributary, which both discharge to the Chattahoochee River, are located approximately 2,000 feet to the south and southwest of the Site (**Figure 1-2**).

2. SUBSURFACE INVESTIGATIONS

The following sections summarize the subsurface investigations performed to characterize the hydrogeology beneath and surrounding AP-1, based on information gathered during site investigations performed by SCS, Golder, ERM, ACC, and Geosyntec.

2.1 Drilling and Sampling Program

Data from boring, piezometer, and monitoring well logs from investigations in the vicinity of AP-1 have been summarized in the soil and lithologic descriptions discussed in Section 3 below, as well as in a series of geologic cross-sections provided herein. **Tables 2-1** and **2-2** summarize construction details for piezometers/wells and borings, respectively, at the Site. Borings, piezometers, and wells located in the vicinity of AP-1 are shown on **Figure 2-1**. The performance bonds for the drillers that installed the wells and borings at the Site are included in **Appendix B**.

2.1.1 SCS Investigations (2014 and 2015)

SCS installed 18 piezometers (PZ-01 through PZ-18) in 2014, installed two deeper piezometers (PZ-02D and PZ-03D) in 2015, and performed standard penetration tests (SPT) at 17 soil boring locations in 2015. The piezometers were installed to establish ambient groundwater conditions around AP-1. All of the piezometers were constructed to standards consistent with monitoring well construction. Some of the piezometers were later selected for use as monitoring wells and included as part of the groundwater monitoring network for CCR compliance. These select piezometers were renamed and boring logs were updated. The current well designation as well as the previous piezometer designation are listed on **Table 2-1**. The borings drilled in 2014 and 2015 by SCS were advanced using sonic drilling methods through the regolith (alluvium, residual soil/saprolite, and PWR) and into the bedrock with depths ranging between 17 feet and 104.5 feet below ground surface (ft bgs). The piezometers were installed with a 2-inch diameter Schedule 40 Polyvinyl Chloride (PVC) casing and 10-ft long pre-packed slotted (0.010-inch) PVC screen. As shown in **Table 2-1**, PZ-02, PZ-03S, PZ-05, PZ-07, PZ-09, and PZ-14 have been designated as detection monitoring wells and renamed as WGWA-3, WGWA-5, WGWA-7, WGWA-18, WGWC-9, and WGWC-11, respectively. PZ-13 was abandoned in 2019 due to construction activities at the Site.

The deeper borings PZ-02D and PZ-03D were advanced using hollow-stem auger drilling and wireline rock coring. HQ-size (approximately 3.75-inch diameter borehole) rock coring was used to reach target depths. PZ-02D and PZ-03D were installed at approximately 70 ft bgs and 100 ft bgs, respectively. The piezometers were installed

within the gneiss with interlayered schist using a 2-inch diameter PVC casing and 20-ft long and 30-ft long pre-packed slotted (0.010-inch) PVC screen, respectively. All downhole tooling (augers, drill bits, core barrels, etc.) were cleaned prior to drilling at each location. PZ-02D and PZ-03D have been designated as detection monitoring wells and renamed WGWA-4 and WGWA-6, respectively.

In 2015, SCS advanced 17 SPT borings (SPT-01 to SPT-13, SPT-15 to SPT-18) for geotechnical investigations around AP-1 and the Storage Water Pond using mud rotary drilling. The boreholes were advanced through the overburden and into the bedrock with a d-size (approximately 3.0-inch diameter borehole) rock coring tool. The depths of borings SPT-01 to SPT-13, SPT-17, and SPT-18 ranged between 36 ft and 88 ft bgs. The deeper SPT borings SPT-15 (183 ft bgs) and SPT-16 (133 ft bgs) were advanced within AP-1 through the CCR. The SPT borings were abandoned in 2015.

2.1.2 Golder Investigations (2015)

In 2015, Golder performed geologic investigations and developed a geologic conceptual site model that was used to inform the placement of up- and downgradient monitoring wells at AP-1. As part of this investigation, Golder installed eleven groundwater monitoring wells around AP-1 (WGWA-1, WGWA-2, WGWC-8, WGWC-10, WGWC-12, WGWC-13, WGWC-14, WGWC-15, WGWC-16, WGWC-17, and WGWC-19). The borings were advanced using sonic drilling with continuous core collection. Drilling was conducted using a 4-inch diameter core barrel and 6-inch diameter outer casing to advance boreholes to target depths. Samples were collected for geotechnical analysis during borehole drilling. Monitoring wells were installed within the borehole using 2-inch diameter Schedule 40 PVC casing and 10-ft pre-packed slotted (0.010-inch) PVC screen, with the exception of WGWC-13 which has a 20-ft PVC screen. The depths of the monitoring wells range between 32 ft bgs and 146 ft bgs (**Table 2-1**). An approximately 2-ft thick seal of time-release coated bentonite pellets was placed above the filter pack, and the remaining annular space was grouted using a cement-bentonite mixture (with approximately 5% bentonite) to approximately 3 feet below ground surface using a tremie pipe. Each monitoring well surface completion consists of a locked, aluminum protective casing and a 4-foot by 4-foot by 4-inch concrete pad. Prior to use and between boreholes, downhole drilling equipment was steam cleaned. Findings associated with the Golder investigation are summarized in the *Geologic and Hydrogeologic Report* (2018) and included as **Appendix C**.

2.1.3 ERM Investigation (2017)

In January 2017, ERM advanced two borings using hollow-stem auger drilling to collect geotechnical samples and install piezometers for evaluation of groundwater elevations.

The piezometers PZ-20 and PZ-21 were installed at 35 ft and 30 ft bgs, respectively. PZ-20 was screened in the saprolite and PZ-21 was screened in the saprolite and PWR. Additionally, monitoring well WGWC-14 was replaced with WGWC-14A to monitor a shallower depth in the uppermost aquifer and would subsequently replace WGWC-14 in the detection monitoring network. WGWC-14 is still present at the Site and is used periodically for water level measurements. PZ-21 was abandoned in 2019 due to construction activities at the Site.

2.1.4 ACC Investigation (2018)

In September 2018, ACC installed two piezometers (WAMW-1 and WAMW-2) to assess groundwater conditions in the vicinity of WGWC-19. Piezometers WAMW-1 and WAMW-2 were installed within the fractured bedrock at 122 and 85 ft bgs, respectively.

2.1.5 Geosyntec Investigations (2016, 2017, 2020, and 2022)

In March and April 2016, Geosyntec advanced six borings at two cluster locations (PZA1 and PZA2) on the gypsum cell dikes and installed piezometer clusters (shallow, middle, and deep piezometer) at each location for evaluation of the hydraulic properties of the CCR. The boreholes were advanced using rotary drilling to the desired depth and the piezometers were installed within the CCR with a 2-inch diameter PVC well casing and 5-ft long pre-packed screen with 0.01-inch slot, with fine sand. Approximately two to five feet of filter sand was placed above the top of screen and approximately 10 to 15 feet bentonite seal was placed above the filter sand. The remainder of the annular space was filled with cement grout to ground surface. The piezometer depths range between 55 and 98.5 ft bgs. After conducting hydrogeologic testing, the piezometers were abandoned via tremie grouting with bentonite.

In February 2017 Geosyntec advanced nine borings (PB-1 through PB-9) along the southern perimeter of the ash pond for the collection of geotechnical data and installed piezometers at seven of the boring locations to collect groundwater elevation data. Two of the borings (PB-1 and PB-2) were advanced through the Separator Dike into the bedrock formations below the residuum, and were used to collect lithologic, geotechnical, and hydrogeologic data. These borings were abandoned via tremie grout injection immediately following drilling and data collection. The remaining borings (PB-3 through PB-9) were advanced to target depths for installation of piezometers. Each location received between one and three individual piezometers in a cluster, depending on the observed formation, presence of water-bearing fractures in the bedrock, and locations of nearby existing piezometers or monitoring wells. Piezometers were constructed of either 1-inch or 2-inch diameter PVC riser and 0.01-inch slotted screen. Clean silica sand was used as filter pack material and a neat cement grout (with approximately 5% bentonite)

was placed above a bentonite seal. The depth of the piezometers ranged between 35 ft and 131 ft bgs. PB-8 and PB-9 were abandoned in 2019 due to construction activities at the Site.

In March 2017, Geosyntec initiated drilling within AP-1 using a barge platform assembly to collect geotechnical and hydrogeologic data in support of pond closure activities. Twelve borehole locations (S-1 through S-12) were completed using sonic drilling methods to advance into the bedrock units below the ash pond. The depth of the borings ranged between approximately 85 ft and 170 ft below deck surface of barge (which was approximately 3 feet from top of water). Each borehole was abandoned by tremie grout injection upon completion to the top of the CCR column.

Also in March 2017, a second barge with a mud-rotary drill rig was used to perform geotechnical drilling at an additional 12 boring locations (M-1 through M-12), also to collect geotechnical data in support of closure-related activities. Bulk samples and Shelby tubes were collected at each location for geotechnical laboratory testing along with SPT at select intervals. The borings were completed at depths ranging between approximately 73 ft and 153 ft below deck surface of barge (which was 3 to 4 feet from top of water). These boreholes were also abandoned by tremie grout injection up to the top of CCR column upon completion.

As part of the Geosyntec 2017 site investigation, hydrogeologic data was collected to evaluate the potentiometric surface, estimate hydraulic conductivities, and to evaluate vertical gradients to better understand the hydrogeologic conditions at the Site. Water level measurements were collected at new and existing piezometers, slug tests and single-packer (Iso-Flow) aquifer tests were performed at piezometers and boreholes, and vertical permeability testing was performed on soil cores.

On September 22, 2020, a *Piezometer Installation and Field Testing Workplan* (Workplan) was submitted to the GA EPD (Geosyntec, 2020) to document a proposed field investigation for collection of hydrogeologic data to refine the conceptual hydrogeologic model. Between September and November 2020, Geosyntec advanced 11 borings (PZ-22, PZ-23S, PZ-23D, PZ-24, PZ-25S, PZ-25D, PZ-26S, PZ-26D, PZ-27S, PZ-27D, and PZ-28) along the southern perimeter of AP-1 in accordance with the Workplan. Piezometers were installed at 10 of these locations to collect groundwater elevation data to refine characterization of horizontal and vertical groundwater flow conditions near AP-1. All of the piezometers were constructed to standards consistent with monitoring well construction. PZ-22, PZ-23S, PZ-24, PZ-25S, PZ-26S, and PZ-27S were incorporated into the detection monitoring network and renamed WGWC-20 through WGWC-25 (**Table 2-1**).

Two additional piezometers not included in the 2020 Workplan (PZ-29S and PZ-29D) were installed during this field investigation to provide supplementary hydrogeologic data at the Site. One of the borings (PZ-29S) was installed as a shallow piezometer in the Separator Dike. Boring PZ-29D was advanced through the Separator Dike into the PWR and upper fractured bedrock below the bottom of the Separator Dike. All piezometers were constructed of 2-inch diameter PVC riser and 10-ft long, 0.01-inch slotted, pre-pack screen. Details on borehole drilling and piezometer installation and development were provided to GA EPD in the *Piezometer Design, Installation and Development Report* (Geosyntec, 2021a).

As part of the 2020 site investigation, additional data was collected to refine understanding of the hydrogeologic conditions at the Site. Water level measurements were collected at wells and piezometers for potentiometric surface mapping and evaluation of hydraulic gradients, and slug testing was completed to obtain additional hydraulic conductivity data.

In September 2022, Geosyntec installed two assessment monitoring wells (WGWC-26D and WGWC-27). These wells were installed to provide additional data to characterize flow conditions downgradient of AP-1 and to delineate statistically significant levels (SSLs) of lithium and beryllium vertically and horizontally in groundwater at AP-1 in the vicinity of WGWC-20. WGWC-26D and WGWC-27 were constructed of 2-inch diameter PVC riser and 10-ft long, 0.01-inch slotted, pre-pack screen. Details on borehole drilling and piezometer installation and development were provided to GA EPD in the *Well Design, Installation, and Development Report* (Geosyntec, 2022). The new wells were slug tested to obtain hydraulic conductivity data.

2.2 Geophysical Investigations

In April 2016, Spotlight Geophysical Services (Doral, Florida) (Spotlight) performed a surface geophysical investigation to assess the ash thickness and top of rock depth within AP-1. Spotlight conducted a seismic sub-bottom profiling (SBP) survey and a seismic refraction survey. The SBP data was used to better understand the depth and thickness of the ash, while seismic refraction data was used to inform mapping of the top of rock and to assess its hardness.

In March and April 2017, borehole geophysical logging was performed at boring locations PB-1, S-2, S-5, S-7, S-10, S-11, and S-12 by GEL Geophysics (Marietta, Georgia). This logging was conducted to identify the location, orientation, and apertures of fractures in bedrock. The geophysical logging included caliper, natural gamma, and acoustic tele-viewer logging. In boring PB-1, fluid temperature, fluid resistivity, single point resistance, and spontaneous potential logging were also conducted. The results of

the geophysical survey are discussed in Section 3. Reports and/or logs prepared to summarize these investigations are included in **Appendix D**.

In September and October 2020, borehole geophysical logging was performed at boring locations WGWC-20 (PZ-22), WGWC-21 (PZ-23S), PZ-23D, PZ-25D, and PZ-26D by GEL Geophysics (Marietta, Georgia). The purpose of the geophysical logging was to characterize and evaluate potential water-bearing bedrock fractures and groundwater flow in the open-hole sections of the boreholes to support decisions on the appropriate screen interval for each bedrock piezometer. The geophysical logging included caliper, acoustic tele-viewer, fluid temperature and fluid conductivity, single point resistance, and spontaneous potential logging. The results of the geophysical survey are discussed in Section 3. Reports and/or logs prepared to summarize these investigations are included in **Appendix D.**

2.3 Hydraulic Conductivity Testing

Aquifer testing was conducted by SCS and Golder at select wells across the Site between 2014 and 2016, and by Geosyntec in 2016, 2017, 2020, and 2022 to evaluate hydraulic conditions in the vicinity of AP-1. Horizontal hydraulic conductivity (K_h) testing was conducted using straddle packers and pumping at discrete depth intervals inside PB-1 in the fractured bedrock at select depth intervals. In addition, pneumatic slug testing was conducted in piezometers PB-3 through PB-9 to estimate K_h of the screened zones (saprolite, PWR, or bedrock). Geosyntec used an "Iso-Flow" packer system to evaluate K_h in various lithologic units within borings S-2, S-4, S-5, S-8, S-10, S-11, and S-12. K_h of the CCR was estimated using slug testing in piezometer clusters PZA1 and PZA2.

Slug testing of wells and piezometers installed in 2020 was completed by Geosyntec to estimate K_h of the screened zones. In addition, select locations previously slug tested (PB-7, PZ-10, PZ-12, PZ-17, WGWA-1, WGWC-16, and WGWC-17) were re-tested. Testing was also completed at WGWC-14A, which had not been previously tested. Slug testing of wells installed in 2022 (WGWC-26D and WGWC-27) was completed by Geosyntec in October 2022 to estimate K_h of the screened zones.

3. SUBSURFACE INVESTIGATION RESULTS

The following sections present a summary of results from the drilling and sampling program, surface and borehole geophysical investigations, and hydraulic conductivity testing.

3.1 Description of Geologic Conditions

Subsurface investigations identified four lithologic units in the area of AP-1. From top to bottom, these units are: alluvial deposits, residual soils and saprolite, PWR, and bedrock. The extent of these units, as well as CCR material where present, across the Site is shown on geologic cross-sections A1-A2, A2-A3, B1-B2, C1-C2, D1-D2, and E1-E2, presented as **Figures 3-1A** through **3-1F**, respectively. Boring logs for locations shown on the cross-sections are included in **Appendix A**.

The lithologic units are described in the following paragraphs in more detail, noting their composition and thickness. Unit descriptions and unit thickness ranges were compiled from boring logs and the geologic cross-sections.

3.1.1 Alluvial Deposits

Alluvial deposits related to stream and drainage processes were observed in borings in isolated locations across the Site. These lenses ranged in thickness from eight to 12 feet and consisted of organic silt and fine sand over-bank deposits and fine to coarse sand channel deposits. Alluvium was not observed to be a continuous unit across the Site and likely corresponds with former stream channels buried during the construction of the ash pond.

3.1.2 Residual Soils and Saprolite

Residual and saprolitic soils resulting from the in-situ weathering of the parent bedrock material make up a large portion of the Site subsurface and was generally encountered across the Site. Saprolite tends to display relict structures and properties of the parent bedrock such as foliation, mineral banding, and intrusive pegmatites, but has the consistency of a soil (unconsolidated). This unit ranges in thickness from approximately two to 130 feet and is described primarily as sandy silt, silty sand, sandy clay, and silty clay. The thickness is highly variable, and the unit was generally encountered at or near the ground surface across the Site.

3.1.3 Partially Weathered Rock

As the saprolite transitions to more rock-like material approaching the bedrock surface, a

zone referred to as PWR is encountered. The PWR unit is the hard, semi-consolidated, weathered to intensely fractured rock interface. This unit ranges in thickness from one to 55 feet and was generally encountered across the Site. The unit may include hard, but friable, decomposed rock, as well as gravel to cobble-size rock fragments bound by clay and silt saprolite matrix. The PWR accounts for a majority of the "transition zone" that lies between the saprolite and the competent bedrock. For geotechnical borings in which SPTs were performed, saprolite that exceeds 50 blows per 6 inches was considered PWR.

3.1.4 Bedrock

The bedrock at the Site is metamorphic crystalline rock composed primarily of graphitic schist, muscovite schist, biotite schist, schist with interlayered mafic units, amphibolite/hornblende gneiss, granitic gneiss, and feldspathic quartzite. Characteristics of the various bedrock units were described in detail by Golder in the *Geologic and Hydrogeologic Report* (2018), included as **Appendix C**. The approximate location of each lithologic unit identified during geologic mapping and described by Golder (2018) is shown on **Figure 1-3**. As shown in the geologic cross-sections in **Figure 3-1A** through **Figure 3-1F**, the estimated top of bedrock at the Site ranges from approximately 650 ft NAVD88 under the ash pond, storage pond, and the temporary gypsum storage cells to approximately 900 ft NAVD88 under the ridges to the northwest. The ridges to the northwest and southeast of the ponds are underlain by the Muscovite Schist and Long Island Creek Gneiss units, respectively, both of which are relatively resistant to weathering, and, thus, the bedrock is closer to the ground surface (**Figure 1-3**). AP-1 and the Storage Water Pond, however, are underlain by schist with interlayered mafic units and feldspathic quartzite, which are more susceptible to weathering, and thus, the layer of residual soil, saprolite, and PWR is thicker. Golder (2018) describes the feldspathic quartzite unit as being brittle and highly fractured with multiple joint sets.

Bedrock borings advanced during the 2017, 2020, and 2022 Geosyntec field investigations at the Site were evaluated for fracture characteristics such as weathering, strike and dip angle, and fracture density. Fracture data was evaluated based on visual observation of rock cores and borehole geophysical logging where available. Borehole geophysical logs are included in **Appendix D**. Fracture densities in bedrock at the Site ranged from very low (0.04 fractures per foot [frac/ft]) to high (3.21 frac/ft) and were generally similar across the five geologic units encountered. By lithologic unit, average (geometric mean) fracture density from lowest to highest (in frac/ft) are Schist Amphibolite (0.45), Long Island Creek Gneiss (0.83), Quartzite (1.36), Garnet Schist (1.67), and Muscovite Schist (1.80). Visual observations and geophysical logging suggest a trend of decreasing fracture spacing and density with depth, consistent with regional geologic trends.

In the 2018 Golder report, two primary fracture/joint sets were identified; (i) striking approximately N46°E and dipping 24° to the southeast, and (ii) striking approximately N40°E and dipping 44° to the northwest. A third, less prominent, set was also observed striking approximately S89°W and dipping 82° to the north. The first two sets are consistent with the strike of regional geologic features such as faults, folds, and foliation associated with regional metamorphism and tectonic activity. The lesser joint set is oblique to the strike of the principal stress, sub-vertical and likely represents regional shearing, also typical of the Piedmont region.

3.2 Summary of Geophysical Investigation Results

The pond bathymetry of AP-1 developed from surface geophysical investigation using SBP indicated that the pond bottom elevation lies between 732.5 ft NAVD88 to 792.2 ft NAVD88 (at the time of the survey). This bathymetry was later modified based on additional bathymetric survey data collected at the Site. The distribution of CCR material is variable across the pond bottom with ash thickness estimated between 0 and approximately 100 feet. The thickest zones of CCR are concentrated in the northeastern portion of the pond, adjacent to the ash delta area, and generally thins to becoming absent in the southwestern portion of the pond.

Based on the P-wave velocity contour that was used to interpret the top of weathered rock, the PWR is less than 20 feet thick in most places. An increase in P-wave velocity to over 10,000 feet per second (ft/sec) indicated top of hard bedrock beneath the weathered rock. The interpreted top of hard rock elevation (based on the 10,000 ft/sec velocity contour) ranges between 670.0 and 762.7 ft NAVD88. The PWR thickness and top of bedrock surfaces were later modified using boring data. The detailed geophysical investigation report prepared by Spotlight is provided in **Appendix D**.

3.3 Description of Hydrogeologic Conditions

There are four lithologic units at the Site, as discussed above in Section 3.1. While the aquifer characteristics of each unit may vary, the groundwater is interpreted to be interconnected between these units, and they effectively act as one unconfined regolith-fractured bedrock aquifer system, comparable to other slope-aquifer systems in the southeastern U.S. as described by LeGrand (2004). The regolith-bedrock aquifer is marked by a transition zone between the two that is comprised of PWR and the intensely fractured surface of the bedrock. The thickness of the transition zone is variable depending on the weathering characteristics of the underlying lithologies, but at the Site, ranges from a few feet to over 50 feet.

The hydrogeologic characteristics of a slope-aquifer system are primarily determined by

local topographic and lithologic characteristics. Areas north of the ash pond are marked by higher elevations, whereas areas south of the pond have lower elevations. Because of the steep topography at the Site and variable lithologic framework, the depth to the water table is variable, ranging from approximately one to 50 ft bgs. The saturated zone occurs in the regolith, primarily in the PWR, and upper fractured bedrock. In localized areas south of the pond, shallower water table elevations are noted within the upper portions of the regolith. These areas are topographic highs south of the pond, with hydraulic gradients indicating localized flow northward (or inward) towards the pond.

In the Piedmont, water movement in the crystalline bedrock is restricted entirely to flow through fractures. Fractures in the bedrock decrease in number and tend to be sealed at depth, and the bedrock aquifer system is recharged by water stored in overlying residual soils and saprolite. This low permeability, high porosity overburden material slowly allows groundwater to infiltrate the bedrock through areas of enhanced permeability. Additionally, as bedrock fractures decrease in depth, it is expected that groundwater flow below the upper fractured portion of the bedrock decreases substantially.

Site investigations have included collection of hydrogeologic data to evaluate the potentiometric surface and estimate hydraulic conductivities, and to evaluate horizontal and vertical gradients to better understand the hydrogeologic conditions at AP-1. Results of groundwater level monitoring for potentiometric surface mapping, slug testing to obtain hydraulic conductivity information, and evaluation of groundwater gradients and flow velocity are summarized in the following sections.

3.3.1 Groundwater Levels

A potentiometric surface map depicting groundwater conditions in August 2022 is included as **Figure 3-2.** As illustrated on the figure, the potentiometric surface is a subdued reflection of topography at the Site. The saturated zone occurs primarily in the PWR and upper fractured bedrock. Groundwater flow is generally inward towards AP-1 with a slight component of flow away from AP-1 near the southeastern corner of the impoundment near the gypsum cell. The top of rock surface also generally follows topography and likely controls groundwater flow direction in the uppermost aquifer. In general, at the Site, steeper potentiometric contours in areas of higher topographic relief give way to lower gradients as the land surface flattens toward the river.

3.3.2 Hydraulic Conductivity of Lithologic Units

To evaluate the distribution of K_h in the AP-1 vicinity, slug test data from piezometers installed by Geosyntec in 2017, 2020, and 2022 and from previously installed wells and piezometers were considered. For the slug tests conducted by Geosyntec, aquifer response

data were imported into the Aquifer Test Solver (AQTESOLV) (Hydrosolve, Inc., Version 4.500.002) software package for analysis. AQTESOLV output files are presented in **Appendix E**.

In borehole locations advanced in 2017 that did not contain a piezometer, Iso-Flow testing or straddle packer testing was used to estimate K_h, and numerous well and piezometer locations were slug tested to estimate K_h. The resulting hydraulic conductivity estimates from the aquifer tests were compared with existing Site data and evaluated by lithologic unit (residual soil/saprolite, PWR, and bedrock). These results are summarized in **Table 3-1**. While the geometric mean K_h values indicate that the bedrock has a lower hydraulic conductivity than the overburden, it should be noted that localized variation in thickness of the residual soil/saprolite and the PWR, variable bedrock fracture density, and fractured bedrock zones/lineaments may result in areas in which the fractured bedrock exhibits higher K_h values than in the overburden.

K_h estimates from bedrock locations were compared by rock unit to evaluate potential variations that may influence groundwater flow. K_h values are an order of magnitude higher in the Muscovite Schist unit than in the other three units. It should be noted, however, that the data collected for the bedrock formations were by Iso-Flow packer testing and slug testing at boreholes and piezometers that were installed at depths targeting observed fracture zones in the rock. The K_h of these targeted fracture zones provide higher estimates of hydraulic conductivity and not likely representative of the overall bulk permeability or K_h of the bedrock units.

The results of vertical permeability testing on sonic drilling cores and Shelby Tubes collected from CCR, alluvium, saprolite, and PWR in March 2017 are summarized in **Table 3-2**. Corresponding laboratory test results are included in **Appendix E**. The vertical permeability (K_v) obtained from the alluvium (fine-grained, over-bank deposits) was 4.6 x 10^{-7} cm/sec. The PWR core yielded a K_v of 7.6 x 10^{-6} cm/sec, and the saprolite samples ranged an order of magnitude from 5.1 x 10^{-6} cm/sec to 5.5 x 10^{-5} cm/sec.

3.3.3 Hydraulic Gradients and Groundwater Flow Velocity

3.3.3.1 Vertical Gradients

Water levels were gauged on 8 August 2022 to assess the vertical gradients and head differences between the residual soil/saprolite and PWR units, and the bedrock or in some cases the PWR and shallow fractured bedrock (transition zone) and deeper bedrock. **Table 3-3** and **Figure 3-3** show the groundwater elevations from each cluster and the magnitude and direction (up or down) of the gradient and the differential.

Vertical gradients indicate that piezometer or well pairs situated on ridges or topographic

highs exhibit a downward gradient from the overburden to the bedrock. Clusters located in, or in close proximity to, surface lineaments or natural drainage features tend to have upward hydraulic gradients from the bedrock to the overburden. This gradient is a common occurrence as groundwater is discharged as baseflow to localized streams and tributaries.

3.3.3.2 Groundwater Flow Velocity

Horizontal groundwater hydraulic gradients within the uppermost aquifer at AP-1 were calculated using groundwater elevation data from August 2022. As presented in **Table 3-4**, the average hydraulic gradients along groundwater flow path lines associated with AP-1 are 0.088 feet per foot (ft/ft) (PZ-01 to WGWC-17) and 0.088 ft/ft (PZ-10 to WGWC-19).

The groundwater flow velocity in the vicinity of AP-1 was calculated for August 2022 data using the following equation:

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

where:

V = Groundwater flow velocity $\left(\frac{feet}{day}\right)$

K_h = Average hydraulic conductivity $\left(\frac{feet}{day}\right)$

i = Horizontal hydraulic gradient $\left(\frac{feet}{feet}\right)$

n_e = Effective porosity

Using an effective porosity of 0.25 (ERM, 2018) and the average hydraulic conductivity of 9.5 x 10^{-5} cm/sec (0.27 ft/day) for residual soil/saprolite, PWR, and bedrock based on slug test data (**Table 3-1)**, the calculated flow velocity at the Site is reported to be approximately 0.095 ft/day or approximately 34.7 ft per year (ft/year). Flow velocity calculations are provided in **Table 3-4**.

4. CONCEPTUAL SITE MODEL

4.1 Conceptual Site Model

AP-1 is underlain primarily by four lithologic units; (i) alluvial deposits, (ii) residual soils and saprolite, (iii) PWR, and (iv) bedrock. The alluvial deposits are limited in aerial extent and therefore, the regolith at the Site consists predominantly of saprolite and PWR. The uppermost aquifer at AP-1 is an unconfined aquifer that occurs in the regolith and bedrock. While the aquifer characteristics of these units may vary, the groundwater is interpreted to be interconnected, and they effectively act as one unconfined aquifer system. The aquifer is recharged from infiltration of precipitation and from release of stored water in the overburden to the bedrock. As described in the text of the SAR (SCS, 2007) and demonstrated by associated geotechnical data and boring logs, the top of rock is slightly to strongly weathered but becomes less weathered with depth. In general, core recovery increases significantly with depth as the rock becomes less weathered. Rock Quality Designation (RQD) increases significantly with depth. These site-specific data support and additional published data on bedrock hydrogeology describe a general decrease in size and occurrence of fractures with depth. Therefore, we infer that groundwater within the bedrock is primarily present in fractures that decrease in size and density with depth.

The saturated zone at the Site occurs primarily near the interface of the regolith and bedrock, depending on local topographic and lithologic characteristics. Because of higher elevations in areas north of the pond, the upgradient areas are marked by depth to saturation that occurs mostly in the upper fractured bedrock. In the downgradient areas south of the ash pond, the saturated zone occurs predominantly in the shallower portions of the regolith. In topographically high areas south of the ash pond, shallower water table elevations are noted, and hydraulic gradients indicate localized flow northward (or inward) towards the pond.

As described by Golder (2018; **Appendix C**), the crystalline bedrock at the Site consists of these mapped bedrock units: Muscovite Schist, Schist-Amphibolite, Quartzite, Garnet Schist, Long Island Creek Gneiss, Button Schist, Amphibolite, and Biotite Gneiss. These units steeply-dip to the east-southeast and are marked by three mapped faults (**Figure 1-3** and **Appendix C**). There is no evidence of rock movement along these faults during the Holocene.

The vertical hydraulic gradient is downward in topographically higher areas, as indicated by water levels measured in paired locations along the ridge north of AP-1. The vertical hydraulic gradient is upward in topographically lower areas, as indicated by water levels reported in the paired locations located adjacent to the tributary that discharge into the

ash pond. Groundwater flow in the uppermost aquifer across the Site is generally inward towards AP-1 with a minor component of flow from AP-1 in a localized area near the eastern corner of AP-1. A potentiometric surface map for August 2022 is included as **Figure 3-2**.

In 2017, Geosyntec created a three-dimensional (3D), steady-state groundwater numerical model of the AP-1 vicinity. The objectives of the numerical groundwater flow modeling were: (i) to construct a steady-state groundwater model of the Site that is calibrated to representative groundwater conditions; (ii) simulate calibrated groundwater conditions for the AP-1 vicinity, which will act as a baseline for comparison against subsequent model simulations; and (iii) to simulate groundwater conditions within AP-1 for the proposed in place closure approach. In 2022, the closure for AP-1 transitioned from in place closure to closure by removal rendering the groundwater model unnecessary for closure procedures.

4.2 Rationale for Certified Monitoring Well Network

The groundwater monitoring well network at AP-1 is intended to monitor the uppermost aquifer at the Site and provide early detection of potential releases of CCR-impacted groundwater from the unit. Based on hydrogeologic data collected at the Site, as well as the conceptual site model for groundwater flow, groundwater flow occurs in the regolith, primarily PWR, and in the upper portion of the bedrock where fractures are present. As such, monitoring well pairs were installed in select areas to monitor groundwater quality in the regolith and in the upper fractured bedrock. The variability in the depth to groundwater across the Site and the geologic unit of the uppermost aquifer is due to topographic and hydrogeologic variations across the Site.

The location of the monitoring wells was selected based on the prevailing groundwater flow direction in the vicinity of AP-1 using groundwater elevations recorded during monitoring events, as well as an understanding of hydrogeologic conditions in the vicinity of the Site. The placement of the well network is based on the site-specific hydrogeologic framework, informed by onsite geologic and lineament mapping, groundwater level measurements, borehole geophysics, slug testing, and other field investigations.

The monitoring wells included in the detection monitoring well network are shown on **Figure 4-1**; well construction details are shown in **Table 4-1**. The original detection monitoring well network was certified by a professional engineer (PE) on 15 October 2017, and consisted of eight wells (WGWA-1, WGWA-2, WGWA-3, WGWA-4, WGWA-5, WGWA-6, WGWA-7, and WGWA-18) designated for monitoring of background conditions and eleven wells (WGWC-8, WGWC-9, WGWC-10, WGWC-11, WGWC-12, WGWC-13, WGWC-14A, WGWC-15, WGWC-16, WGWC-17, and

WGWC-19) designated for monitoring downgradient conditions. Two assessment wells (WGWC-26D and WGWC-27) were installed to characterize groundwater conditions in the vicinity of WGWC-20. As noted in Section 2.1.4, six monitoring wells installed between September and November 2020, WGWC-20 (PZ-22), WGWC-21 (PZ-23S), WGWC-22 (PZ-24), WGWC-23 (PZ-25S), WGWC-24 (PZ-26S), and WGWC-25 (PZ-27S) were incorporated into the detection monitoring network in June 2021.

Locations of the detection monitoring wells and groundwater level monitoring piezometers relative to the geologic units underlying AP-1 are shown in **Figure 4-2**. The downgradient detection monitoring wells provide adequate coverage to detect a potential release from the closed CCR unit. The adequacy of the well network is supported by groundwater quality data collected from the Site as described below. Any change to the detection monitoring well network will be made by a minor modification to the Groundwater Monitoring Plan of the permit pursuant to 391-3-4-.02(4)(b)7. Construction diagrams of the wells in the certified detection monitoring well network are provided in **Appendix A**.

5. GROUNDWATER QUALITY

Groundwater monitoring-related activities have been performed for AP-1 since May 2016 in accordance with 40 CFR § 257.94 and § 257.95.

5.1 Detection Monitoring Program

Pursuant to § 257.94, Georgia Power established a detection monitoring program for AP-1 which consisted of (i) collecting eight independent samples from the certified monitoring well network to establish a baseline dataset and (ii) conducting the initial semiannual detection monitoring sampling event.

A minimum of eight independent samples were collected from each monitoring well within the original detection monitoring well network and analyzed for Appendix III and IV constituents as part of the background monitoring period between May 2016 and September 2017 pursuant to § 257.94(b). Following background monitoring, the initial semiannual detection monitoring event was completed in October 2017 by collecting an additional round of groundwater samples from the certified well network and analyzing the samples for Appendix III constituents according to § 257.94(a).

Data collected during the detection monitoring event were statistically compared against the background values in accordance with § 257.93(h) and the PE-certified statistical methods [i.e., interwell prediction limit (PL)]. Statistically significant increases (SSIs) over background were observed.

5.2 Assessment Monitoring Program

Because SSIs over background prediction limits were observed during detection monitoring, Georgia Power initiated an assessment monitoring program for groundwater at AP-1 in January 2018. Pursuant to § 257.95, samples were collected from the original detection monitoring well network during 2018 and analyzed for Appendix IV parameters. Statistically significant levels (SSL) of lithium were identified within the 2018 data. In accordance with § 257.95, Georgia Power prepared an alternate source demonstration (ASD) for lithium, in which concluded that the concentrations of lithium observed within the AP-1 certified monitoring well network were attributed to naturally occurring background conditions. Details of these sampling events, statistical analyses, and ASD are provided in the following report published to Georgia Power's website and submitted to GA EPD in 2019: *2018 Annual Groundwater Monitoring and Corrective Action Report* (ACC, 2019).

An ASD Addendum for lithium was submitted to GA EPD in February 2021 (Geosyntec,

2021b). The ASD Addendum provided supplemental data collected following submittal of the 2018 ASD which provided additional evidence that concentrations of lithium observed within the AP-1 detection monitoring well network are attributed to naturally occurring background conditions.

Statistical analyses of assessment and supplemental monitoring data collected at WGWC-20 through June 2022 identified SSLs of lithium and beryllium in excess of the groundwater protection standard (GWPS). Pursuant to §257.96, an assessment of corrective measures (ACM) program was initiated for AP-1 in October 2022. An Assessment of Corrective Measures Report will be prepared for AP-1 for submittal to GA EPD by March 2023. In accordance with §257.96(b), groundwater continues to be monitored at AP-1 under the assessment monitoring program while the ACM phase is implemented. Routine semiannual groundwater monitoring reports are submitted to GA EPD detailing the events and the analytical and statistical results obtained during the reporting period. Forthcoming semiannual groundwater reports will also include a semiannual remedy selection progress report documenting progress made during the reporting period evaluating corrective measures in support of the ACM program.

5.3 Expansion of the Monitoring Well Network

As discussed in Section 4.2, six piezometers (i.e., PZ-22, PZ-23S, PZ-24, PZ-25S, PZ-26S, and PZ-27S) installed along the perimeter of AP-1 between September and November 2020 have been incorporated into the detection monitoring well network as downgradient detection wells WGWC-20, WGWC-21, WGWC-22, WGWC-23, WGWC-24, and WGWC-24, respectively. Locations of the detection monitoring wells are shown on **Figure 4-1**, and construction details are provided in **Table 4-1.** Boring and well construction logs for the current well network are included in **Appendix A**.

In addition, groundwater levels are gauged at 20 piezometers, installed between 2014 and 2020, in combination with the detection well network at AP-1 to refine groundwater flow direction and gradients. Piezometer construction details are provided in **Table 2-1** and locations are shown on **Figure 4-1.** Boring and construction logs for the piezometers are included in **Appendix A**.

As discussed in Section 2.1.5, two assessment monitoring wells (WGWC-26D and WGWC-27) were installed downgradient of AP-1 in September 2022 to characterize flow conditions and groundwater quality conditions in the vicinity of WGWC-20.

Georgia Power plans to further refine the conceptual site model to support ACM efforts, and to address potential changes in site conditions as appropriate. The ACM Report will be submitted to GA EPD in 2023.

6. REFERENCES

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TABLES

Table 2-1
Piezometer and Well Construction Details
Plant Wansley, Heard and Carroll Counties, Georgia

Well / Piezometer ID	Previous Well / Piezometer ID	Date Installed	Northing [1]	Easting [1]	Ground Surface Elevation [2] (ft NAVD88)	Top of Casing Elevation [2] (ft NAVD88)	Top of Screen		Bottom of Screen		Well Depth [3]		Well/ Piezometer Diameter (in.)	Screened Media
							(ft bgs)	Elevation [2] (ft NAVD88)	(ft bgs)	Elevation [2] (ft NAVD88)	(ft bgs)	Elevation [2] (ft NAVD88)		
Detection Monitoring Wells														
WGWA-1	APA-1	10/21/2015	1250656.10	2035580.71	780.37	782.93	117.0	663.37	127.0	653.37	127.0	653.37	2	PWR
WGWA-2	APA-2D	10/16/2015	1251556.40	2035590.11	755.77	758.23	90.0	665.77	100.0	655.77	100.0	655.77	2	PWR/Bedrock
WGWA-3	PZ-02	12/15/2014	1240848.21	2022350.10	826.63	828.91	6.4	820.23	16.4	810.23	16.4	809.83	2	Saprolite/Bedrock
WGWA-4	PZ-02D	01/13/2015	1240879.58	2022339.66	831.33	834.34	50.9	780.43	70.9	760.43	71.3	760.03	2	Bedrock
WGWA-5	PZ-03S	12/23/2014	1241997.94	2022368.85	899.28	902.15	10.4	888.88	20.4	878.88	20.8	878.48	2	Saprolite/PWR/Bedrock
WGWA-6	PZ-03D	01/13/2015	1241932.02	2022360.58	894.62	897.13	72.0	822.62	102.0	792.62	102.4	792.22	2	Bedrock
WGWA-7	PZ-05	12/22/2014	1243338.63	2023843.81	894.49	897.33	26.8	867.69	36.8	857.69	37.2	857.29	2	Bedrock
WGWA-18	PZ-07	12/16/2014	1244592.56	2025580.71	875.47	878.02	27.0	848.47	37.0	838.47	37.4	838.07	2	Saprolite/Bedrock
WGWC-8	APC-1	10/29/2015	1242929.40	2029644.58	777.70	780.08	47.0	730.70	57.0	720.70	57.0	720.70	2	Bedrock
WGWC-9	PZ-09	12/4/2014	1242801.12	2029115.75	809.33	812.03	48.4	760.93	58.4	750.93	58.8	750.53	2	PWR
WGWC-10	APC-3D	10/27/2015	1240971.96	2026725.61	809.61	812.38	136.0	673.61	146.0	663.61	146.0	663.61	2	Saprolite/PWR
WGWC-11	PZ-14	12/8/2014	1240860.18	2025773.39	821.44	823.96	38.3	783.14	48.3	773.14	48.7	772.74	2	Saprolite
WGWC-12	APC-4D	10/22/2015	1240827.68	2025755.99	820.57	823.04	64.0	756.57	74.0	746.57	74.0	746.57	2	Bedrock
WGWC-13	APC-5D	11/4/2015	1240610.93	2024585.91	807.32	809.78	73.0	734.32	93.0	714.32	93.0	714.32	2	Bedrock
WGWC-14A [4]	--	01/31/2017	1240604.54	2024599.63	808.20	810.94	30.0	778.20	40.0	768.20	40.0	768.20	2	Saprolite/PWR
WGWC-15	APC-6D	11/11/2015	1240483.16	2023912.92	802.03	804.69	43.5	758.53	53.5	748.53	53.5	748.53	2	Bedrock
WGWC-16	APC-6S	11/11/2015	1240480.46	2023903.77	801.72	804.21	22.0	779.72	32.0	769.72	32.0	769.72	2	Saprolite/PWR
WGWC-17	APC-7	11/06/2015	1240052.06	2022623.82	813.36	816.00	83.0	730.36	93.3	720.36	93.3	720.36	2	Bedrock
WGWC-19	APC-2	10/28/2015	1241851.51	2028949.19	780.60	783.42	82.0	698.60	92.0	688.60	92.0	688.60	2	Bedrock
WGWC-20	PZ-22	9/29/2020	1243350.76	2029769.43	804.88	807.95	29.7	775.18	39.7	765.18	40.1	764.78	2	Bedrock
WGWC-21	PZ-23S	10/2/2020	1242139.33	2028512.65	831.79	834.41	58.7	773.11	68.7	763.11	69.1	762.71	2	Bedrock
WGWC-22	PZ-24	10/18/2020	1241695.25	2028116.05	807.00	810.37	30.1	776.92	40.1	766.92	40.5	766.52	2	PWR/Bedrock
WGWC-23	PZ-25S	10/4/2020	1240769.79	2027414.58	820.50	823.80	40.1	780.40	50.1	770.40	50.5	770.00	2	PWR
WGWC-24	PZ-26S	10/17/2020	1239916.68	2024139.82	802.22	804.80	27.8	774.43	37.8	764.43	38.2	764.03	2	PWR
WGWC-25	PZ-27S	10/28/2020	1240184.18	2023616.69	805.98	808.98	26.5	779.51	36.5	769.51	36.9	769.11	2	Saprolite/PWR
Assessment Monitoring Wells														
WGWC-26D	--	9/26/2022	1243343.66	2029758.85	805.06	808.23	55.8	749.31	65.8	739.31	66.1	738.96	2	Bedrock
WGWC-27	--	9/27/2022	1243215.51	2029878.92	778.05	780.54	28.9	749.15	38.9	739.15	39.2	738.85	2	Bedrock
Piezometers														
PB-3D	--	2/24/2017	1243273.69	2029686.62	804.57	807.42	52.0	752.57	62.0	742.57	62.0	742.57	1	Bedrock
PB-3S	--	2/23/2017	1243273.69	2029686.62	804.57	807.42	28.0	776.57	38.0	766.57	38.0	766.57	1	Bedrock
PB-4D	--	2/22/2017	1242790.61	2029126.42	809.43	812.43	63.0	746.43	73.0	736.43	73.0	736.43	1	Bedrock
PB-4S	--	2/21/2017	1242790.61	2029126.42	809.43	812.43	25.0	784.43	35.0	774.43	35.0	774.43	1	Bedrock
PB-5D	--	3/21/2017	1241689.23	2028113.72	807.04	810.08	55.0	752.04	65.0	742.04	65.0	742.04	1	Bedrock
PB-5S	--	3/21/2017	1241689.23	2028113.72	807.04	810.08	37.0	770.04	47.0	760.04	47.0	760.04	1	Bedrock
PB-6D	--	4/6/2017	1240830.30	2027196.10	811.90	814.95	70.0	741.90	80.0	731.90	80.0	731.90	1	Bedrock
PB-6S	--	4/7/2017	1240830.36	2027190.85	812.07	815.12	29.0	783.07	39.0	773.07	39.0	773.07	1	PWR
PB-7	--	4/12/2017	1240837.08	2026768.14	816.51	819.58	75.0	741.51	85.0	731.51	85.0	731.51	2	Saprolite
PB-8D [5]	--	4/21/2017	1241128.67	2026529.99	847.24	850.19	121.0	726.24	131.0	716.24	131.0	716.24	1	Bedrock
PB-8I [5]	--	4/21/2017	1241128.67	2026529.99	847.24	850.19	75.0	772.24	85.0	762.24	85.0	762.24	1	PWR
PB-8S [5]	--	4/21/2017	1241128.67	2026529.99	847.24	850.19	45.0	802.24	55.0	792.24	55.0	792.24	1	Saprolite
PB-9 [5]	--	4/19/2017	1241490.28	2026504.40	820.49	823.64	60.0	760.49	70.0	750.49	70.0	750.49	2	Bedrock
PZ-01	--	12/12/2014	1240249.86	2022319.93	853.91	856.72	36.1	817.81	46.1	807.81	46.5	807.41	2	Bedrock
PZ-04	--	12/22/2014	1242592.03	2023595.91	886.13	889.01	7.2	878.93	17.2	868.93	17.6	868.53	2	Saprolite/Bedrock
PZ-06	--	12/17/2014	1244382.89	2024661.39	912.30	915.15	13.7	898.60	23.7	888.60	24.1	888.21	2	Bedrock
PZ-08	--	12/15/2014	1245514.59	2026807.30	864.65	867.29	27.8	836.85	37.8	826.85	38.2	826.45	2	Saprolite/Bedrock
PZ-10	--	12/05/2014	1242058.41	2028554.29	829.26	832.02	18.8	810.46	28.8	800.46	29.2	800.06	2	Bedrock
PZ-11	--	12/05/2014	1240578.87	2026933.09	820.21	823.09	20.5	799.71	30.5	789.71	30.9	789.31	2	Saprolite/Bedrock
PZ-12	--	12/08/2014	1240837.96	2026731.01	816.17	818.74	36.8	779.37	46.8	769.37	47.2	768.96	2	Saprolite
PZ-13 [5]	--	12/9/2014	1241151.16	2026530.47	847.40	850.04	47.3	800.10	57.3	790.10	57.3	790.10	2	Saprolite
PZ-15	--	12/10/2014	1240457.61	2025105.38	824.59	826.86	28.8	795.79	38.8	785.79	39.2	785.40	2	Saprolite
PZ-16	--	12/11/2014	1239419.77	2023662.22	798.05	800.70	13.0	785.05	23.0	775.05	23.5	774.55	2	Saprolite
PZ-17	--	12/11/2014	1239270.02	2023086.50	828.54	831.01	38.7	789.84	48.7	779.84	49.1	779.44	2	Saprolite
PZ-18	--	12/11/2014	1239569.52	2022299.20	812.10	814.51	23.9	788.20	33.9	778.20	34.3	777.80	2	Saprolite
PZ-20	--	01/31/2017	1243496.86	2030132.73	784.45	787.30	25.0	759.45	35.0	749.45	35.0	749.45	2	Saprolite
PZ-21 [5]	--	1/25/2017	1240140.60	2024435.56	815.00	814.71	20.0	795.00	30.0	785.00	30.0	785.00	2	Saprolite/PWR
PZ-23D	--	10/2/2020	1242139.53	2028520.87	831.89	834.32	82.0	749.92	92.0	739.92	92.4	739.52	2	Bedrock
PZ-26D	--	10/12/2020	1239919.45	2024146.35	802.31	804.93	67.1	735.23	77.1	725.23	77.5	724.83	2	Bedrock
PZ-27D	--	10/15/2020	1240190.93	2023620.36	806.22	809.28	68.3	737.96	78.3	727.96	78.7	727.56	2	Bedrock
PZ-28	--	10/29/2020	1240066.02	2022624.73	813.57	816.18	59.9	753.68	69.9	743.68	70.3	743.28	2	Saprolite/PWR
PZ-29D	--	11/1/2020	1244304.90	2028853.29	805.77	805.24	117.1	688.69	127.1	678.69	127.5	678.29	2	Saprolite/PWR/Bedrock
PZ-29S	--	10/31/2020	1244317.13	2028839.68	805.80	805.30	35.5	770.28	45.5	760.28	45.9	759.88	2	Dike Material
WGWC-14 [6]	APC-5S	11/5/2015	1240621.86	2024584.92	806.87	809.50	42.0	764.87	52.0	754.87	52.0	754.87	2	PWR/Bedrock
WAMW-1	--	09/16/2018	1241843.66	2028944.63	780.05	782.66	111.7	668.40	121.7	658.40	122.0	658.06	2	Bedrock
WAMW-2	--	09/14/2018	1241547.56	2028806.27	768.39	770.82	74.2	694.19	84.2	684.19	84.5	683.90	2	Bedrock
PZA1-Deep	--	4/11/2016	1243369.00	2027886.00	819.64	823.14	93.5	726.14	98.5	721.14	98.5	721.14	2	CCR
PZA1-Mid	--	4/11/2016	1243384.00	2027896.00	819.64	823.14	65.0	754.64	70.0	749.64	70.0	749.64	2	CCR
PZA1-Shallow	--	4/11/2016	1243376.00	2027891.00	819.64	823.14	50.0	769.64	55.0	764.64	55.0	764.64	2	CCR
PZA2-Deep	--	4/12/2016	1243330.00	2028405.00	819.64	823.14	90.0	729.64	95.0	724.64	95.0	724.64	2	CCR
PZA2-Mid	--	4/12/2016	1243321.00	2028412.00	819.64	823.14	72.0	747.64	77.0	742.64	77.0	742.64	2	CCR
PZA2-Shallow	--	4/11/2016	1243318.00	2028416.00	819.64	823.14	50.0	769.64	55.0	764.64	55.0	55.0	2	CCR

Notes:
ID = identification
ft = feet
bgs = below ground surface
in. = inches
PWR = Partially Weathered Rock
CCR = Coal Combustion Residuals

(1): Coordinates in North American Datum (NAD) 1983, State Plane, Georgia West Zone, feet. See boring logs in Appendix A for additional information.
(2): Vertical elevations are in feet relative to the North American Vertical Datum (NAVD) 1988. See boring logs in Appendix A for additional information.
(3): Total well depth accounts for sump if data provided on well construction logs.
(4): Well WGWC-14 was replaced as a compliance well by WGWC-14A in 2017.
(5): Piezometers abandoned in 2019 due to pond-closure construction activities at the Site.

Table 2-2
Boring Location and Depth
Plant Wansley, Heard and Carroll Counties, Georgia

Boring ID	Date Completed	Northing [1]	Easting [1]	Ground Surface Elevation [2] (ft NAVD88)	Bottom of Boring Elevation [2] (ft NAVD88)	Boring Depth (ft bgs)	Unit at Bottom of Boring
PB-1	3/2/2017	1245266.59	2027870.47	806	610	196	Bedrock
PB-2	3/10/2017	1244260.03	2028513.20	806	617	189	Bedrock
S-1	4/27/2017	1242218.02	2026683.86	775	687	89	Bedrock
S-2	4/25/2017	1242377.87	2026690.34	772	711	61	Bedrock
S-3	4/24/2017	1242720.31	2026787.46	772	656	116	Bedrock
S-4	4/20/2017	1242966.64	2026848.24	763	636	127	Bedrock
S-5	4/18/2017	1243209.65	2026961.31	757	647	110	Bedrock
S-6	4/12/2017	1243480.84	2027022.23	760	647	113	Bedrock
S-7	4/10/2017	1243715.88	2027092.23	758	627	131	Bedrock
S-8	4/6/2017	1243963.60	2027141.54	758	627	132	Bedrock
S-9	3/23/2017	1244281.31	2027256.53	764	626	139	Bedrock
S-10	3/17/2017	1244514.92	2027234.01	770	627	143	Bedrock
S-11	3/28/2017	1244858.65	2027430.57	778	666	112	Bedrock
S-12	3/31/2017	1245104.91	2027483.63	775	686	89	Bedrock
M-1	3/23/2017	1242292.94	2026700.45	777	712	65	Saprolite/PWR
M-2	3/23/2017	1242560.22	2026755.14	772	719	52	Saprolite/PWR
M-3	3/28/2017	1242893.06	2026855.54	769	701	68	Bedrock
M-4	3/29/2017	1243097.48	2026930.50	762	689	73	Saprolite/PWR
M-5	4/4/2017	1243387.77	2027006.33	756	668	88	Saprolite/PWR
M-6	5/3/2017	1243653.48	2027079.68	758	674	84	Saprolite/PWR
M-7	5/2/2017	1243915.61	2027155.34	757	643	114	Saprolite
M-8	4/25/2017	1244190.37	2027213.33	764	643	121	Saprolite
M-9	4/18/2017	1244470.97	2027280.32	771	664	107	Saprolite/PWR
M-10	4/21/2017	1244699.88	2027366.75	779	689	90	Saprolite
M-11	4/11/2017	1244961.02	2027441.39	776	704	72	Saprolite
M-12	4/6/2017	1245236.40	2027531.91	779	724	55	Saprolite
SPT-01	1/12/2015	1244682.28	2023449.76	915	852	63	Bedrock
SPT-02	1/14/2015	1246393.59	2024796.83	891	838	53	Bedrock
SPT-03	12/16/2015	1243371.02	2023607.32	924	867	57	Bedrock
SPT-04	1/13/2015	1244615.72	2024773.99	916	868	48	Bedrock
SPT-05	12/18/2015	1246150.37	2025455.61	892	814	78	Bedrock
SPT-06	12/17/2015	1245236.40	2026475.36	862	825	37	Bedrock
SPT-07	1/28/2015	1249193.30	2027702.99	864	776	88	Bedrock
SPT-08	1/16/2015	1249736.79	2028869.28	931	868	63	Bedrock
SPT-09	1/15/2015	1250840.98	2029350.82	913	838	75	Bedrock
SPT-10	1/22/2015	1248085.09	2028500.32	884	806	78	Bedrock
SPT-11	1/21/2015	1249834.23	2030149.46	904	841	63	Bedrock
SPT-12	1/20/2015	1250123.45	2031433.05	834	798	36	Bedrock
SPT-13	2/17/2015	1242740.33	2027756.25	820	759	60	CCR
SPT-15	2/11/2015	1243982.70	2028288.27	820	637	183	Bedrock
SPT-16	2/5/2015	1243381.92	2028928.37	814	681	133	Bedrock
SPT-17	1/6/2015	1245110.64	2024130.78	913	830	83	Bedrock
SPT-18	1/29/2015	1249021.68	2028284.58	915	842	73	Bedrock
PZ-25 [3]	10/20/2020	---	---	806	746	60	Bedrock
CSB-2022-01[4]	9/24/2022	1243334.92	2029756.29	805	735	70	Bedrock
CSB-2022-02[4]	9/26/2022	1243337.26	2029761.15	805	765	40	Bedrock
CSB-2022-03[4]	9/26/2022	1243341.24	2029768.81	805	765	40	Bedrock

Notes:
ID = identification
ft = feet
bgs = below ground surface
PWR = Partially Weathered Rock
CCR = Coal Combustion Residuals

(1): Coordinates in North America Datum (NAD) 1983, State Plane, Georgia West Zone, feet. See boring logs in Appendix A for additional information.
(2): Vertical elevations are in feet relative to the North American Vertical Datum (NAVD) 1988. See boring logs in Appendix A for additional information.
(3): Boring was abandoned in October 2020 following drilling completion and location was not surveyed. Ground surface elevation estimated based on adjacent location WGWC-23 (PZ-25S).
(4): Boring was abandoned in September 2022 following drilling completion.

Table 3-1
Summary of Horizontal Hydraulic Conductivity Values
Plant Wansley, Heard and Carroll Counties, Georgia

Unit	Number of Observations	Minimum K_h (ft/day)	Maximum K_h (ft/day)	Average K_h (ft/day)	Geometric Mean K_h (ft/day)	Minimum K_h (cm/sec)	Maximum K_h (cm/sec)	Average K_h (cm/sec)	Geometric Mean K_h (cm/sec)
CCR	9	0.230	94.8	12.276	1.8	8.10E-05	3.34E-02	4.33E-03	6.24E-04
Residual Soil/Saprolite	10	0.048	1.9	0.606	0.3	1.70E-05	6.61E-04	2.14E-04	1.21E-04
PWR	18	0.004	7.1	1.156	0.3	1.41E-06	2.50E-03	4.08E-04	1.13E-04
Bedrock	41	0.0002	11.0	1.251	0.2	8.36E-08	3.86E-03	4.41E-04	6.24E-05

Notes:

ft/day = feet per day

cm/sec = centimeters per second

K_h = horizontal hydraulic conductivity

PWR = Partially Weathered Rock

CCR - Coal Combustion Residuals

1. K_h is the horizontal hydraulic conductivity determined by slug testing (in piezometers) or iso-flow packer testing (in open bedrock boreholes).
2. Hydraulic conductivity distribution statistics are from existing data sets from SCS and Golder, as well as 2017 and 2020 Geosyntec investigations.
3. Hydraulic conductivity in bedrock is from targeted tests of fracture zones and not likely representative of bulk permeability of the rock units.
4. Hydraulic conductivity measurements in CCR includes both fly ash and bottom ash material.

Table 3-2
Summary of Vertical Hydraulic Conductivity Results
Plant Wansley, Carroll and Heard Counties, Georgia

Sample ID	Lab ID	Depth Interval (ft bds)	Elevation Interval [1] (ft NAVD88)	Sample Material	K_v [2] (ft/day)	K_v [2] (cm/sec)	Consolidation Pressure [3] (psi)
M-3 ST: 68-70	17E187	68-70	729-731	CCR	0.034	1.2E-05	5
					0.031	1.1E-05	20
M-4 ST: 68-70	17E188	68-70	729-731	CCR	0.026	9.3E-06	30
					0.025	8.9E-06	50
M-6 ST: 68-70	17E189	68-70	730-732	CCR	0.021	7.3E-06	3
					0.013	4.7E-06	70
M-7 ST: 58-60	17E190	58-60	739.25-741.25	CCR	0.201	7.1E-05	3
					0.139	4.9E-05	60
M-9 ST: 48-50	17D199	48-50	749.25-751.25	CCR	0.034	1.2E-05	20
					0.068	2.4E-05	40
M-3 ST: 85-87	17E458	85-87	712-714	Alluvium	0.001	4.6E-07	5
					0.001	2.0E-07	40
M-1 ST: 40-42	17E192	40-42	734.5-736.5	Saprolite	0.034	1.2E-05	7
					0.014	5.1E-06	60
M-9 ST: 68-70	17D200	68-70	729.25-731.25	Saprolite	0.045	1.6E-05	30
M-11 ST: 54-56	17E196	54-56	743.75-745.75	Saprolite	0.156	5.5E-05	4
M-7 ST: 84-86	17E459	84-86	713.25-715.25	Saprolite	0.105	3.7E-05	7
					0.043	1.5E-05	60
M-8 ST: 102-104	17E195	102-104	695-697	Saprolite	0.054	1.9E-05	13
					0.040	1.4E-05	30
PB-5 ST: 10-12	17D183	10-12	795.04-797.04	Saprolite	0.034	1.2E-05	6
PB-7 ST: 35-37	17D185	35-37	779.5-781.5	Saprolite	0.153	5.4E-05	16
PB-7 SC: 83-84	17D186	83-84	732.5-733.5	Saprolite	0.019	6.6E-06	27
PB-7 SC: 90-91	17D187	90-91	725.5-726.5	Saprolite	0.017	5.9E-06	29
PB-6 SC: 15-16	17D184	15-16	795.9-796.9	PWR	0.022	7.6E-06	8.5

Notes:
ID = identification
cm/sec = centimeters per second
ft/day = feet per day
ft bds = feet below deck surface
K_v - vertical hydraulic conductivity
psi - pounds per square inch
PWR = Partially Weathered Rock
CCR = Coal Combustion Residuals
(1) Vertical elevations are in feet relative to the North American Vertical Datum (NAVD) 1988.
(2) K_v is the vertical hydraulic conductivity from flexible wall permeameter testing.
(3) Consolidation pressure is induced during lab testing.

Table 3-3
Vertical Hydraulic Gradients
Plant Wansley, Heard and Carroll Counties, Georgia

Well ID	Unit	Date of Measurement	Top of Casing Elevation [1] (ft NADV88)	Depth to Water (ft BTOC)	Static Water Level [1] Elevation (ft NADV88)	Screen Top Elevation [1] (ft NADV88)	Screen Bottom Elevation [1] (ft NADV88)	Screen Midpoint Elevation [1] (ft NADV88)	Vertical Gradient (ft/ft)	Groundwater Flow Direction
Northwest										
WGWA-5	Saprolite/PWR/Bedrock	8/8/2022	902.15	17.83	884.32	888.88	878.88	883.88	0.08	Down
WGWA-6	Bedrock	8/8/2022	897.13	18.64	878.49	822.62	792.62	807.62		
WGWA-3	Saprolite/Bedrock	8/8/2022	828.91	4.02	824.89	820.23	810.23	815.23	0.06	Up
WGWA-4	Bedrock	8/8/2022	834.34	6.78	827.56	780.43	760.43	770.43		
West										
PZ-28	Saprolite/PWR	8/8/2022	816.18	29.84	786.34	753.68	743.68	748.68	0.03	Down
WGWC-17	Bedrock	8/8/2022	816.00	30.39	785.61	730.06	720.06	725.06		
South										
WGWC-25	Saprolite/PWR	8/8/2022	808.98	18.42	790.56	779.51	769.51	774.51	0.03	Down
PZ-27D	Bedrock	8/8/2022	809.28	19.83	789.45	737.96	727.96	732.96		
WGWC-16	Saprolite/PWR	8/8/2022	804.21	19.86	784.35	779.72	769.72	774.72	0.01	--
WGWC-15	Bedrock	8/8/2022	804.69	20.45	784.24	758.53	748.53	753.53		
WGWC-24	PWR	8/8/2022	804.80	17.65	787.15	774.43	764.43	769.43	0.00	--
PZ-26D	Bedrock	8/8/2022	804.93	17.66	787.27	735.23	725.23	730.23		
WGWC-14A	Saprolite/PWR	8/8/2022	810.94	25.45	785.49	778.20	768.20	773.20	0.01	Down
WGWC-13	Bedrock	8/8/2022	809.78	24.79	784.99	734.32	714.32	724.32		
WGWC-11	Saprolite	8/8/2022	823.96	28.78	795.18	783.14	773.14	778.14	0.02	Down
WGWC-12	Bedrock	8/8/2022	823.04	28.29	794.75	756.57	746.57	751.57		
PZ-12	Saprolite	8/8/2022	818.74	30.75	787.99	779.37	769.37	774.37	0.03	Down
PB-7	Saprolite	8/8/2022	819.58	32.62	786.96	742.00	732.00	737.00		
PB-7	Saprolite	8/8/2022	819.58	32.62	786.96	742.00	732.00	737.00	0.06	Up
WGWC-10	Saprolite/PWR	8/8/2022	812.38	21.44	790.94	673.61	663.61	668.61		
PB-6S	PWR	8/8/2022	815.12	27.91	787.21	783.00	773.00	778.00	0.03	Up
PB-6D	Bedrock	8/8/2022	814.95	26.38	788.57	742.00	732.00	737.00		
Southeast										
PB-5S	Bedrock	8/8/2022	810.08	19.05	791.03	770.00	760.00	765.00	0.03	Up
PB-5D	Bedrock	8/8/2022	810.08	18.55	791.53	752.00	742.00	747.00		
WGWC-21	Bedrock	8/8/2022	834.41	50.54	783.87	773.11	763.11	768.11	0.01	Down
PZ-23D	Bedrock	8/8/2022	834.32	50.77	783.55	749.92	739.92	744.92		
WGWC-19	Bedrock	8/8/2022	783.42	21.16	762.26	698.60	688.60	693.60	0.04	Down
WAMW-1	Bedrock	8/8/2022	782.66	21.63	761.03	668.40	658.40	663.40		
PB-4S	Bedrock	8/8/2022	812.43	20.31	792.12	785.00	775.00	780.00	0.16	Down
PB-4D	Bedrock	8/8/2022	812.43	26.34	786.09	747.00	737.00	742.00		
PB-4S	Bedrock	8/8/2022	812.43	20.31	792.12	785.00	775.00	780.00	0.02	Down
WGWC-9	PWR	8/8/2022	812.03	20.28	791.75	760.93	750.93	755.93		
PB-3S	Bedrock	8/8/2022	807.42	26.68	780.74	777.00	767.00	772.00	0.06	Down
PB-3D	Bedrock	8/8/2022	807.42	28.23	779.19	753.00	743.00	748.00		
Northeast										
PZ-29S	Dike Material	8/8/2022	805.30	22.06	783.24	770.28	760.28	765.28	0.01	Up
PZ-29D	Saprolite/PWR/Bedrock	8/8/2022	805.24	20.83	784.41	688.69	678.69	683.69		

Notes:
ID = identification
ft = feet
BTOC = below top of casing
PWR = Partially Weathered Rock
-- indicates that the vertical gradient is < 0.01, therefore the groundwater flow direction is neither considered up nor down
(1): Vertical elevations are in feet relative to the North American Vertical Datum (NAVD) 1988.

Table 3-4
Horizontal Hydraulic Gradients and Flow Velocity Calculations
Plant Wansley AP-1, Heard and Carroll Counties, Georgia

			August 8, 2022					
Flow Path Direction	**K_h (ft/day)**	**n_e**	**h_1 (ft)**	**h_2 (ft)**	**Δl (ft)**	**$\Delta h/\Delta l$ (ft/ft)**	**V (ft/day)[(1)]**	**V (ft/yr)[(1)]**
PZ-01 to WGWC-17	0.27	0.25	818.30	785.61	373	0.088	0.095	34.5
PZ-10 to WGWC-19	0.27	0.25	801.66	762.26	446	0.088	0.095	34.8

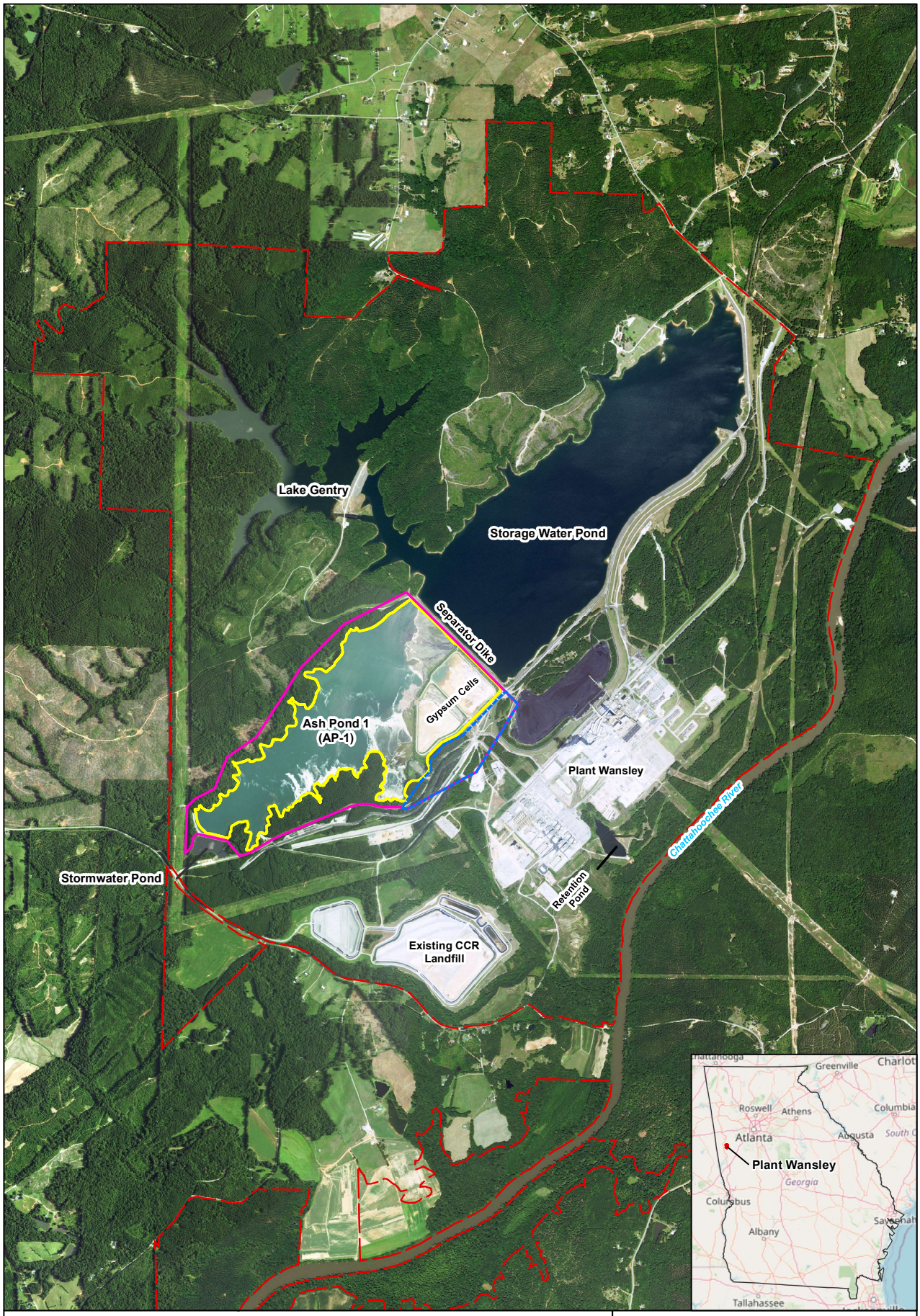
Notes:
ft = feet
ft/day = feet per day
ft/ft = feet per foot
ft/yr = feet per year
K_h = horizontal hydraulic conductivity
n_e = effective porosity
h_1, h_2 = groundwater elevation at identified wells
$\Delta h/\Delta l$ = hydraulic gradient
Δh = change in groundwater elevation between identified wells
Δl = distance between identified wells
V = groundwater flow velocity
(1) Groundwater flow velocity equation: $V = [K * (\Delta h/\Delta l)] / n_e$

Table 4-1
Monitoring Well Network
Plant Wansley, Heard and Carroll Counties, Georgia

Well ID	Northing [1]	Easting [1]	Ground Surface Elevation [2] (ft NAVD88)	Top of Casing Elevation [2] (ft NAVD88)	Top of Screen Elevation [2] (ft NAVD88)	Bottom of Screen Elevation [2] (ft NAVD88)	Well Depth (ft BTOC) [3]	Monitoring Designation	Screened Media
WGWA-1	1250656.10	2035580.71	780.37	782.93	663.37	653.37	129.56	Upgradient	PWR
WGWA-2	1251556.40	2035590.11	755.77	758.23	665.77	655.77	102.46	Upgradient	PWR/Bedrock
WGWA-3	1240848.21	2022350.10	826.63	828.91	820.23	810.23	18.68	Upgradient	Saprolite/Bedrock
WGWA-4	1240879.58	2022339.66	831.33	834.34	780.43	760.43	74.31	Upgradient	Bedrock
WGWA-5	1241997.94	2022368.85	899.28	902.15	888.88	878.88	23.66	Upgradient	Saprolite/PWR/Bedrock
WGWA-6	1241932.02	2022360.58	894.62	897.13	822.62	792.62	104.91	Upgradient	Bedrock
WGWA-7	1243338.63	2023843.81	894.49	897.33	867.69	857.69	40.04	Upgradient	Bedrock
WGWA-18	1244592.56	2025580.71	875.47	878.02	848.47	838.47	39.95	Upgradient	Saprolite/Bedrock
WGWC-8	1242929.40	2029644.58	777.70	780.08	730.70	720.70	59.38	Downgradient	Bedrock
WGWC-9	1242801.12	2029115.75	809.33	812.03	760.93	750.93	61.50	Downgradient	PWR
WGWC-10	1240971.96	2026725.61	809.61	812.38	673.61	663.61	148.77	Downgradient	Saprolite/PWR
WGWC-11	1240860.18	2025773.39	821.44	823.96	783.14	773.14	51.22	Downgradient	Saprolite
WGWC-12	1240827.68	2025755.99	820.57	823.04	756.57	746.57	76.47	Downgradient	Bedrock
WGWC-13	1240610.93	2024585.91	807.32	809.78	734.32	714.32	95.46	Downgradient	Bedrock
WGWC-14A	1240604.54	2024599.63	808.20	810.94	778.20	768.20	42.74	Downgradient	Saprolite/PWR
WGWC-15	1240483.16	2023912.92	802.03	804.69	758.53	748.53	56.16	Downgradient	Bedrock
WGWC-16	1240480.46	2023903.77	801.72	804.21	779.72	769.72	34.50	Downgradient	Saprolite/PWR
WGWC-17	1240052.06	2022623.82	813.36	816.00	730.36	720.36	95.94	Downgradient	Bedrock
WGWC-19	1241851.51	2028949.19	780.60	783.42	698.60	688.60	94.82	Downgradient	Bedrock
WGWC-20	1243350.76	2029769.43	804.88	807.95	775.18	765.18	43.17	Downgradient	Bedrock
WGWC-21	1242139.33	2028512.65	831.79	834.41	773.11	763.11	71.70	Downgradient	Bedrock
WGWC-22	1241695.25	2028116.05	807.00	810.37	776.92	766.92	43.85	Downgradient	PWR/Bedrock
WGWC-23	1240769.79	2027414.58	820.50	823.80	780.40	770.40	53.80	Downgradient	PWR
WGWC-24	1239916.68	2024139.82	802.22	804.80	774.43	764.43	40.77	Downgradient	PWR
WGWC-25	1240184.18	2023616.69	805.98	808.98	779.51	769.51	39.87	Downgradient	Saprolite/PWR

Notes:
ID = identification
ft = feet
BTOC = below top of casing
PWR = Partially Weathered Rock
(1): Coordinates in North America Datum (NAD) 1983, State Plane, Georgia West Zone, feet.
(2): Vertical elevations are in feet relative to the North American Vertical Datum (NAVD) 1988.
(3) Total well depth accounts for sump if data provided on well construction logs.

FIGURES



Maintenance Boundary
Permit Boundary
Approximate Boundary of AP-1
Property Boundary

Note:
1. The Maintenance Area will be within the permit boundary but outside the limits of the CCR consolidation area, and will be used to construct, maintain, replace, or repair systems necessary for Plant operations.
2. Aerial Photograph approximate date - Summer 2015
Source: USDA-FSA-APFO NAIP MrSID Mosaic

N

0 1,000 2,000 4,000
Feet

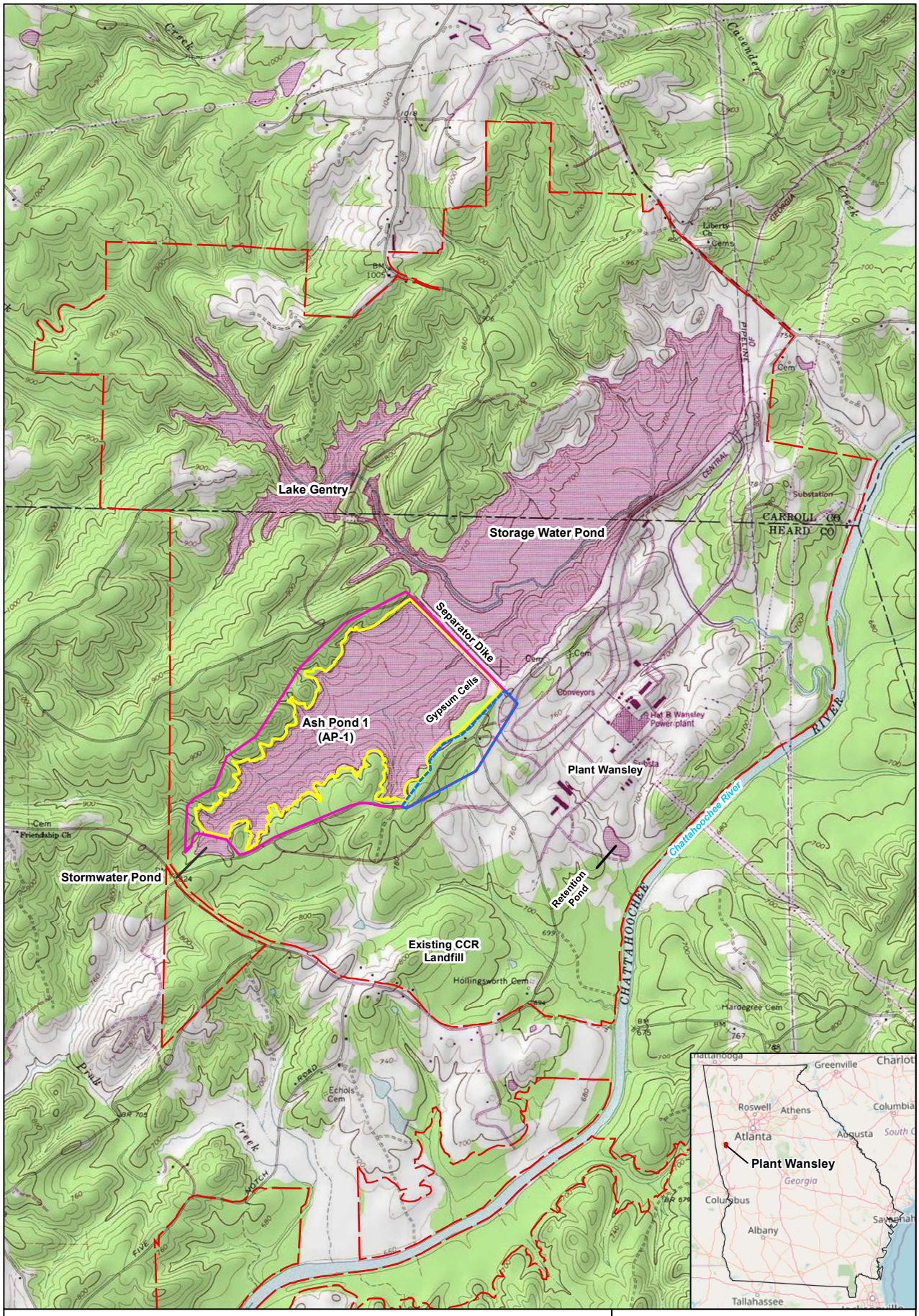
Site Map
Plant Wansley
Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, GA | November 2022

Figure 1-1

\\Aro-01\prj1$\GA Power\Plant Wansley GW Services\GIS\mxd\2021\HAR Update\Figure 1-1 Site Map.mxd 3/17/2021 2:32:29 PM



- Maintenance Boundary
- Permit Boundary
- Approximate Boundary of AP-1
- Property Boundary

Note:
1. The Maintenance Area will be within the permit boundary but outside the limits of the CCR consolidation area, and will be used to construct, maintain, replace, or repair systems necessary for Plant operations.
2. Aerial Photograph approximate date - Summer 2015
Source: USDA-FSA-APFO NAIP MrSID Mosaic

N

0 1,000 2,000 4,000 Feet

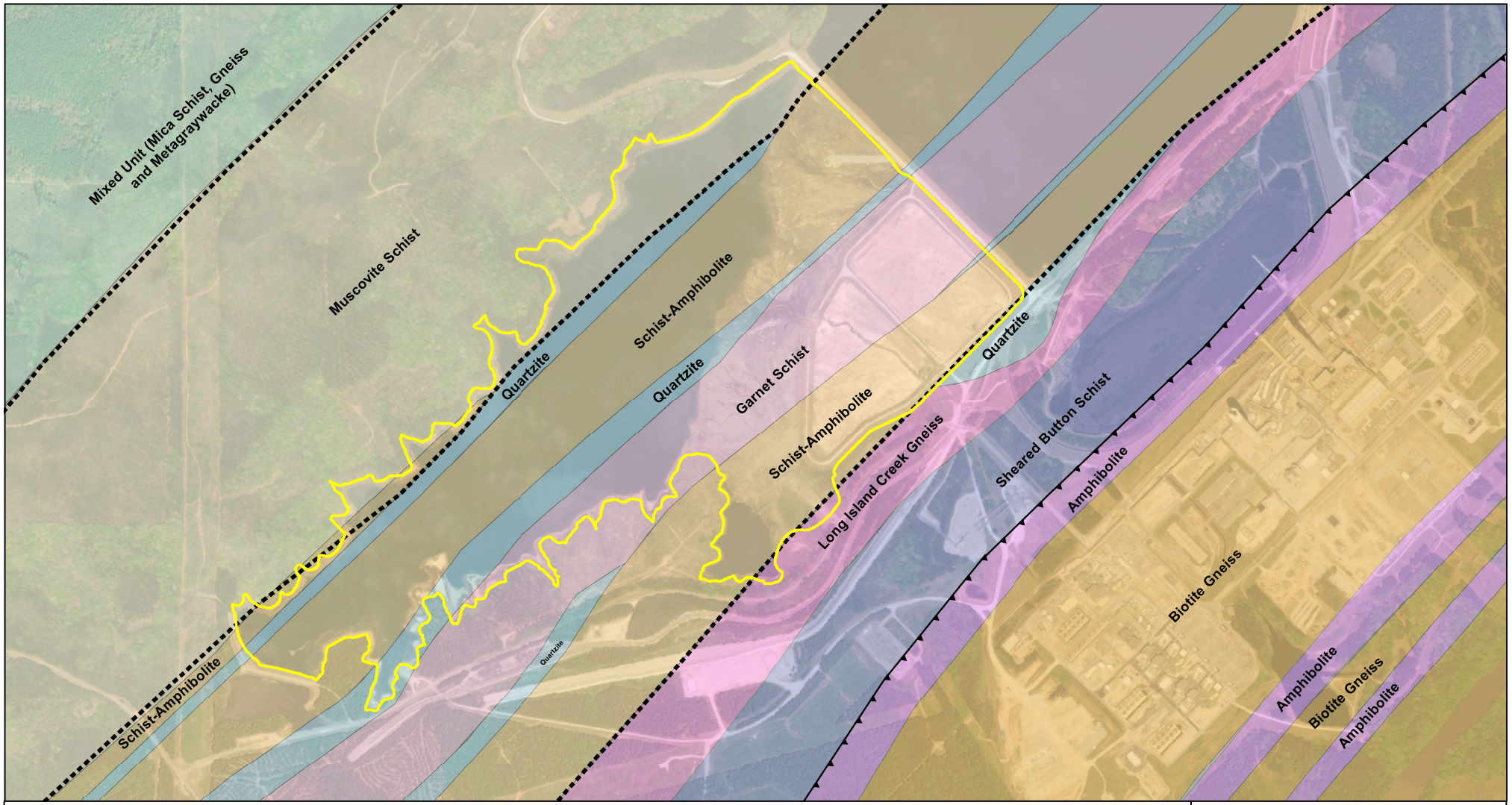
Topographic Map
Plant Wansley
Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, GA | November 2022

Figure 1-2

\\Aro-01\prj1$\GA Power\Plant Wansley GW Services\2022\01_Reports\06_HAR Rev 03\Figures\Updated Figures NOV22_KB\GIS Files\Figure 1-1 Site Map NOV22 KB.mxd 11/15/2022 3:32:57 PM



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community 2018.

Site Geologic Map
Plant Wansley

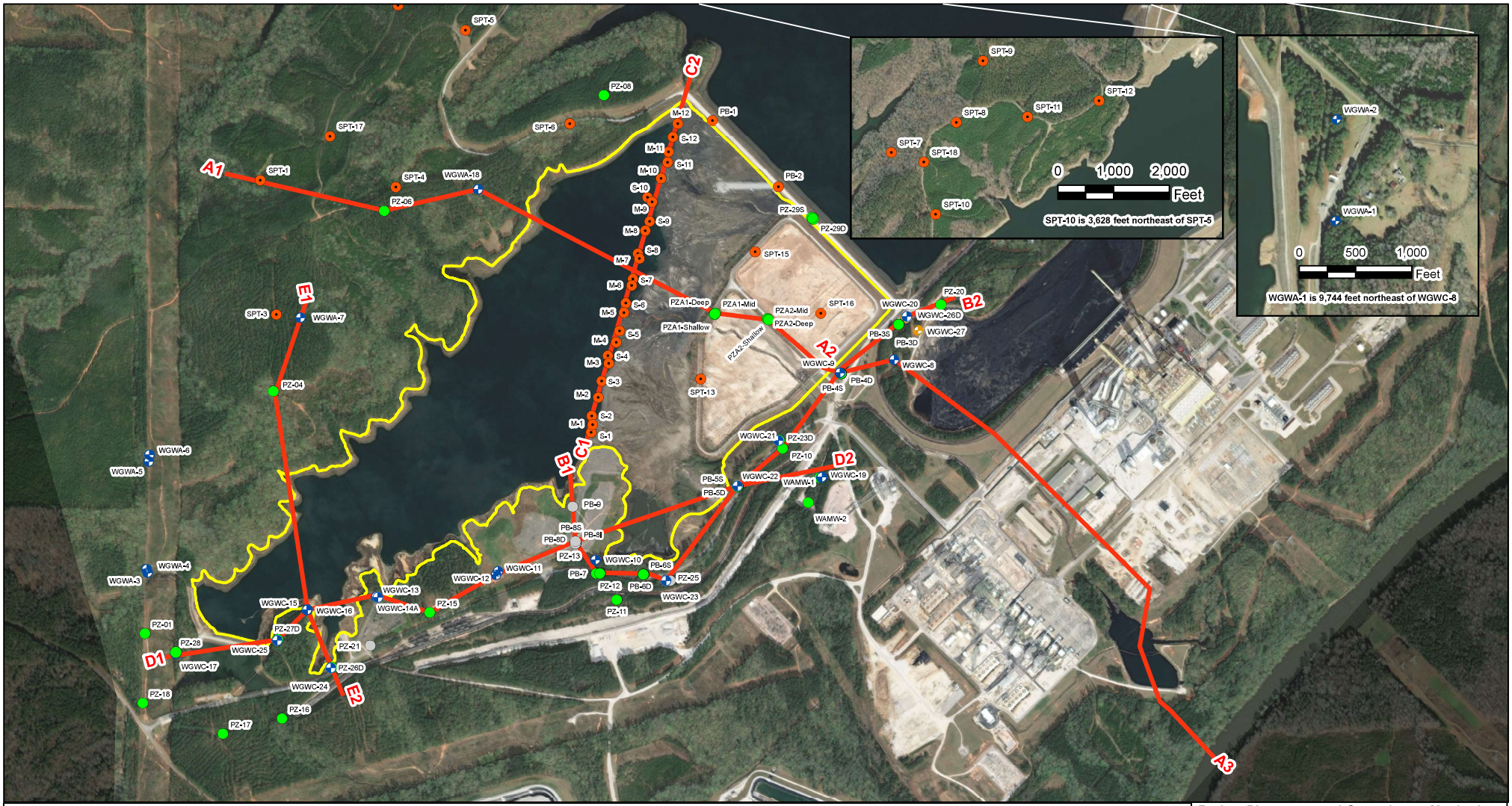
Georgia Power Company Plant
Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, Ga | November 2022

Figure 1-3

\\aro-01\prj1$\GA Power\Plant Wansley GW Services\GIS\mxd\2021\HAR Update\Figure 1-3 Site Geology Map.mxd 3/17/2021 2:17:10 PM



Legend

- Detection Monitoring Well
- Geotechnical Boring
- Piezometer
- Abandoned Boring/Piezometer
- Cross Sections
- AP-1 Approximate Boundary
- Assessment Monitoring Well

Service Layer Credits: 2020-04-05 Worldview 3 Satellite Imagery, Purchased from Harris Geospatial.

Boring, Piezometer and Groundwater Monitoring Well Location Map
Plant Wansley

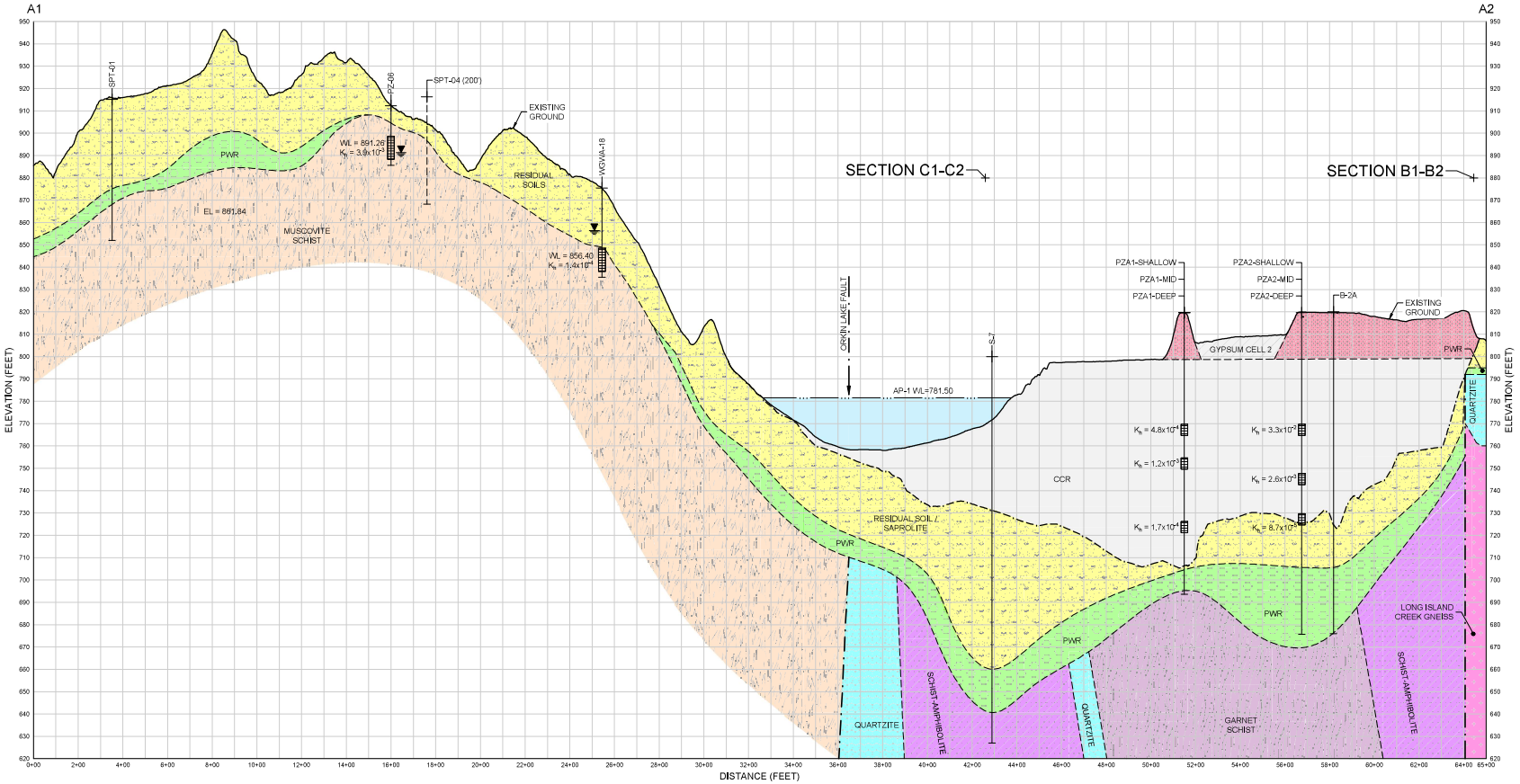
Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

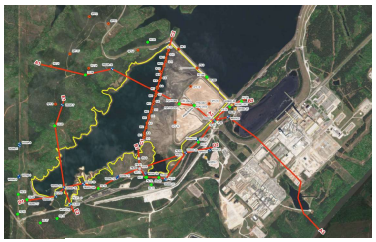
Geosyntec consultants

Kennesaw, GA | November 2022

Figure 2-1

N:\GA Power\Plant Wansley GW Services\2022\01_Reports\06_HAR Rev 03\Figures\ss\Updated Figures NOV22_KB\GIS Files\Figure 2-1 Boring and Piezometers NOV22 KB.mxd 11/17/2022 12:49:52 PM





KEYMAP

LEGEND

- WL=891.26 — WATER LEVEL (8 AUGUST 2022)
- GROUND WATER ELEVATION (8 AUGUST 2022)(NOTE 5)
- WELL SCREEN LOCATION
- SOIL BORING ON ALIGNMENT (GREY IF ABANDONED)
- SOIL BORING PROJECTED TO PROFILE, PROJECTION DISTANCE IN PARENTHESES
- EXISTING GROUND ELEVATION
- BOTTOM OF CCR
- SURFACE WATER ELEVATION
- LITHOLOGIC CONTACT
- APPROXIMATE LOCATION OF FAULT
- SURFACE WATER
- FILL
- COAL COMBUSTION RESIDUALS (CCR)
- COAL PILE
- GYPSUM
- ALLUVIAL DEPOSITS: SANDY CLAYEY SILT, SILTY CLAY WITH GRAVEL, SANDY SILTY CLAY
- RESIDUAL AND SAPROLITIC SOILS: SILT, SANDY SILT, SILTY SAND
- PARTIALLY WEATHERED ROCK (PWR)
- MUSCOVITE SCHIST
- GARNET SCHIST
- QUARTZITE
- SCHIST-AMPHIBOLITE
- LONG ISLAND CREEK GNEISS
- SHEARED BUTTON SCHIST
- BIOTITE GNEISS

NOTES:

1. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ELEVATIONS PRESENTED IN FEET, NAVD. SEE BORING LOGS IN APPENDIX A FOR ADDITIONAL INFORMATION.
2. TOPOGRAPHY (I.E. EXISTING GROUND) BETWEEN BORING LOCATIONS WAS OBTAINED BY LIDAR SURVEY COMPLETED AND PROVIDED BY ARC SURVEYING AND MAPPING IN OCTOBER 2019. GROUND SURFACE ELEVATIONS AT BORING LOCATIONS BASED ON FIELD SURVEYS COMPLETED BY LAND SURVEYOR.
3. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
4. LITHOLOGIC UNITS SHOWN ON CROSS-SECTION BASED ON BORING LOGS FOR LOCATIONS ON THE CROSS-SECTION LINE. UNITS SHOWN MAY NOT MATCH DESCRIPTIONS IN BORING LOGS FOR LOCATIONS PROJECTED ONTO THE CROSS-SECTION LINE.
5. GROUNDWATER LEVELS MEASURED BY ATLANTIC COAST CONSULTING, INC. (ACC) ON 8 AUGUST 2022.
6. HORIZONTAL HYDRAULIC CONDUCTIVITY (K_h) IN CM/SEC AND ESTIMATED USING ISO-FLOW TESTING, STRADDLE PACKER TESTING, OR SLUG TESTING.
7. WHERE MULTIPLE WELL LOCATIONS COINCIDE, WELL DEPTHS CORRESPOND TO ORDER OF STACKED LABELS, TOP LABEL WILL BE THE SHALLOWEST WELL, BOTTOM LABEL WILL BE THE DEEPEST WELL.
8. BEDROCK UNIT DESCRIBED IN THE BORING LOGS FOR SPT-01 AND SPT-04 AS GNEISS; HOWEVER, BASED ON BEDROCK UNIT CHARACTERIZATION AND MAPPING COMPLETED BY GOLDER ASSOCIATES (SEE APPENDIX C), THE BEDROCK LITHOLOGIC UNIT AT SPT-01 AND SPT-04 HAS BEEN IDENTIFIED AS MUSCOVITE SCHIST.

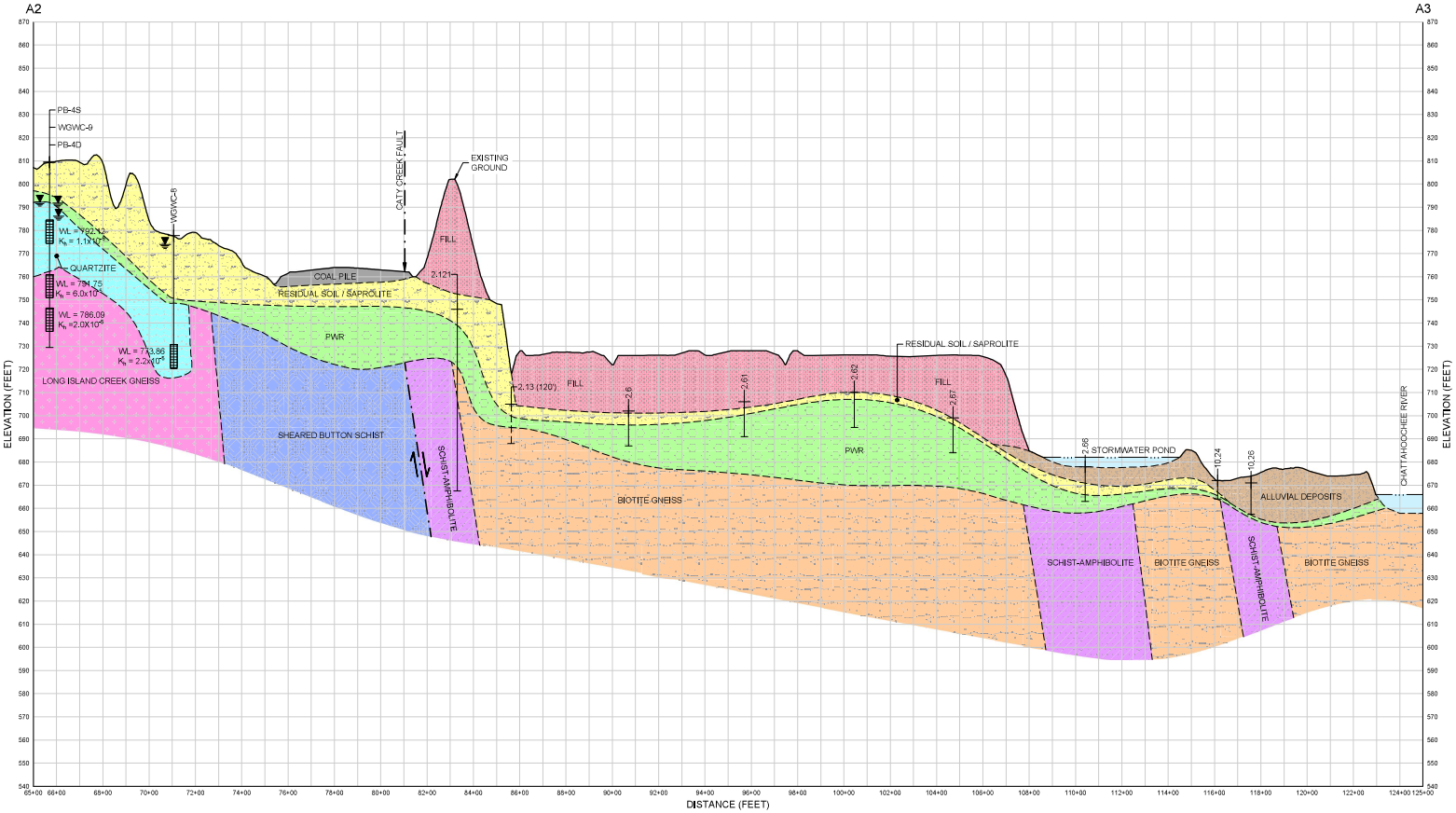
0 250 500
SCALE IN FEET (HORIZONTAL)

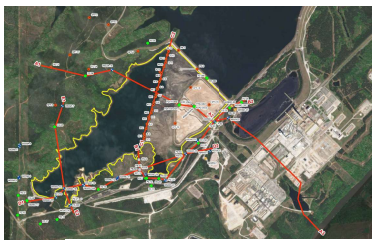
0 25 50
SCALE IN FEET (VERTICAL)
VERTICAL EXAGGERATION=10X

GEOLOGICAL CROSS-SECTION A1-A2
PLANT WANSLEY
GEORGIA POWER COMPANY
PLANT WANSLEY AP-1
HEARD AND CARROLL COUNTIES, GEORGIA

Geosyntec consultants
KENNESAW, GA | NOVEMBER 2022

FIGURE 3-1A





KEYMAP

LEGEND

- WL=792.12 — WATER LEVEL (8 AUGUST 2022)
- GROUND WATER ELEVATION (8 AUGUST 2022)(NOTE 5)
- WELL SCREEN LOCATION
- SOIL BORING ON ALIGNMENT (GREY IF ABANDONED)
- SOIL BORING PROJECTED TO PROFILE, PROJECTION DISTANCE IN PARENTHESES
- EXISTING GROUND ELEVATION
- BOTTOM OF CCR
- SURFACE WATER ELEVATION
- LITHOLOGIC CONTACT
- APPROXIMATE LOCATION OF FAULT
- SURFACE WATER
- FILL
- COAL COMBUSTION RESIDUALS (CCR)
- COAL PILE
- GYPSUM
- ALLUVIAL DEPOSITS: SANDY CLAYEY SILT, SILTY CLAY WITH GRAVEL, SANDY SILTY CLAY
- RESIDUAL AND SAPROLITIC SOILS: SILT, SANDY SILT, SILTY SAND
- PARTIALLY WEATHERED ROCK (PWR)
- MUSCOVITE SCHIST
- GARNET SCHIST
- QUARTZITE
- SCHIST-AMPHIBOLITE
- LONG ISLAND CREEK GNEISS
- SHEARED BUTTON SCHIST
- BIOTITE GNEISS

NOTES:

1. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ELEVATIONS PRESENTED IN FEET, NAVD. SEE BORING LOGS IN APPENDIX A FOR ADDITIONAL INFORMATION.
2. TOPOGRAPHY (I.E., EXISTING GROUND) BETWEEN BORING LOCATIONS WAS OBTAINED BY LIDAR SURVEY COMPLETED AND PROVIDED BY ARC SURVEYING AND MAPPING IN OCTOBER 2019. GROUND SURFACE ELEVATIONS AT BORING LOCATIONS BASED ON FIELD SURVEYS COMPLETED BY LAND SURVEYOR.
3. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
4. LITHOLOGIC UNITS SHOWN ON CROSS-SECTION BASED ON BORING LOGS FOR LOCATIONS ON THE CROSS-SECTION LINE. UNITS SHOWN MAY NOT MATCH DESCRIPTIONS IN BORING LOGS FOR LOCATIONS PROJECTED ONTO THE CROSS-SECTION LINE.
5. GROUNDWATER LEVELS MEASURED BY ATLANTIC COAST CONSULTING, INC. (ACC) ON 8 AUGUST 2022.
6. HORIZONTAL HYDRAULIC CONDUCTIVITY (K_h) IN CM/SEC AND ESTIMATED USING ISO-FLOW TESTING, STRADDLE PACKER TESTING, OR SLUG TESTING.
7. WHERE MULTIPLE WELL LOCATIONS COINCIDE, WELL DEPTHS CORRESPOND TO ORDER OF STACKED LABELS. TOP LABEL WILL BE THE SHALLOWEST WELL, BOTTOM LABEL WILL BE THE DEEPEST WELL.
8. LITHOLOGIC UNITS SHOWN AT WGWC-9 AND PB-4S/PB-4D BASED ON PB-4S AND PB-D BORING LOGS.
9. BORINGS COMPLETED IN THE PLANT AREA PRIOR TO PLANT CONSTRUCTION REFLECT GROUND SURFACE ELEVATIONS PRIOR TO PLACEMENT OF FILL MATERIALS DURING CONSTRUCTION ACTIVITIES. CURRENT GROUND SURFACE CONDITIONS ARE SHOWN BASED ON THE OCTOBER 2019 LIDAR SURVEY (SEE NOTE 2).

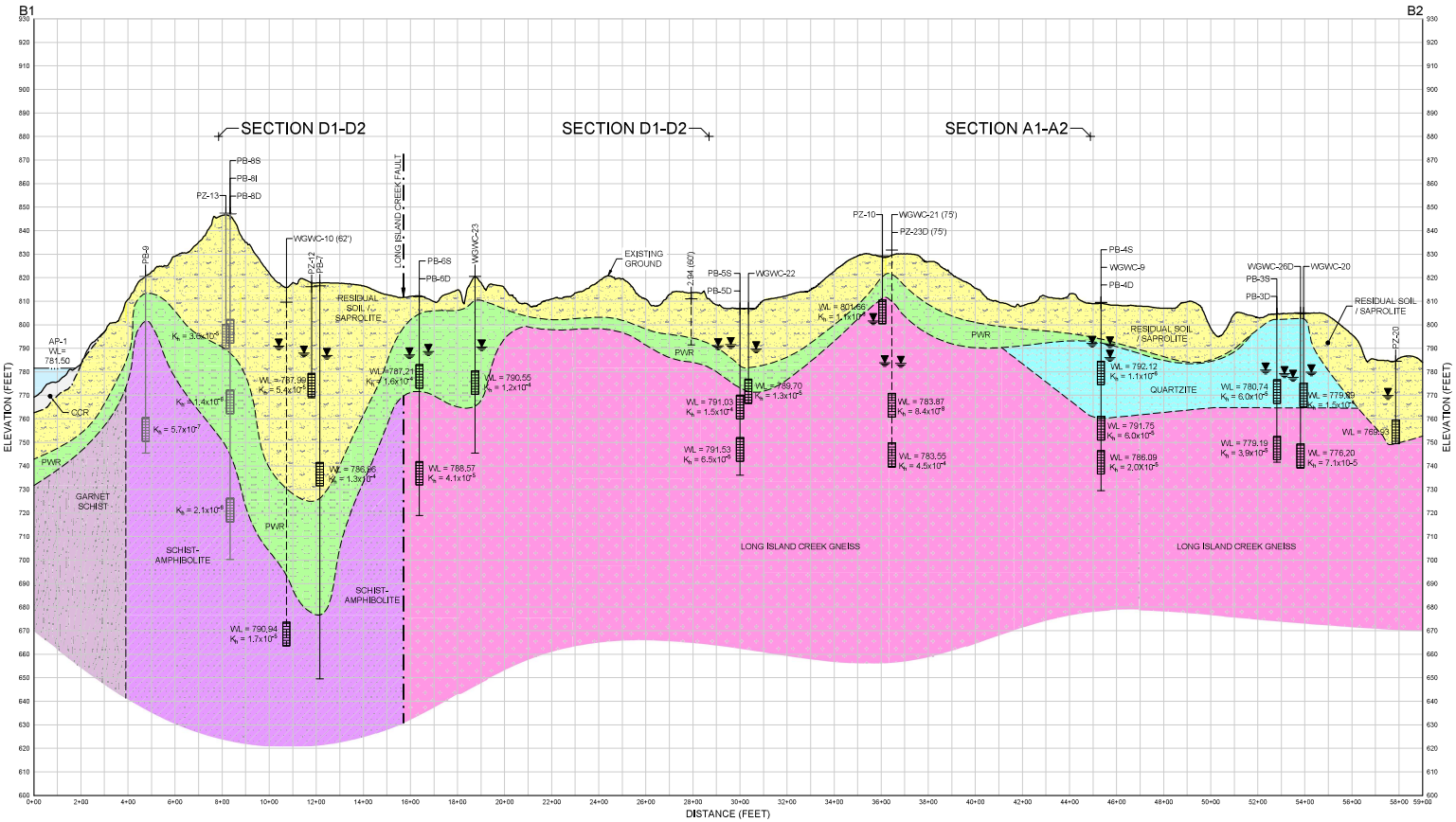
0 250 500
SCALE IN FEET (HORIZONTAL)

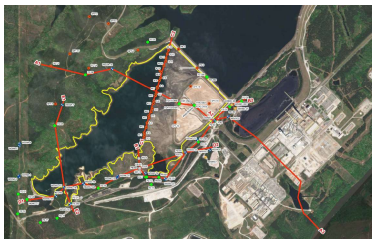
0 25 50
SCALE IN FEET (VERTICAL)
VERTICAL EXAGGERATION=10X

GEOLOGICAL CROSS-SECTION A2-A3
PLANT WANSLEY
GEORGIA POWER COMPANY
PLANT WANSLEY AR-1
HEARD AND CARROLL COUNTIES, GEORGIA

Geosyntec consultants
KENNESAW, GA | NOVEMBER 2022

FIGURE 3-1B





KEYMAP

LEGEND

- WL=787.99 — WATER LEVEL (8 AUGUST 2022)
- GROUND WATER ELEVATION (8 AUGUST 2022)(NOTE 5)
- WELL SCREEN LOCATION
- SOIL BORING ON ALIGNMENT (GREY IF ABANDONED)
- SOIL BORING PROJECTED TO PROFILE, PROJECTION DISTANCE IN PARENTHESES
- EXISTING GROUND ELEVATION
- BOTTOM OF CCR
- SURFACE WATER ELEVATION
- LITHOLOGIC CONTACT
- APPROXIMATE LOCATION OF FAULT
- SURFACE WATER
- FILL
- COAL COMBUSTION RESIDUALS (CCR)
- COAL PILE
- GYPSUM
- ALLUVIAL DEPOSITS: SANDY CLAYEY SILT, SILTY CLAY WITH GRAVEL, SANDY SILTY CLAY
- RESIDUAL AND SAPROLITIC SOILS: SILT, SANDY SILT, SILTY SAND
- PARTIALLY WEATHERED ROCK (PWR)
- MUSCOVITE SCHIST
- GARNET SCHIST
- QUARTZITE
- SCHIST-AMPHIBOLITE
- LONG ISLAND CREEK GNEISS
- SHEARED BUTTON SCHIST
- BIOTITE GNEISS

NOTES:

1. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ELEVATIONS PRESENTED IN FEET, NAVD. SEE BORING LOGS IN APPENDIX A FOR ADDITIONAL INFORMATION.
2. TOPOGRAPHY (I.E., EXISTING GROUND) BETWEEN BORING LOCATIONS WAS OBTAINED BY LIDAR SURVEY COMPLETED AND PROVIDED BY ARC SURVEYING AND MAPPING IN OCTOBER 2019. GROUND SURFACE ELEVATIONS AT BORING LOCATIONS BASED ON FIELD SURVEYS COMPLETED BY LAND SURVEYOR.
3. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
4. LITHOLOGIC UNITS SHOWN ON CROSS-SECTION BASED ON BORING LOGS FOR LOCATIONS ON THE CROSS-SECTION LINE. UNITS SHOWN MAY NOT MATCH DESCRIPTIONS IN BORING LOGS FOR LOCATIONS PROJECTED ONTO THE CROSS-SECTION LINE.
5. GROUNDWATER LEVELS MEASURED BY ATLANTIC COAST CONSULTING, INC. (ACC) ON 8 AUGUST, 2022. GROUNDWATER LEVEL IN WGWC-26D MEASURED ON 12 OCTOBER 2022.
6. HORIZONTAL HYDRAULIC CONDUCTIVITY (K_h) IN CM/SEC AND ESTIMATED USING ISCO-FLOW TESTING, STRADDLE PACKER TESTING, OR SLUG TESTING.
7. WHERE MULTIPLE WELL LOCATIONS COINCIDE, WELL DEPTHS CORRESPOND TO ORDER OF STACKED LABELS, TOP LABEL WILL BE THE SHALLOWEST WELL, BOTTOM LABEL WILL BE THE DEEPEST WELL.
8. LITHOLOGIC UNITS SHOWN AT WGWC-9 AND PB-4S/PB-4D BASED ON PB-4S AND PB-D BORING LOGS.

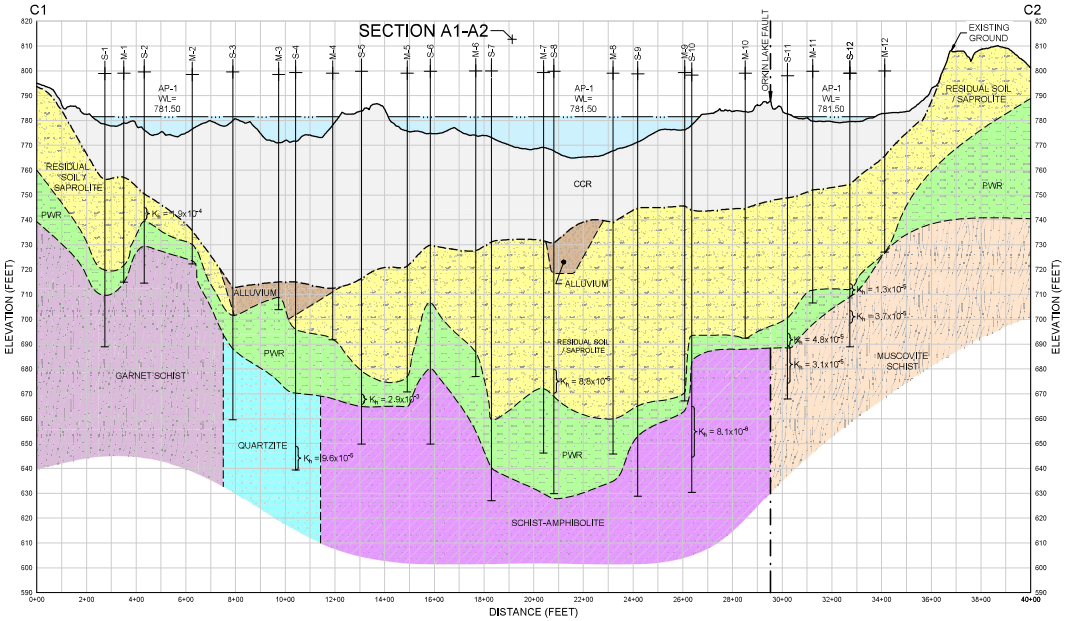
0 250 500
SCALE IN FEET (HORIZONTAL)

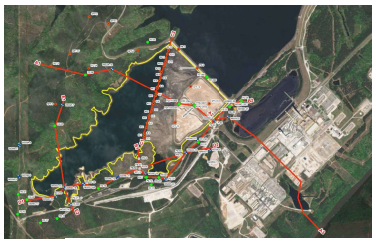
0 25 50
SCALE IN FEET (VERTICAL)
VERTICAL EXAGGERATION=10X

GEOLOGICAL CROSS-SECTION B1-B2
PLANT WANSLEY
GEORGIA POWER COMPANY
PLANT WANSLEY AP-1
HEARD AND CARROLL COUNTIES, GEORGIA

Geosyntec consultants
KENNESAW, GA | NOVEMBER 2022

FIGURE 3-1C





KEYMAP

LEGEND

- WL=783.00 — WATER LEVEL (8 AUGUST 2022)
- GROUND WATER ELEVATION (8 AUGUST 2022)(NOTE 5)
- WELL SCREEN LOCATION
- SOIL BORING ON ALIGNMENT (GREY IF ABANDONED)
- SOIL BORING PROJECTED TO PROFILE, PROJECTION DISTANCE IN PARENTHESES
- EXISTING GROUND ELEVATION
- BOTTOM OF CCR
- SURFACE WATER ELEVATION
- LITHOLOGIC CONTACT
- APPROXIMATE LOCATION OF FAULT
- SURFACE WATER
- FILL
- COAL COMBUSTION RESIDUALS (CCR)
- COAL PILE
- GYPSUM
- ALLUVIAL DEPOSITS: SANDY CLAYEY SILT, SILTY CLAY WITH GRAVEL, SANDY SILTY CLAY
- RESIDUAL AND SAPROLITIC SOILS: SILT, SANDY SILT, SILTY SAND
- PARTIALLY WEATHERED ROCK (PWR)
- MUSCOVITE SCHIST
- GARNET SCHIST
- QUARTZITE
- SCHIST-AMPHIBOLITE
- LONG ISLAND CREEK GNEISS
- SHEARED BUTTON SCHIST
- BIOTITE GNEISS

NOTES:

1. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ELEVATIONS PRESENTED IN FEET, NAVD. SEE BORING LOGS IN APPENDIX A FOR ADDITIONAL INFORMATION.
2. TOPOGRAPHY (I.E., EXISTING GROUND) BETWEEN BORING LOCATIONS WAS OBTAINED BY LIDAR SURVEY COMPLETED AND PROVIDED BY ARC SURVEYING AND MAPPING IN OCTOBER 2019. GROUND SURFACE ELEVATIONS AT BORING LOCATIONS BASED ON FIELD SURVEYS COMPLETED BY LAND SURVEYOR.
3. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
4. LITHOLOGIC UNITS SHOWN ON CROSS-SECTION BASED ON BORING LOGS FOR LOCATIONS ON THE CROSS-SECTION LINE. UNITS SHOWN MAY NOT MATCH DESCRIPTIONS IN BORING LOGS FOR LOCATIONS PROJECTED ONTO THE CROSS-SECTION LINE.
5. GROUNDWATER LEVELS MEASURED BY ATLANTIC COAST CONSULTING, INC. (ACC) ON 8 AUGUST, 2022.
6. HORIZONTAL HYDRAULIC CONDUCTIVITY (K_h) IN CM/SEC AND ESTIMATED USING ISO-FLOW TESTING, STRADDLE PACKER TESTING, OR SLUG TESTING.
7. WHERE MULTIPLE WELL LOCATIONS COINCIDE, WELL DEPTHS CORRESPOND TO ORDER OF STACKED LABELS, TOP LABEL WILL BE THE SHALLOWEST WELL, BOTTOM LABEL WILL BE THE DEEPEST WELL.

0 250 500
SCALE IN FEET (HORIZONTAL)

0 25 50
SCALE IN FEET (VERTICAL)
VERTICAL EXAGGERATION=10X

GEOLOGICAL CROSS-SECTION C1-C2
PLANT WANSLEY
GEORGIA POWER COMPANY
PLANT WANSLEY AP-1
HEARD AND CARROLL COUNTIES, GEORGIA

Geosyntec consultants

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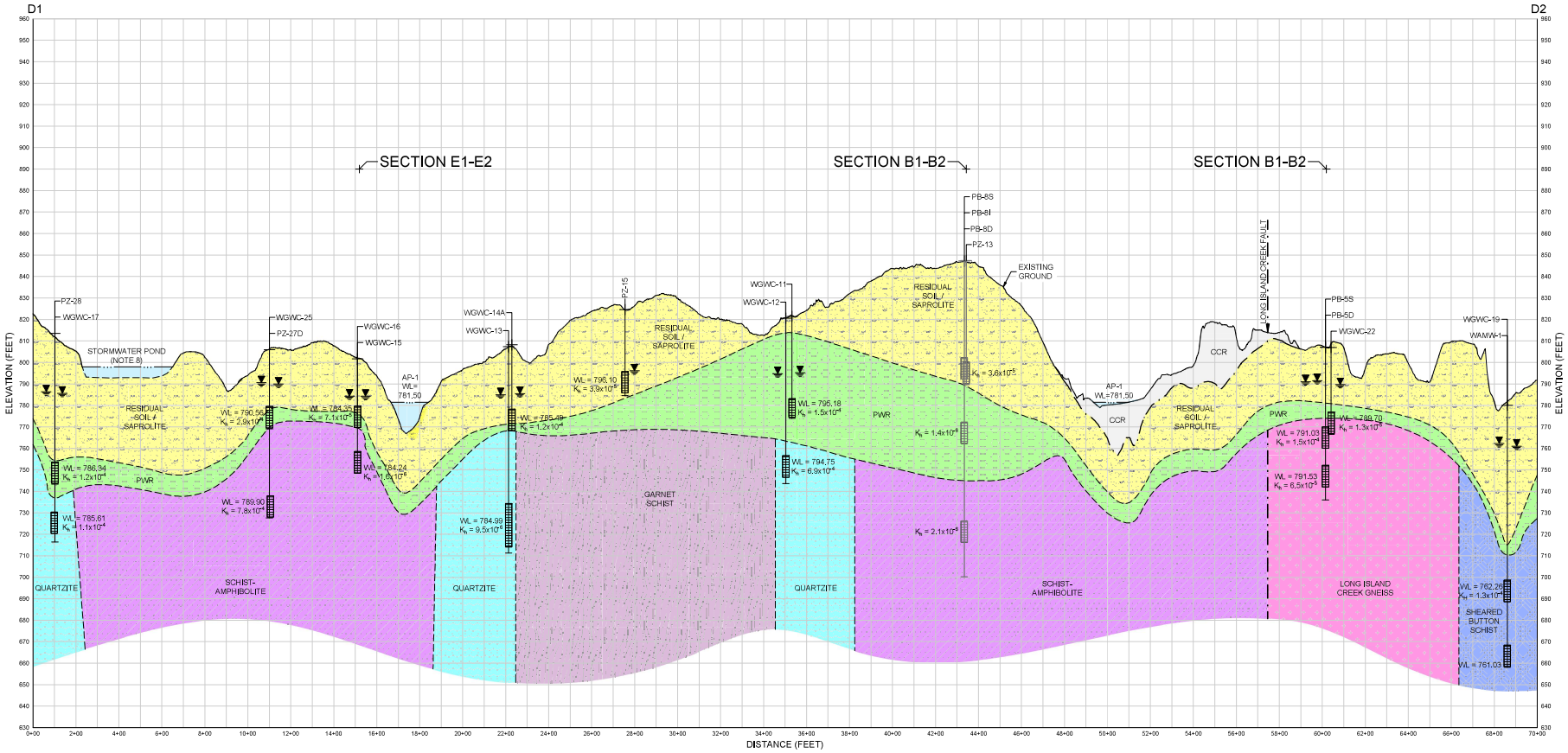
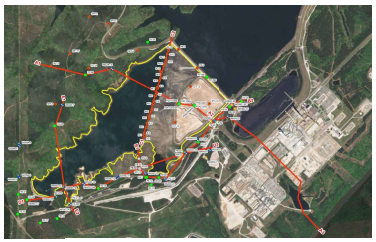
FIGURE 3-1D





KEYMAP

LEGEND

- WL=786.34 — WATER LEVEL (8 AUGUST 2022)
- GROUND WATER ELEVATION (8 AUGUST 2022)(NOTE 5)
- WELL SCREEN LOCATION
- SOIL BORING ON ALIGNMENT (GREY IF ABANDONED)
- SOIL BORING PROJECTED TO PROFILE, PROJECTION DISTANCE IN PARENTHESES
- EXISTING GROUND ELEVATION
- BOTTOM OF CCR
- SURFACE WATER ELEVATION
- LITHOLOGIC CONTACT
- APPROXIMATE LOCATION OF FAULT
- SURFACE WATER
- FILL
- COAL COMBUSTION RESIDUALS (CCR)
- COAL PILE
- GYPSUM
- ALLUVIAL DEPOSITS: SANDY CLAYEY SILT, SILTY CLAY WITH GRAVEL, SANDY SILTY CLAY
- RESIDUAL AND SAPROLITIC SOILS: SILT, SANDY SILT, SILTY SAND
- PARTIALLY WEATHERED ROCK (PWR)
- MUSCOVITE SCHIST
- GARNET SCHIST
- QUARTZITE
- SCHIST-AMPHIBOLITE
- LONG ISLAND CREEK GNEISS
- SHEARED BUTTON SCHIST
- BIOTITE GNEISS

NOTES:

1. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ELEVATIONS PRESENTED IN FEET, NAVD. SEE BORING LOGS IN APPENDIX A FOR ADDITIONAL INFORMATION.
2. TOPOGRAPHY (I.E., EXISTING GROUND) BETWEEN BORING LOCATIONS WAS OBTAINED BY LIDAR SURVEY COMPLETED AND PROVIDED BY ARC SURVEYING AND MAPPING IN OCTOBER 2019. GROUND SURFACE ELEVATIONS AT BORING LOCATIONS BASED ON FIELD SURVEYS COMPLETED BY LAND SURVEYOR.
3. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
4. LITHOLOGIC UNITS SHOWN ON CROSS-SECTION BASED ON BORING LOGS FOR LOCATIONS ON THE CROSS-SECTION LINE. UNITS SHOWN MAY NOT MATCH DESCRIPTIONS IN BORING LOGS FOR LOCATIONS PROJECTED ONTO THE CROSS-SECTION LINE.
5. GROUNDWATER LEVELS MEASURED BY ATLANTIC COAST CONSULTING, INC. (ACC) ON 8 AUGUST, 2022.
6. HORIZONTAL HYDRAULIC CONDUCTIVITY (K_h) IN CM/SEC AND ESTIMATED USING ISCO-FLOW TESTING, STRADDLE PACKER TESTING, OR SLUG TESTING.
7. WHERE MULTIPLE WELL LOCATIONS COINCIDE, WELL DEPTHS CORRESPOND TO ORDER OF STACKED LABELS, TOP LABEL WILL BE THE SHALLOWEST WELL, BOTTOM LABEL WILL BE THE DEEPEST WELL.
8. WATER LEVEL ELEVATION DEPICTED AT STORMWATER POND IS APPROXIMATE.

0 250 500
SCALE IN FEET (HORIZONTAL)

0 25 50
SCALE IN FEET (VERTICAL)
VERTICAL EXAGGERATION=10X

GEOLOGICAL CROSS-SECTION D1-D2
PLANT WANSLEY
GEORGIA POWER COMPANY
PLANT WANSLEY AP-1
HEARD AND CARROLL COUNTIES, GEORGIA

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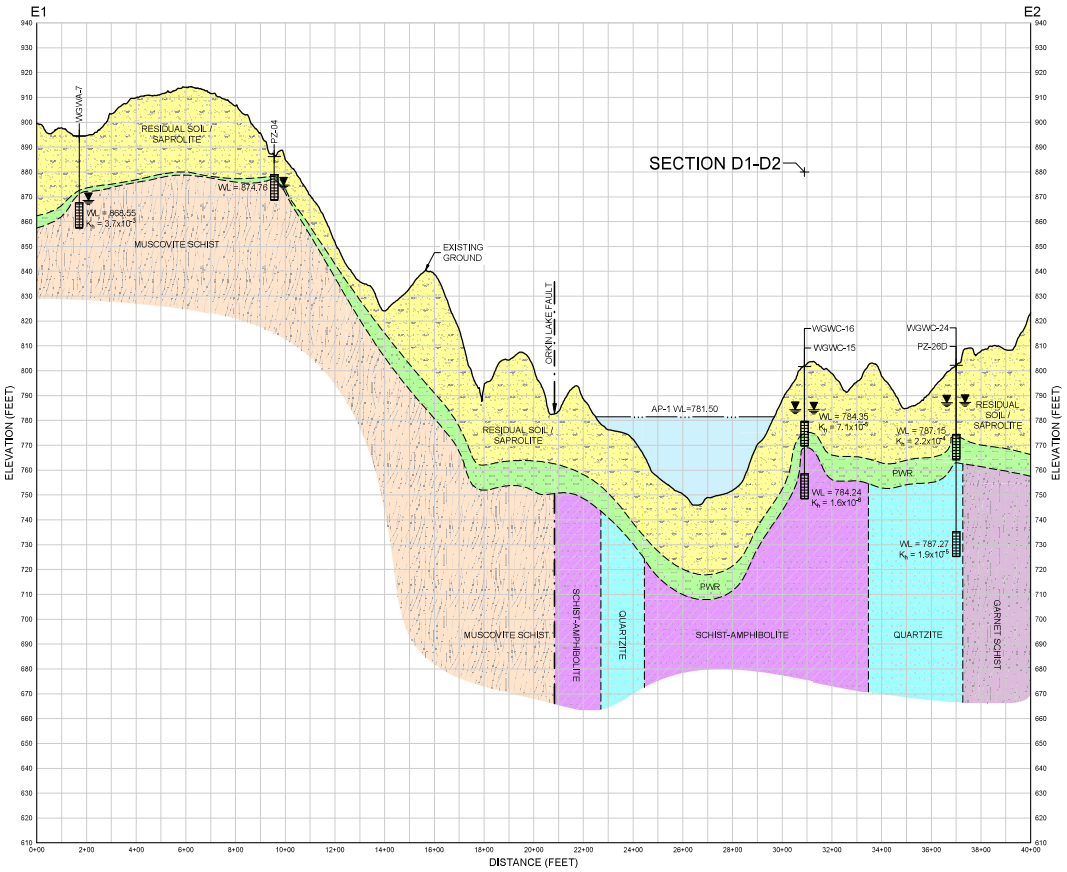
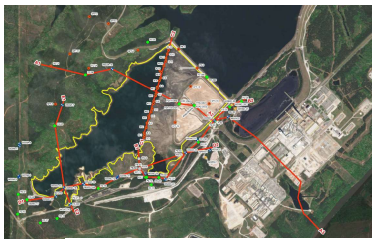
FIGURE 3-1E





KEYMAP

LEGEND

- WL=868.55 — WATER LEVEL (8 AUGUST 2022)
- GROUND WATER ELEVATION (8 AUGUST 2022)(NOTE 5)
- WELL SCREEN LOCATION
- SOIL BORING ON ALIGNMENT (GREY IF ABANDONED)
- SOIL BORING PROJECTED TO PROFILE, PROJECTION DISTANCE IN PARENTHESES
- EXISTING GROUND ELEVATION
- BOTTOM OF CCR
- SURFACE WATER ELEVATION
- LITHOLOGIC CONTACT
- APPROXIMATE LOCATION OF FAULT
- SURFACE WATER
- FILL
- COAL COMBUSTION RESIDUALS (CCR)
- COAL PILE
- GYPSUM
- ALLUVIAL DEPOSITS: SANDY CLAYEY SILT, SILTY CLAY WITH GRAVEL, SANDY SILTY CLAY
- RESIDUAL AND SAPROLITIC SOILS: SILT, SANDY SILT, SILTY SAND
- PARTIALLY WEATHERED ROCK (PWR)
- MUSCOVITE SCHIST
- GARNET SCHIST
- QUARTZITE
- SCHIST-AMPHIBOLITE
- LONG ISLAND CREEK GNEISS
- SHEARED BUTTON SCHIST
- BIOTITE GNEISS

NOTES:

1. ELEVATIONS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ELEVATIONS PRESENTED IN FEET, NAVD. SEE BORING LOGS IN APPENDIX A FOR ADDITIONAL INFORMATION.
2. TOPOGRAPHY (I.E., EXISTING GROUND) BETWEEN BORING LOCATIONS WAS OBTAINED BY LIDAR SURVEY COMPLETED AND PROVIDED BY ARC SURVEYING AND MAPPING IN OCTOBER 2019. GROUND SURFACE ELEVATIONS AT BORING LOCATIONS BASED ON FIELD SURVEYS COMPLETED BY LAND SURVEYOR.
3. SUBSURFACE LITHOLOGIC ELEVATIONS BETWEEN BORINGS ARE INTERPRETED BASED ON AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
4. LITHOLOGIC UNITS SHOWN ON CROSS-SECTION BASED ON BORING LOGS FOR LOCATIONS ON THE CROSS-SECTION LINE. UNITS SHOWN MAY NOT MATCH DESCRIPTIONS IN BORING LOGS FOR LOCATIONS PROJECTED ONTO THE CROSS-SECTION LINE.
5. GROUNDWATER LEVELS MEASURED BY ATLANTIC COAST CONSULTING, INC. (ACC) ON 8 AUGUST, 2022.
6. HORIZONTAL HYDRAULIC CONDUCTIVITY (K_h) IN CM/SEC AND ESTIMATED USING ISO-FLOW TESTING, STRADDLE PACKER TESTING, OR SLUG TESTING.
7. WHERE MULTIPLE WELL LOCATIONS COINCIDE, WELL DEPTHS CORRESPOND TO ORDER OF STACKED LABELS, TOP LABEL WILL BE THE SHALLOWEST WELL, BOTTOM LABEL WILL BE THE DEEPEST WELL.

0 250 500
SCALE IN FEET (HORIZONTAL)

0 25 50
SCALE IN FEET (VERTICAL)
VERTICAL EXAGGERATION=10X

GEOLOGICAL CROSS-SECTION E1-E2
PLANT WANSLEY
GEORGIA POWER COMPANY
PLANT WANSLEY AP-1
HEARD AND CARROLL COUNTIES, GEORGIA

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FIGURE 3-1F

N

Legend

- Detection Monitoring Well
- Assessment Monitoring Well
- Piezometer
- Groundwater Elevation Iso-Contour
- Approximate Groundwater Flow Direction

Notes:
* Piezometer PZ-29S is installed within dike materials and may not be representative of actual groundwater conditions.
1. Water level elevation recorded on August 8, 2022. Elevation provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
2. Service Layer Credits for immediate vicinity of AP-1: Source: SAM LLC, January 10, 2022.
3. Service Layer Credits for surrounding area: 2020-04-05 Worldview 3 Satellite imagery. Purchased from Harris Geospatial.
4. WGWC-26D and WGWC-27 were not installed in August 2022.
5. Monitoring wells and piezometers with S and D label designation were not used for contouring.

0 500 1,000 2,000

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - AUGUST 2022

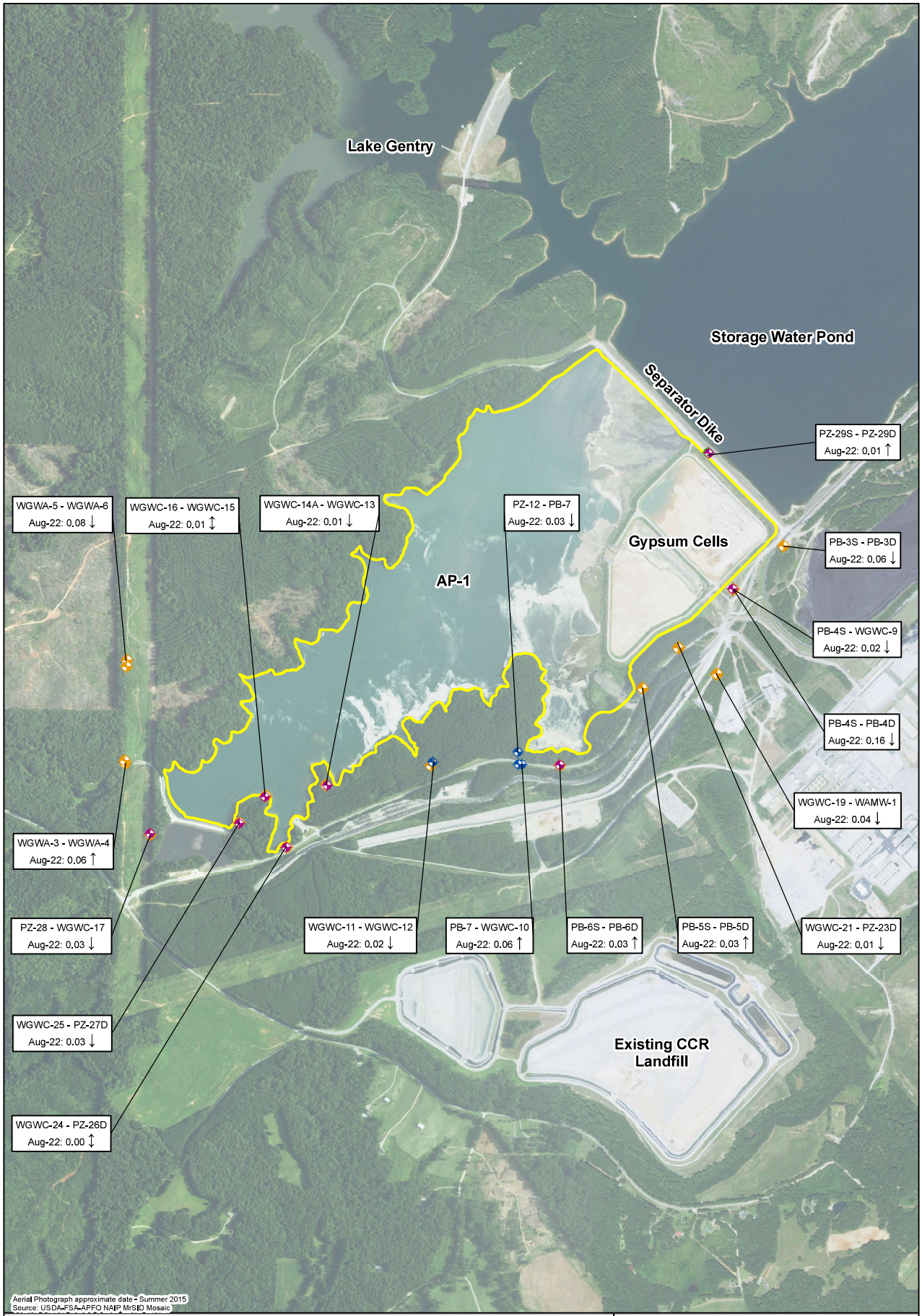
GEORGIA POWER COMPANY
PLANT WANSLEY AP-1
HEARD AND CARROLL COUNTIES, GEORGIA

Geosyntec consultants

KENNESAW, GA | November 2022

Figure 3-2

N:\GA Power\Plant Wansley GW Services\2022\01_Reports\06_HAR Rev 03\Figures\ss\Updated Figures NOV22_KB\GIS Files\Figure 3-2 Potentiometric Surface Contour Map NOV22 KB.mxd 11/17/2022 1:09:20 PM



Saprolite Well/Piezometer
PWR Well/Piezometer
Bedrock Well/Piezometer
Dike Material Piezometer
Approximate Boundary of AP-1

Notes:
Gradient = ft
↓ = Gradient direction going down
↑ = Gradient direction going up

1.Groundwater elevations measured on 08 August 2022.

N

0 250 500 1,000 Feet

Vertical Hydraulic Gradients

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

Geosyntec consultants

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Figure 3-3

N:\GA Power\Plant Wansley GW Services\2022\01_Reports\06_HAR Rev 03\Figures\ss\Updated Figures NOV22_KB\GIS Files\Figure 3-3 Vertical Hydraulic Gradients NOV22 KB.mxd 11/17/2022 1:36:55 PM

Legend

- Assessment Monitoring Well
- Piezometer
- Detection Monitoring Well
- AP-1 Approximate Boundary

Service Layer Credits: 2020-04-05 Worldview 3 Satellite Imagery, Purchased from Harris Geospatial.

0 500 1,000 Feet

N

Groundwater Monitoring Well Network
Plant Wansley

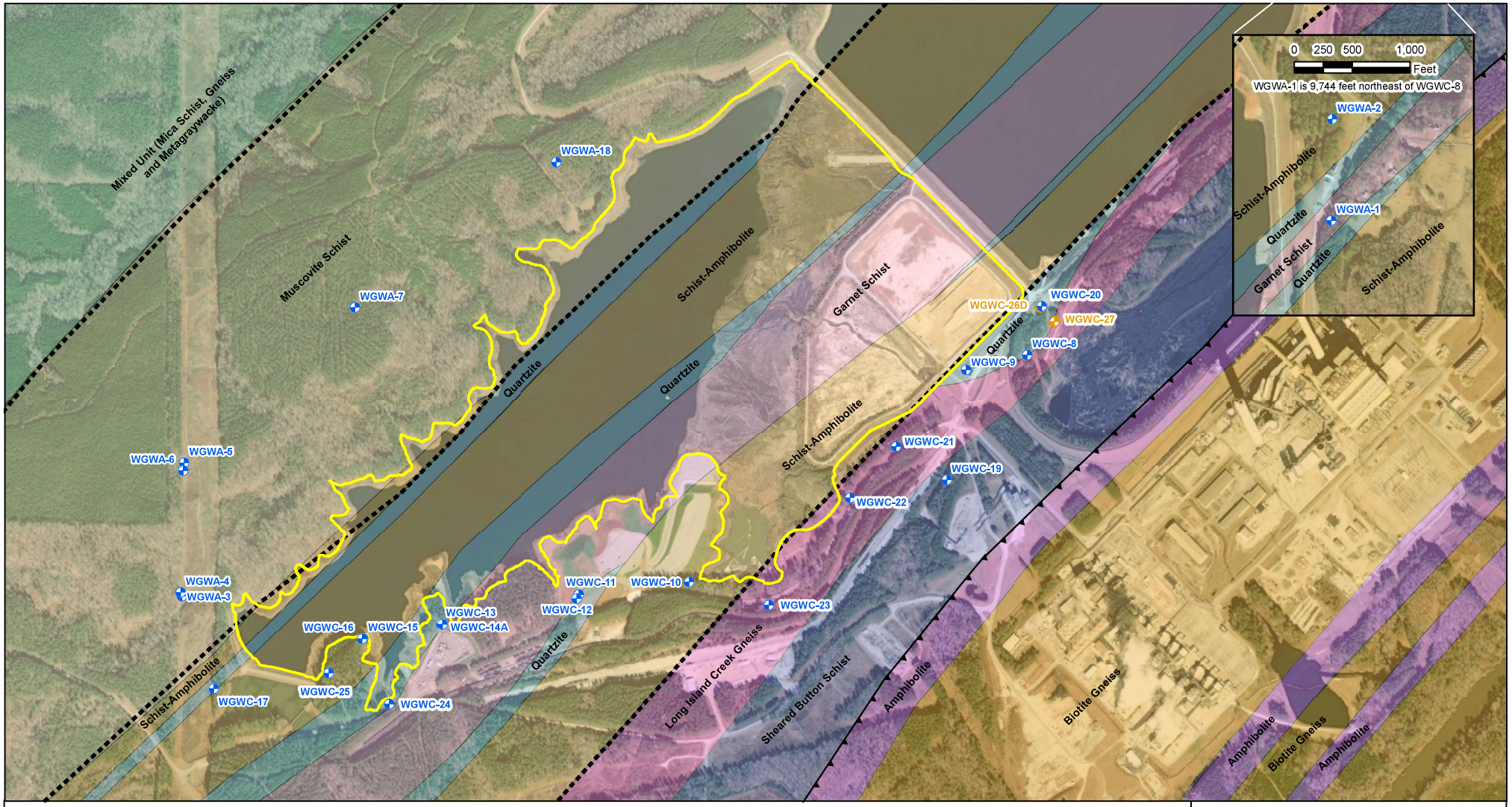
Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, GA | March 2023

Figure 4-1

N:\GA Power\Plant Wansley GW Services\2022\01_Reports\06_HAR Rev 03\Figures\ss\Updated Figures NOV22_KB\GIS Files\Figure 4-1 Groundwater Monitoring Well Network NOV22 KB.mxd 11/17/2022 1:23:14 PM



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community 2018.

Monitoring Well Network and Site Geology
Plant Wansley
Georgia Power Company
Plant Wansley AP-1
Heard and Carroll Counties, Georgia

Geosyntec consultants

Kennesaw, Ga | March 2023

Figure 4-2

N:\GA Power\Plant Wansley GW Services\2022\01_Reports\06_HAR Rev 03\Figures\ss\Updated Figures NOV22_KB\GIS Files\Figure 4-2 Well Network & Site Geology Map NOV22 KB.mxd 11/17/2022 1:34:43 PM

APPENDIX A

Boring Logs

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

RECORD OF BOREHOLE WGWA1/APA-1

SHEET 1 of 3

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

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

RECORD OF BOREHOLE WGWA1/APA-1

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWA1/APA-1

SHEET 3 of 3

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

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

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

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

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
90	690				689.37					
		91.00 - 107.00 SAPROLITE; moist, white/orange/brown, weathered garnet mica schist			91.00					
95	685									
			TWR							
100	680									
105	675				673.37					
		107.00 - 113.00 wet, broken rock fragments			107.00					
110	670				667.37					
		113.00 - 117.00 moist, weathered orange soil with faint fabric			113.00				3/8" Bentonite Pellets	
115	665		TWR		663.37					
		117.00 - 126.50 TRANSITIONALLY WEATHERED ROCK; wet, brown rock fragments up to 3" in diameter			117.00					
120	660								#1 Sand	
125	655				653.37				0.010" Slot Screen	
		126.50 - 127.00 SAPROLITE; light brown wix of clay, silt, fine to coarse sand and angular gravel	TWR		127.00					
		Boring completed at 127.00 ft								
130	650									
135	645									

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

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

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

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

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

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

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

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

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

Golder Associates

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

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

RECORD OF BOREHOLE WGWA2/APA-2D

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

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

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

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

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLES SAMPLE NO.	SAMPLES TYPE	SAMPLES REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	755	0.00 - 5.00 SILTY CLAY; reddish-brown, firm, moist. No fabric. <5% mica flakes. Fill/overburden soil	CL		750.77					
5	750	5.00 - 7.00 SILTY CLAY; orange-red to orange-brown, moist. Oxidized and mottled black stringers (Mn Oxide) and white veins of plagioclase, weathered (saprolite)	CL		5.00 748.77					
10	745	7.00 - 25.00 SILTY CLAY; saprolite	CL		7.00 730.77					
15	740									
20	735									
25	730	25.00 - 30.00 CLAYEY SILT; moist, pale brown, some red clay, plagioclase stringers	ML		25.00 725.77					
30	725	30.00 - 60.00 SANDY SILT; dry to moist, pale yellow to brown. Fabric not evident	ML		30.00					
35	720									
40	715									
45										

Log continued on next page

Portland _ Type 1

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWA2/APA-2D

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

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

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

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

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLES SAMPLE NO.	SAMPLES TYPE	SAMPLES REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45	710	30.00 - 60.00 SANDY SILT; dry to moist, pale yellow to brown. Fabric not evident *(Continued)*	ML		695.77					
50	705									
55	700									
60	695	60.00 - 70.00 SANDY SILT; Quartzite rock hard cobble rock fragments	ML		60.00 685.77					
65	690									
70	685	70.00 - 77.00 dry, pale yellow to brown, gravelly 73.00 - 77.00 NO RECOVERY	ML		70.00 678.77					
75	680									
80	675	77.00 - 81.00 SILTY CLAY; sandy; green, moist, weathered rock with chlorite	CL		77.00 674.77					
		81.00 - 83.00 GRAVELLY SILT; transitionally weathered rock, dry, pale brown	ML		81.00 672.77					
85	670	83.00 - 90.00 TRANSITIONALLY WEATHERED ROCK; brown, >3" rock fragments, moist	TWR		83.00 665.77				3/8" Bentonite – Pellets	
90		Log continued on next page								

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWA2/APA-2D

SHEET 3 of 3

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

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

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

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

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

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

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

Golder Associates

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

WGWA-3 (PZ-02)

ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

Bottom of borehole at 18.0 feet.

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

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

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

(Continued Next Page)

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

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

ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers

LOCATION Plant Wansley

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

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

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

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.
5		**Silt (ML)** - brown, moist, sandy, mottled orange, micaceous, trace weathered rock	
10			
			887.28
15		**Silty Sand (SM)** - gray, moist, fine to coarse grain, trace partially weathered rock	
			884.28
20		**Schist** - gray, fine grain, hard to medium hard, moderately to slightly weathered, thickly foliated, more competent with depth	
			878.28

Bottom of borehole at 21.0 feet.

WELL DATA

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

ELEV. (DEPTH)

Surface Seal: concrete
897.28 (2.0)

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

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

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

Well: 2" OD PVC (SCH 40)

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

878.88 (20.4)
Sump:0.40 ft.

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING WGWA-6 (PZ-03D)

ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.
		Silt (ML)	
			886.62
		Partially Weathered Rock (PWR)	
			881.62
			877.62
		Gneiss with interlayered schist	
		- gray and light gray, gray-brown, fine to medium grain, medium hard, moderately to slightly weathered, inclined, low angle fractures on foliation planes, biotite, quartz, feldspar	
		- gray and dark gray-brown, fine to coarse grain, soft to hard, moderately to not weathered, inclined, banded, inclined fractures on foliation planes, biotite, quartz, feldspar	
		- gray and light gray, fine to medium grain, soft to hard, slightly to not weathered, inclined, banded, very light gray quartz banding, coarse grained schist, foliation plane fractures, biotite, quartz, feldspar	
		- gray and light gray, fine to medium grain, soft to hard, slightly to not weathered, inclined, banded, very light gray quartz banding, coarse grained schist, foliation plane fractures, biotite, quartz, feldspar	
		- gray and light gray, fine to medium grain, hard, not weathered, inclined, banded, few low angle fractures, biotite, quartz, feldspar	

WELL DATA

Protective aluminum cover with bollards
2-foot square concrete pad
Top of casing Elev. = 897.13

ELEV. (DEPTH)

Surface Seal: concrete
892.62
(2.0)

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

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

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers

LOCATION Plant Wansley

DEPTH (ft) | GRAPHIC LOG

STRATA DESCRIPTION

ELEV. (CONTINUED)

Gneiss with interlayered schist*(Con't)*

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, trace pyrite on foliation planes

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, garnet up to 4mm

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, garnet up to 4mm

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds

- gray and light gray, fine to coarse grain, hard, not weathered, inclined, banded, coarse grained schist, quartz-felsic banding, pyrite common on foliation planes, micro-folds, finer grained downward

WELL DATA

Protective aluminum cover with bollards
2-foot square concrete pad
Top of casing Elev. = 897.13

ELEV. (DEPTH)

834.12 (60.5)

Annular Seal: bentonite pellets - 1/2 bucket, 3/8" pellets, 5 gal bucket

829.02 (65.6)

Filter: silica filter sand - 3 bags, 50 lbs, #1A filter media

822.62 (72.0)

Well: 2" OD PVC (SCH 40)

Well: 2" OD PVC (SCH 40)
Screen: 30 ft. pre-pack

(Continued Next Page)

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

ELEV. (DEPTH)

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

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

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	WELL DATA	ELEV. (DEPTH)
				Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 897.33	
0		**Silt (ML)** - red, wet, sandy, mottled brown and orange, trace clay, mica, weathered rock		Surface Seal: concrete	892.49 (2.0)
5					
10				Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal	
15		- gray, moist, sandy, mottled orange and brown, trace mica and weathered rock			
20			872.49		
25		**Schist** - gray, fine grain, hard, not to slightly weathered, massive to thickly banded			870.79 (23.7)
				Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips	868.79 (25.7)
				Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media	867.69 (26.8)
30				**Well: 2" OD PVC (SCH 40)**	
				Well: 2" OD PVC (SCH 40) **Screen: 10 ft. pre-pack**	
35					857.69
			856.49	Sump:0.40 ft.	(36.8)

Bottom of borehole at 38.1 feet.

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	WELL DATA	ELEV. (DEPTH)
				Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 878.02	
0		**Silt (ML)** - brown, moist, sandy, mottled orange and red, trace mica and angular fine gravel		Surface Seal: concrete	873.47 (2.0)
5					
10		- brown, moist, mottled brown and red, trace fine gravel		Annular Fill: Cement-Bentonite Grout - 4 bags, 46 lbs, Portland Type I/II, 22 gal	
15					
20					852.97
				Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips	(22.5) 850.97
25				Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media	(24.5)
			848.47		848.47
30		**Schist** - gray, fine grain, medium hard, moderately to highly weathered, massive to thickly foliated		**Well: 2" OD PVC (SCH 40)** **Well: 2" OD PVC (SCH 40)** **Screen: 10 ft. pre-pack**	(27.0)
35			838.47	Sump:0.40 ft.	838.47

Bottom of borehole at 37.1 feet.

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

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

RECORD OF BOREHOLE WGWC8/APC-1

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWC8/APC-1

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

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

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

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

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

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

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

Golder Associates

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	WELL DATA	ELEV. (DEPTH)
				Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 812.03	
		Utility Clearance (HYDROEXCAVATION)		← Surface Seal: concrete	807.33 (2.0)
10			799.33		
		Well-graded Sandy Gravel (GM) - tan, dry, fine to coarse grain, mottled brown and orange			
20			789.33		
		Silt (ML) - orange, wet, clayey, mottled yellow, with coarse gravel		← Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal	
			786.33		
25		**Silty Gravel (GM)** - white, dry, fine to coarse grain, light brown mottling, some oxidation			
30					
35					
		- mottled orange	771.33		
40		**Partially Weathered Rock** - gray, fine to medium grain, medium hard to hard, moderately to			

(Continued Next Page)

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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

RECORD OF BOREHOLE WGWC10/APC-3D

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

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

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

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

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0		0.00 - 11.00 SILT; dry to moist, yellow to orange-red, some clay, some very fine sand, trace muscovite								
5	805		ML							
		6.00: Shelby Tube Collected: 6'-8'								
10	800				798.61					
		11.00 - 23.00 CLAYEY SILT; dry to moist, orange to red, 5-10% muscovite, trace black MnO, trace garnet, trace quartz, saprolite			11.00					
15	795		ML							
20	790				786.61					
		23.00 - 37.00 SILT; moist, yellow brown, some clay, come very fine sand, layers of white CLAYEY SILT, 3" thick lense of weathered pegmatite material at 25', 39', and 42'			23.00					
25	785									
30	780		ML							
35	775	36.00: Shelby Tube Collected: 36'-38'			772.61					
		37.00 - 40.00 CLAYEY SILT; some weathered pegmatite material, white/pink weathered potassium feldspar and plagioclase			37.00					
40	770		ML		769.61					
		40.00 - 47.00 SILT; moist, yellow brown, some clay, come very fine sand, layers of white CLAYEY SILT, 3" thick lense of weathered pegmatitic material at 42'			40.00					
45	765		ML							

Log continued on next page

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

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

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

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

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

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

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

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

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

Golder Associates

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

RECORD OF BOREHOLE WGWC10/APC-3D

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

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

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

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

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45			ML		762.61					
		47.00 - 58.00 SAPROLITE; moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominately weathered feldspars, 10-15%muscovite, <10% quartz			47.00					
50	760		ML							
55	755				751.61					
		58.00 - 58.10 1" black layer with gravel size quarts grains, silt sized black particles			58.10					
60	750	58.10 - 88.00 moist, grayish brown with some orange mineral oxidation, weathered muscovite schist, predominately weathered feldspars								
65	745								Portland Type 1	
70	740									
75	735									
80	730									
85	725									
					721.61					
		88.00 - 92.00 SANDY SILT; moist to wet, orange brown, sandy silt, very fine to fine sand, trace fine gravel, micaceous	ML		88.00					
90	720	Log continued on next page								

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWC10/APC-3D

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWC10/APC-3D

SHEET 4 of 4

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

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

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

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

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

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

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

Golder Associates

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

WGWC-11 (PZ-14)

ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

(Continued Next Page)

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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

RECORD OF BOREHOLE WGWC12/APC-4D

SHEET 1 of 2

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

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

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

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

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	SAMPLES: TYPE	SAMPLES: REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	820	0.00 - 4.00 CLAYEY SILT; dry to moist, orange-red, <5% muscovite, <5% medium quartz grains, homogenous texture, no fabric	ML		816.57					**WELL CASING** Interval: -2.5'-64' Material: Schedule 40 PVC Diameter: 2" Joint Type: Threaded
5	815	4.00 - 6.00 moist, yellow, orange, garnet, muscovite, plagioclase			4.00 814.57					**WELL SCREEN** Interval: 64'-74' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
		6.00 - 7.00 dry to moist, orange-red, <5% muscovite, <5% medium quartz grains, homogenous texture, no fabric			6.00 813.57					
10	810	7.00 - 17.00 SAPROLITE/TRANSITIONALLY WEATHERED ROCK; moist (7-49') to wet (49-56'), yellow orange to brown and orange, weathered garnet muscovite feldspar (plagioclase + K-spar) schist, metamorphic fabric more apparent at depth due to the material being less weathered Shelby Tube Collected: 16'-17'	TWR		7.00					**FILTER PACK** Interval: 61.5'-77' Type: #1 Sand/ Prepack Filter **FILTER PACK SEAL** Interval: 59'-61.5' Type: 3/8" Bentonite Pellets **ANNULUS SEAL** Interval: 0'-59' Type: Portland Type 1
15	805				803.57					
20	800	17.00 - 27.00 transitionally weathered rock, weathered garnet rich, with muscovite, feldspar, schist fabric			17.00					
25	795				793.57					
30	790	27.00 - 37.00 less weathered, relict fabric evident			27.00				Portland Type 1	**WELL COMPLETION** Pad: 4'x4'x4" Protective Casing: Anodized Aluminum **DRILLING METHODS** Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
35	785				783.57					
40	780	37.00 - 56.00 transitionally weathered rock, moist to wet at 49 feet			37.00					
45		Log continued on next page								

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

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

Golder Associates

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

RECORD OF BOREHOLE WGWC12/APC-4D

SHEET 2 of 2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

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

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

RECORD OF BOREHOLE WGWC13/APC-5D

SHEET 1 of 3

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

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

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

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

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

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

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

Golder Associates

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

RECORD OF BOREHOLE WGWC13/APC-5D

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWC13/APC-5D

SHEET 3 of 3

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

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

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

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

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

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

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

Golder Associates

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

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

WELL NUMBER WGWC-14A

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

COORDINATES: N:1240604.54 E:2024599.63

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

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

WELL DIAGRAM

Casing Type: PVC

70/30 Portland Cement / bentonite mix

PEL plug 3/8"

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

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

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

RECORD OF BOREHOLE WGWC15/APC-6D

SHEET 1 of 2

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

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

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

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

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

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

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

Golder Associates

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

RECORD OF BOREHOLE WGWC15/APC-6D

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

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

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

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

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

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

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

Golder Associates

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

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

RECORD OF BOREHOLE WGWC16/APC-6S

SHEET 1 of 1

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

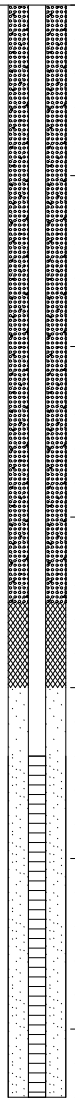
DRILL RIG: PS-150 Track Mounted Rig
DATE STARTED: 11/11/15
DATE COMPLETED: 11/11/15

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

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

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

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

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

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

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

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

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

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

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

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

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

Golder Associates

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

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

RECORD OF BOREHOLE WGWC17/APC-7

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

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

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

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

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

Log continued on next page

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

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

Golder Associates

RECORD OF BOREHOLE WGWC17/APC-7

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

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

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

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

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45		42.00 - 47.00 NO RECOVERY; not competent (soil washout) *(Continued)*			766.36					
	765	47.00 - 53.00 CLAYEY SILT and SILT; dry to moist, brown and grey, metamorphic texture observed, predominantly feldspar, varying amounts of quartz (<5-15%), biotite and muscovite (5-15%), saprolite	ML		47.00 760.36					
50	760	53.00 - 54.00 SILT; grey silt, weathered quartzite and gneiss, trace black laminations, chunks of silt, speckled greywacke	ML		53.00 759.36					
		54.00 - 57.00 SILT; saprolitic texture more predominant			54.00 756.36					
55	755	57.00 - 59.00 SILT; dry, dark brown silt, some fine coarse sand, white quartz/feldspar, some thin laminations of quartzite			57.00 754.36					
60		59.00 - 67.00 TRANSITIONALLY WEATHERED ROCK; clayey silt, weathered quartzite, trace black minerals	TWR		59.00 746.36					
	750	67.00 - 71.00 CLAYEY SAND/SILTY SAND; large cobbles of gneiss and quartzite	SC-SM		67.00 742.36					
65		71.00 - 76.00 CLAYEY SAND; moist, brown, some orange silty sand, muscovite, weathered quartzite			71.00					
	745	75.00: 75'-76' large cobbles present			737.36					
70		76.00 - 82.00 BEDROCK; grey and white, fractured quartzite, some light orange from mineral oxidation, staining present	BR		76.00 731.36				3/8" Bentonite Pellets	**WELL CASING** Interval: -2.5'-83' Material: Schedule 40 PVC Diameter: 6" Joint Type: Threaded **WELL SCREEN** Interval: 83'-93' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC **FILTER PACK** Interval: 81'-94' Type: #1 sand/ Prepack Filter **FILTER PACK SEAL** Interval: 78.5'-81' Type: 3/8" Bentonits Pellets **ANNULUS SEAL** Interval: 0'-78.5' Type: Portland Type 1 **WELL COMPLETION** Pad: 4'x4'x4" Protective Casing: Anodized Aluminum **DRILLING METHODS** Soil Drill: 4-inch Sonic Rock Drill: 4-inch Sonic
75	740	82.00 - 93.00 quartzite			82.00				#1 sand 0.010" slot screen	
80	735									
85	730									
90	725									

Log continued on next page

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

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

Golder Associates

RECORD OF BOREHOLE WGWC17/APC-7

SHEET 3 of 3

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

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

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

RECORD OF BOREHOLE WGWC19/APC-2

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWC19/APC-2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

RECORD OF BOREHOLE WGWC19/APC-2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Golder Associates

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

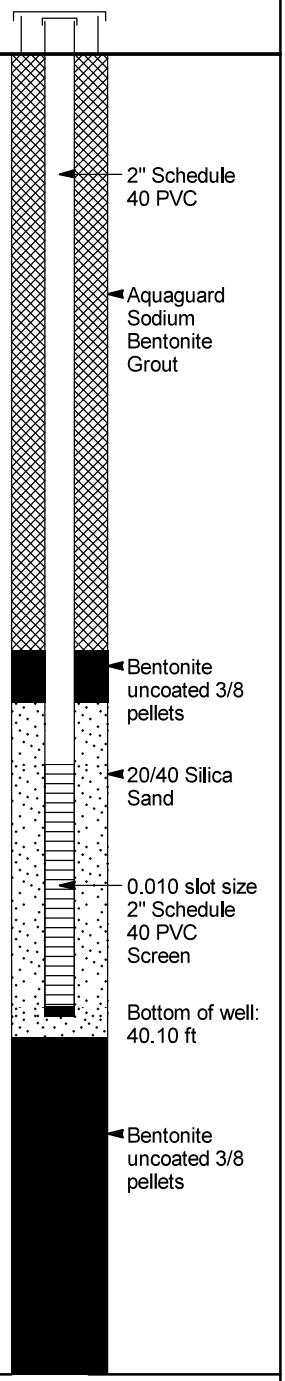
Geosyntec consultants
engineers | scientists | innovators
Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 30144

WGWC-20 (PZ-22)

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

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

Bottom of borehole at 55.0 feet.



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

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

Geosyntec consultants
engineers | scientists | innovators
Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 30144

WGWC-21 (PZ-23S)

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

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
0	831.79			Air Knife Excavation (0 ft to 10 ft) NO SAMPLE	2" Schedule 40 PVC
5	825				
10	821.8			NO RECOVERY (10 ft to 17 ft)	Aquaguard Sodium Bentonite Grout
15	820				
	815			814.8 GNEISS, bluish gray, abundant iron oxidation and scaling on fracture faces, thin to moderate laminations, wet.	
20	810			20 ft: Bluish gray and olive to olive gray.	
25	805			26 ft: Bluish gray.	
30	800			30 to 40 ft: Abundant potential fractures throughout.	
35	795			33 ft to 36 ft: Recovered core broke into pebble sized fragments.	

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

(Continued Next Page)

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WGWC-21 (PZ-23S)

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

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

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

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

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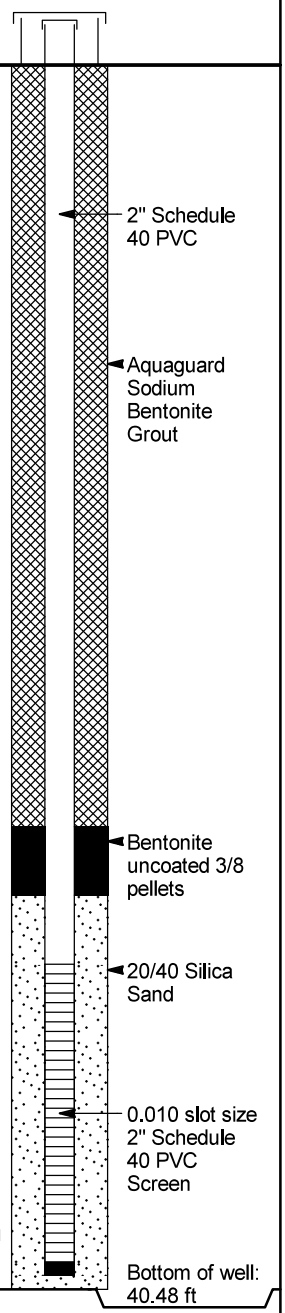
WGWC-22 (PZ-24)

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

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

Bottom of borehole at 41.0 feet.

CONSTRUCTION DIAGRAM



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

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

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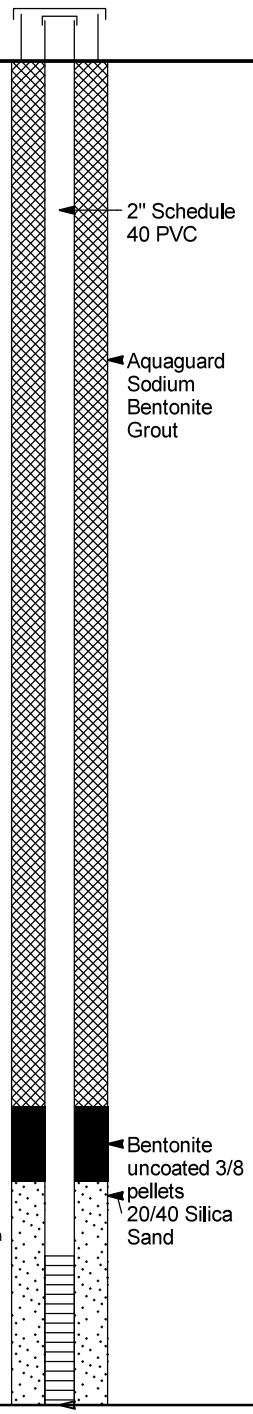
WGWC-23 (PZ-25S)

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

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

CONSTRUCTION DIAGRAM



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

(Continued Next Page)

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WGWC-23 (PZ-25S)

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

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

Bottom of borehole at 75.0 feet.

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

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

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WGWC-24 (PZ-26S)

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

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	802			Air Knife Excavation (0 ft to 10 ft) NO SAMPLE
10	792			792.2 SANDY SILT, dark red, fine grained with some coarse sand, micaceous, low plasticity.
15	787			786.2 SANDY SILT, olive yellow, relic rock structure, stiff, low plasticity, moist to dry.
20	782			20 ft: Moisture increases with depth.
25	777			776.2 PARTIALLY WEATHERED ROCK (PWR), large quartzite rock fragments, light olive green, gravel and sand throughout, moist. 775.2 SANDY SILT, olive yellow, relic rock structure, low plasticity, moist.
30	772			772.2 PARTIALLY WEATHERED ROCK (PWR), large quartzite rock fragments, light gray to yellow, heavily fractured from 30 ft to 35 ft, moderately fractured from 35 ft to 39 ft, some iron staining, moist to wet.
35	767			763.2 Bottom of borehole at 39.0 feet.

CONSTRUCTION DIAGRAM

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

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

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

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WGWC-25 (PZ-27S)

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

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	805			Air Knife Excavation (0 ft to 9 ft) NO SAMPLE
				797.0
				NO RECOVERY (9 ft to 11 ft)
				795.0
				SAPROLITE, silty clay with sand, yellowish red, firm, low plasticity, fine sand, trace mica, gravel, root material, moist.
				790.7
				PARTIALLY WEATHERED ROCK (PWR), silty sand with gravel, yellow, loose, well graded, fine to coarse, dry.
				787.0
				SAPROLITE, silty clay with sand, yellowish red, firm, low plasticity, fine sand, layer of gravelly mica, moist.
				778.0
				PARTIALLY WEATHERED ROCK (PWR), silty sand with clay, yellowish brown, moist, loose, well graded, fine to coarse, moist. 29 ft: some gravel, grayish brown.
5	800			
10	795			
15	790			
20	785			
25	780			
30	775			
35	770			
				767.0

CONSTRUCTION DIAGRAM

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

Bottom of borehole at 39.0 feet.

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

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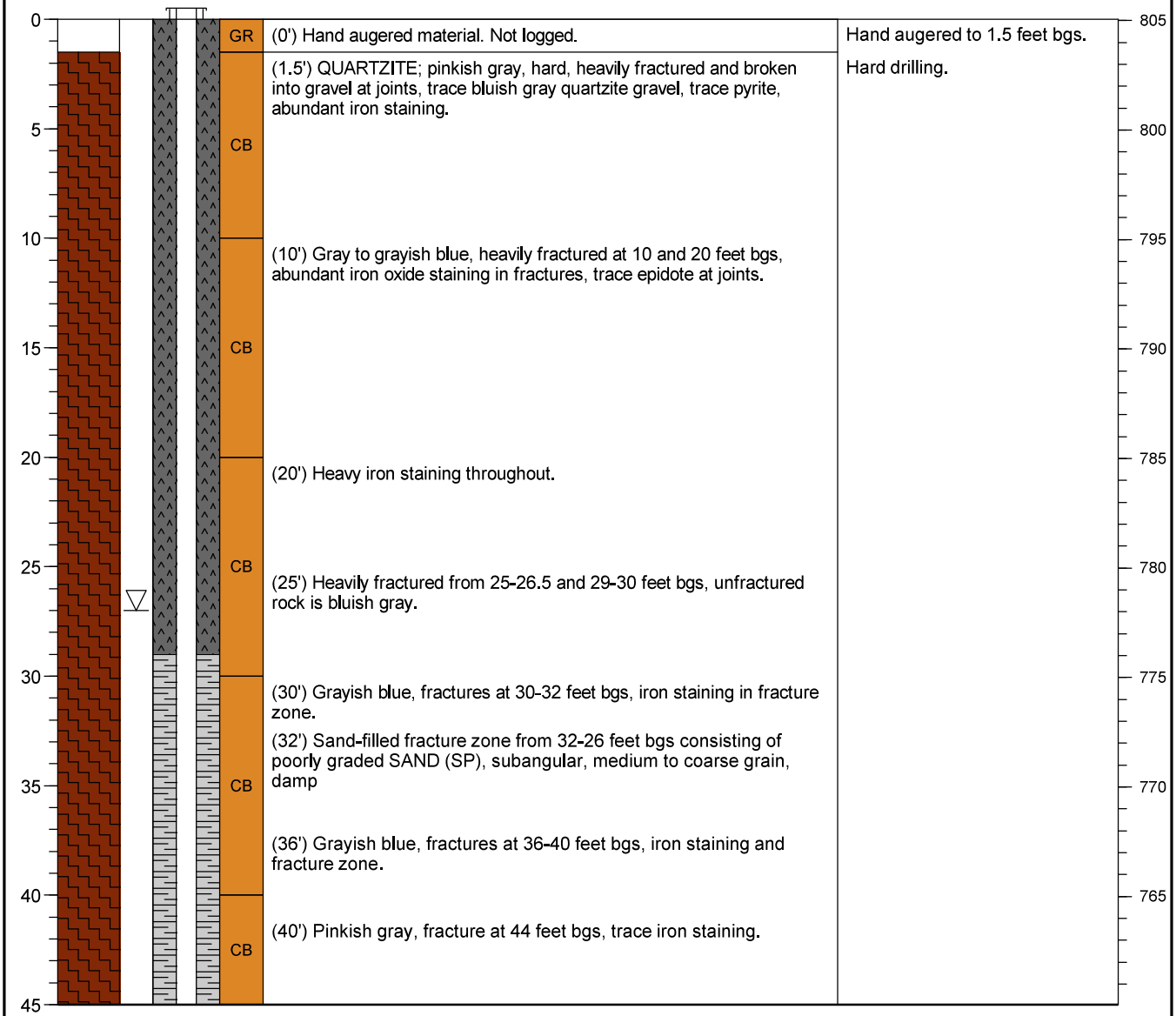
Client: Southern Company Services
Project: Plant Wansley Well Installation
Address: 1371 Liberty Church Rd, Carrollton, GA

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

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



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

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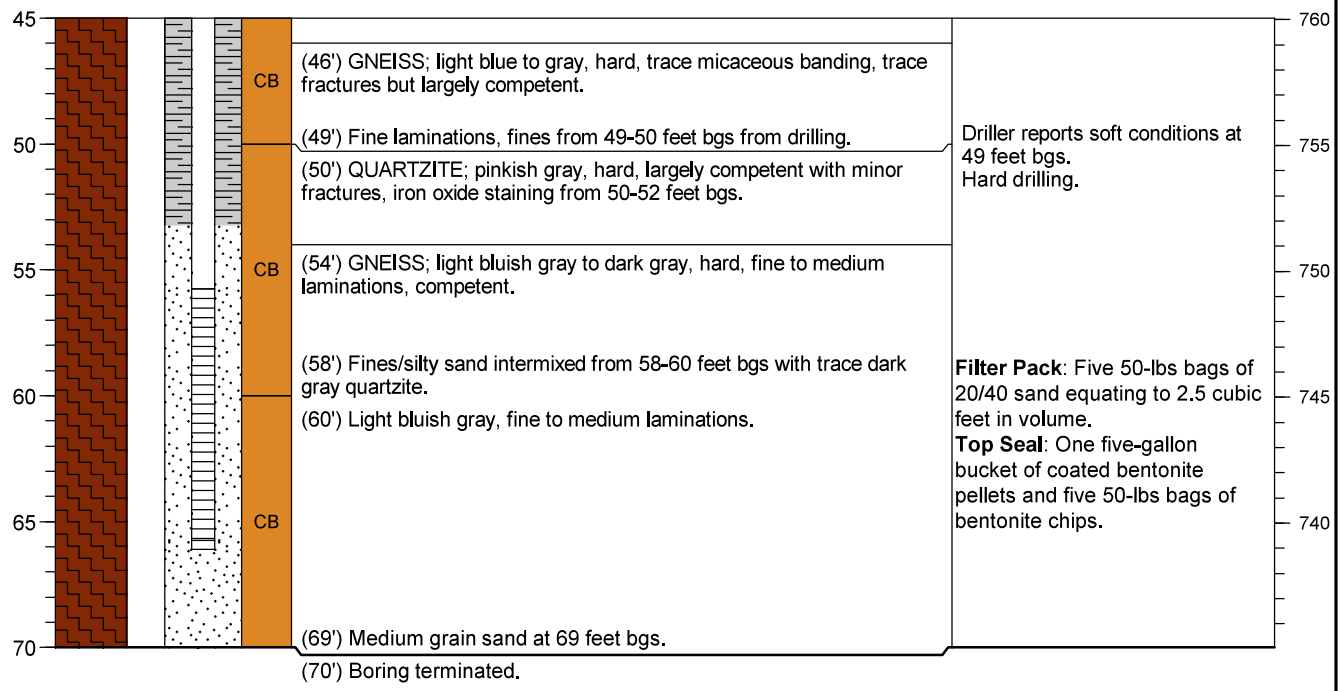
Client: Southern Company Services
Project: Plant Wansley Well Installation
Address: 1371 Liberty Church Rd, Carrollton, GA

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

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



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

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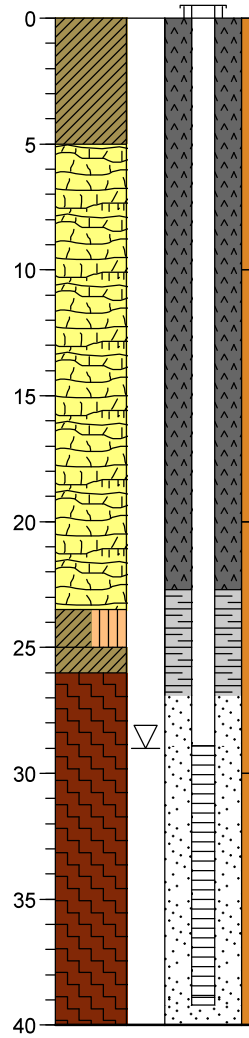
Client: Southern Company Services
Project: Plant Wansley Well Installation
Address: 1371 Liberty Church Rd, Carrollton, GA

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

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



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

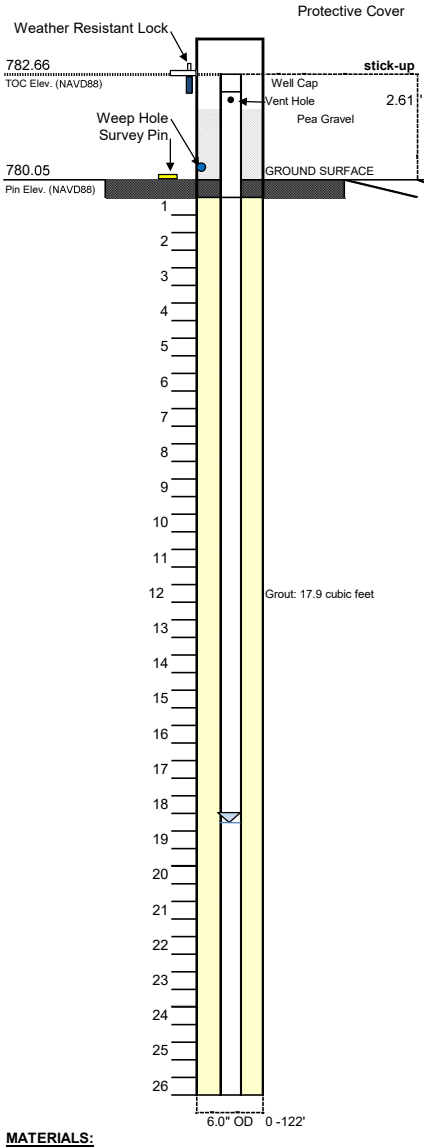
NOTES: Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988. Well completed with aboveground (+2.49 feet) PVC stickup. Well depth measured from top of casing (TOC).

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

ATLANTIC COAST CONSULTING, INC.

WAMW-1
BORING ID

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



Northing: 1241843.66
Easting: 2028944.63

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

SOIL DESCRIPTION

0.00 - 10.00'
No recovery; Hydrovac

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

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

MATERIALS:

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

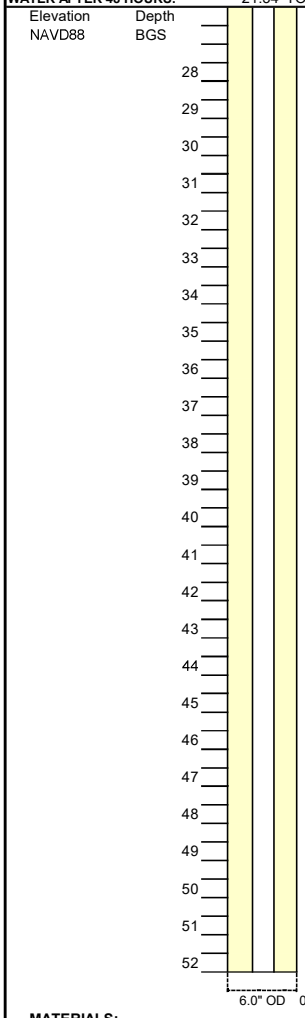
TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

WAMW-1

BORING ID

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



Reddish orange, silty SAND (overburden)
(SM)

29.0 - 39.0 Recovery (10/10)
Reddish orange to light brown, sandy SILT, trace gravel, MnO laminations (ML)

39.0 - 49.0 Recovery (10/10)
Reddish orange to light brown, sandy SILT, trace gravel, MnO laminations (ML)

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

MATERIALS:

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

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

ATLANTIC COAST CONSULTING, INC.

WAMW-1

BORING ID

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

Elevation NAVD88	Depth BGS	
	54	49.0 - 59.0 Recovery (10/10) Reddish orange to light brown, sandy SILT, trace gravel, MnO laminations (ML)
	55	
	56	
	57	
	58	
	59	
	60	59.0 - 69.0 Recovery (10/10) Brown to tan, white and gray, silty Sand, trace gravel. Saprolite (SM)
	61	
	62	
	63	
	64	
	65	
	66	
	67	
	68	
	69	
	70	69.0 - 79.0 Recovery (8/10) Brown to tan, white and gray, silty Sand, trace gravel. Saprolite (SM)
	71	
	72	
	73	
	74	
	75	
	76	
	77	
	78	

6.0" OD 0 -122'

MATERIALS:

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

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

ATLANTIC COAST CONSULTING, INC.

WAMW-1

BORING ID

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

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

6.0" OD 0 -122'

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

89.0 - 92.0 Recovery (0/3)

92.00 - 99.00
No recovery

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

MATERIALS:

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

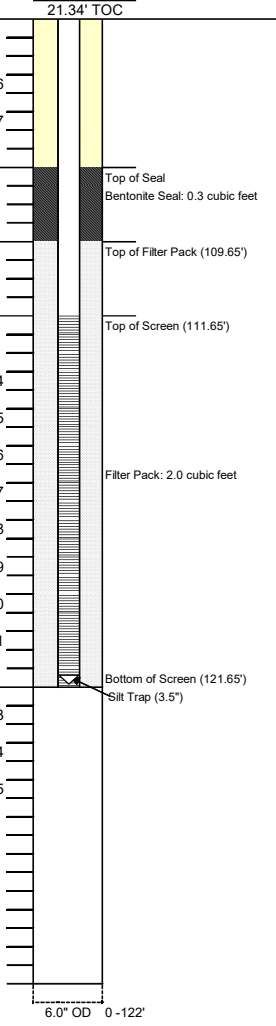
TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

WAMW-1

BORING ID

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



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

109.00 - 119.00 Recovery (0/10)
No recovery

115.00 - 118.00
Large fracture, produces groundwater

119.0- 125.0 Recovery (0/6)
No recovery

Boring terminated at 125' BGS

MATERIALS:

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

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

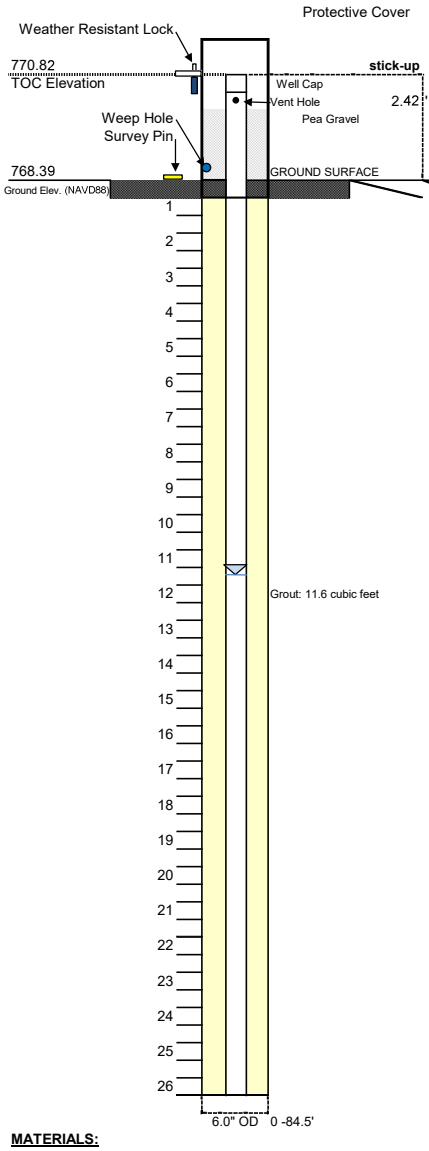
Log updated with revised survey data certified 6/16/2020.
Easting and Northing in NAD 83. Elevation in NAVD 88.

ATLANTIC COAST CONSULTING, INC.

WAMW-2

BORING ID

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



Northing: 1241547.56
Easting: 2028806.27

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

SOIL DESCRIPTION

0.00 - 10.00'
No recovery; Hydrovac

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

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

MATERIALS:

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

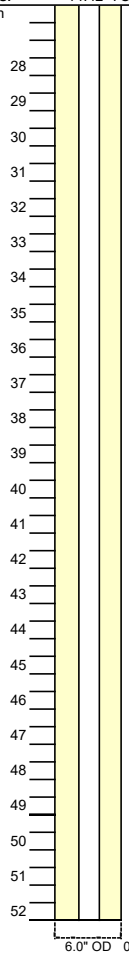
TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
NAVD88 - North American Vertical Datum of 1988
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

WAMW-2

BORING ID

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



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

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

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

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

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

MATERIALS:

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

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

ATLANTIC COAST CONSULTING, INC.

WAMW-2

BORING ID

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

Elevation NAVD88 / Depth BGS

54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70

Reddish brown, clayey SILT (MH)

55.00 - 56.00
Brown, wet SILT

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

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

698.19 Elevation / 70.2 Depth — Top of Seal

Bentonite Seal: 0.3 cubic feet

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

696.19 Elevation / 72.2 Depth — Top of Filter Pack (72.20')

694.19 Elevation / 74.2 Depth — Top of Screen (74.20')

76 77 78

6.0" OD 0 -84.5'

MATERIALS:

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

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

ATLANTIC COAST CONSULTING, INC.

WAMW-2

BORING ID

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

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

6.0" OD 0 -84.5'

69.0 - 79.0 Recovery (3.4/10)

79.0 - 84.0 Recovery (1.0/5.0)

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

Boring terminated at 84.5' BGS

MATERIALS:

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

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-01
PAGE 1 OF 2
ECS38198

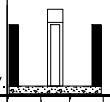
SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.
5		**Clayey Gravel (GC)** - red, moist, fine grain, trace sand	
			848.91
10		**Silt (ML)** - gray, moist, sandy, yellow mottling, trace mica and angular rock fragments	
15		- mottled brown, larger angular rock fragments	
			838.91
20		**Schist** - gray, fine to aphanitic grain, hard to medium hard, slightly to moderately weathered	
25		- very hard, becomes non-foliated	
30			
35			
40			

WELL DATA



Protective aluminum cover with bollards
4-foot square concrete pad
Top of casing Elev. = 856.72

ELEV. (DEPTH)

- Surface Seal: concrete — 851.91 (2.0)
- Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal — 820.71 (33.2)
- Annular Seal: bentonite chips - 1 bag, 5 lbs, Baroid 3/8" chips — 0 818.71 (35.2)
- Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media — 817.81 (36.1)

Well: 2" OD PVC (SCH 40)

(Continued Next Page)

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-01
PAGE 2 OF 2
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

Bottom of borehole at 47.6 feet.

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-04
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-06
PAGE 1 OF 1
ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-08
PAGE 1 OF 1
ECS38198

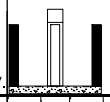
SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

WELL DATA



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

ELEV. (DEPTH)

Surface Seal: concrete — 862.65 (2.0)

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

842.55 (22.1)

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

840.15 (24.5)

Filter: silica filter sand - 4 bags, 50 lbs, #1A filter media

836.85 (27.8)

Well: 2" OD PVC (SCH 40)

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

826.85

Sump:0.40 ft.

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-10
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ECS38198

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.
		Utility Clearance (HYDROEXCAVATION)	
10			819.26
		Gneiss - gray, fine to medium grain, hard to medium hard, slightly to moderately weathered, massive, banded, with oxidation	
15			
		- light brown, heavier oxidation	
20			
25			
30			799.26

Bottom of borehole at 30.0 feet.

WELL DATA

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

ELEV. (DEPTH)

- Surface Seal: concrete — 827.26 (2.0)
- Annular Fill: Cement-Bentonite Grout - 3 bags, 46 lbs, Portland Type I/II, 16.5 gal — 814.96 (14.3)
- Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips — 812.96 (16.3)
- Filter: silica filter sand - 3.5 bags, 50 lbs, #1A filter media — 810.46 (18.8)
- **Well: 2" OD PVC (SCH 40)**
- **Well: 2" OD PVC (SCH 40)**
  Screen: 10 ft. pre-pack
- Sump:0.40 ft. — 800.46 (28.8)

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-11
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

DATE STARTED 12/4/2014 **COMPLETED** 12/5/2014 **SURF. ELEV.** 820.21 **COORDINATES:** N:1240578.87 E:2026933.09
CONTRACTOR CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
DRILLED BY T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 30 ft. **GROUND WATER DEPTH: DURING** **COMP.** 16.1 ft. **DELAYED** 20.98 ft. after 24 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	WELL DATA	ELEV. (DEPTH)
				Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 823.09	
		Utility Clearance (HYDROEXCAVATION)		Surface Seal: concrete	818.21 (2.0)
5					
			811.91	Annular Fill: Cement-Bentonite Grout - 2 bags, 46 lbs, Portland Type I/II, 11 gal	
10		**Silt (ML)** - orange, moist, gravelly, mottled light brown			
15					805.71 (14.5)
		- white, dry, sandy, mottled orange, trace gravel		Annular Seal: bentonite chips - 1 bag, 50 lbs, Baroid 3/8" chips	
			803.71		803.11 (17.1)
		Silty Gravel (GM) - orange, wet, fine to medium grain, sandy, mottled brown		Filter: silica filter sand - 4.5 bags, 50 lbs, #1A filter media	
20					799.71 (20.5)
			799.21		
		Schist - tan and pink, fine grain, soft to medium hard, moderately to highly weathered, massive, banded		**Well: 2" OD PVC (SCH 40)**	
25					
			794.71	**Well: 2" OD PVC (SCH 40)** **Screen: 10 ft. pre-pack**	
		Silt (ML) - tan, wet, mottled pink, trace gravel	793.21		
		Gneiss - pink, fine to medium grain, medium hard to hard, moderately weathered, banded			
30			790.21		789.71
		Bottom of borehole at 30.0 feet.		Sump:0.40 ft.	

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-12
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

ELEV. (DEPTH)

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

Abandoned in 2019 during construction activities

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-13
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

DATE STARTED 12/9/2014 **COMPLETED** 12/9/2014 **SURF. ELEV.** 847.5 **COORDINATES:** N:33.408958 E:-85.051632
CONTRACTOR CASCADE **EQUIPMENT** SONIC **METHOD** Rotosonic
DRILLED BY T.Ardito **LOGGED BY** S. Baxter **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 56.9 ft. **GROUND WATER DEPTH: DURING** **COMP.** 27.5 ft. **DELAYED** 30.9 ft. after 24 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	WELL DATA	ELEV. (DEPTH)
		Utility Clearance (HYDROEXCAVATION)		Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 850.04 Surface Seal: concrete	845.5 (2.0)
10			837.5		
		Silt (ML) - red, moist, sandy, mottled yellow and black, micaceous			
20		- wet, trace gravel		Annular Fill: Cement-Bentonite Grout - 6 bags, 46 lbs, Portland Type I/II, 33 gal	
25		- mottled yellow-orange			
30		- brown, moist, sandy, mottled orange with black streaks, micaceous			
35		- mottled red			
40					

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

Abandoned in 2019 during construction activities

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	WELL DATA	ELEV. (DEPTH)
				Protective aluminum cover with bollards 4-foot square concrete pad Top of casing Elev. = 850.04	
				(CONTINUED)	
		Silt (ML) *(Con't)* - gray, trace coarse gravel			805.0 (42.5)
				Annular Seal: bentonite chips - 0.5 bag, 50 lbs, Baroid 3/8" chips	803.0 (44.5)
45				Filter: silica filter sand - 4.5 bags, 50 lbs, #1A filter media	
		- wet			800.2 (47.3)
50				**Well: 2" OD PVC (SCH 40)**	
				Well: 2" OD PVC (SCH 40) **Screen: 10 ft. pre-pack**	
55		- orange			
			790.5		790.2
		Bottom of borehole at 56.9 feet.		Sump:0.40 ft.	

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-15
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

BORING PZ-16
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

Bottom of borehole at 24.5 feet.

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

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SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

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

SOUTHERN COMPANY

LOG OF TEST BORING AND WELL INSTALLATION

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Wansley

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

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

Bottom of borehole at 37.0 feet.

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

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

WELL NUMBER PZ-20

COORDINATES: N:1243496.86 E:2030132.73

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

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

WELL DIAGRAM

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

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

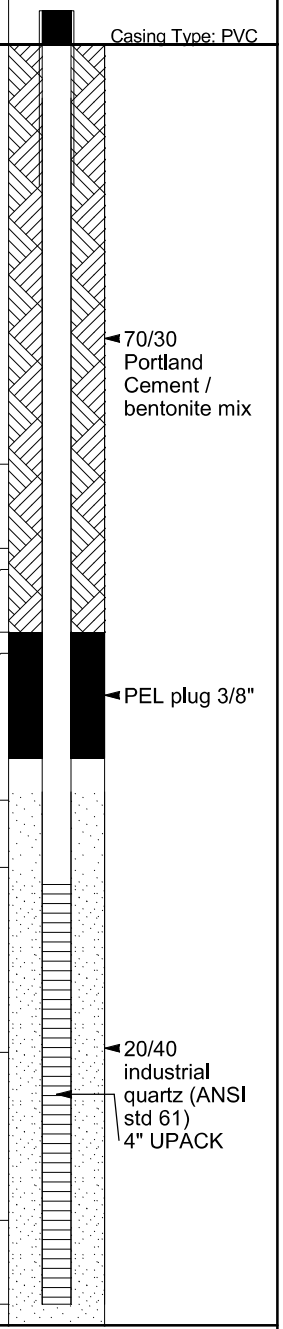
ERM
3200 Windy Hill Rd Ste 1500W
Atlanta, GA 30339
Telephone: 678-486-2700

Abandoned in 2019

WELL NUMBER PZ-21

CLIENT Southern Company Services, Inc.
PROJECT NAME Plant Wansley
PROJECT NUMBER 0372406
PROJECT LOCATION AP
DATE STARTED 1/25/17 **COMPLETED** 1/25/17
GROUND ELEVATION _____ **HOLE SIZE** 4.25 inches
DRILLING CONTRACTOR Southern Comparny Services, Inc
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger 2"
AT TIME OF DRILLING ---
LOGGED BY AS **CHECKED BY** GEJ
AT END OF DRILLING ---
NOTES
AFTER DRILLING 16.90 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					Hydro-Vac cleared. No sample collected
10					10.0
	SS	90	SM		(SM) Brown, black, orange Silty SAND, loose, well graded, micaceeous, dry
					12.0
			CL-ML		12.5 (CL-ML) Orange and black mottled Silty CLAY, medium stiff, low plasticity, dry
			SM		(SM) Brown, black, orange Silty SAND, loose, well graded, micaceeous, dry
					14.0
15			CL-ML		14.5 (CL-ML) Orange and black mottled Silty CLAY, medium stiff, low plasticity, dry
	SS	93	SM		(SM) Brown, black, orange Silty SAND, loose, well graded, trace mixed clays and gravels, micaceeous, moist - wet
					18.0
			CL-ML		(CL-ML) Orange Silty CLAY, soft, low plasticity, wet
20					19.6
	SS	100	SM		(SM) Brown, black, orange Silty SAND, loose, well graded, micaceeous, wet
					24.0
25			SW		(SW) Grey brown Gravelly Silty SAND, loose, course grained, micaceous, wet
	SS	100	SW		(SW) SAA, foiliated texture
					28.0
30					Grey Partially Weather Rock (PWR), very dense, foliated, micaceous, with coarse quartzite gravel
					30.0



Refusal at 30.5 feet.
Bottom of borehole at 30.5 feet.

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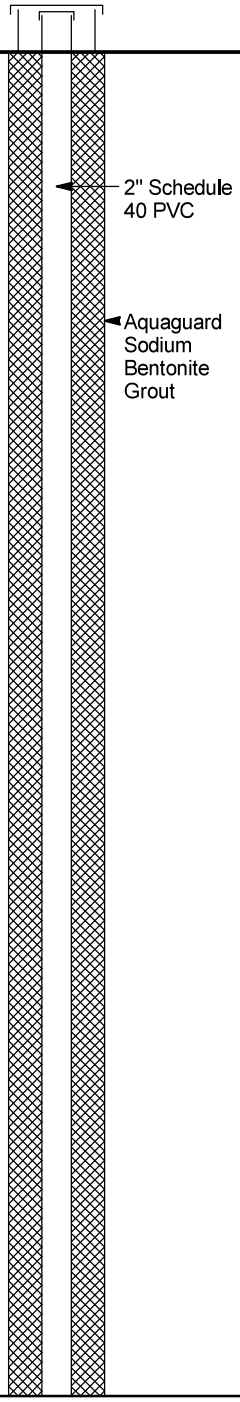
PIEZOMETER PZ-23D

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

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

CONSTRUCTION DIAGRAM



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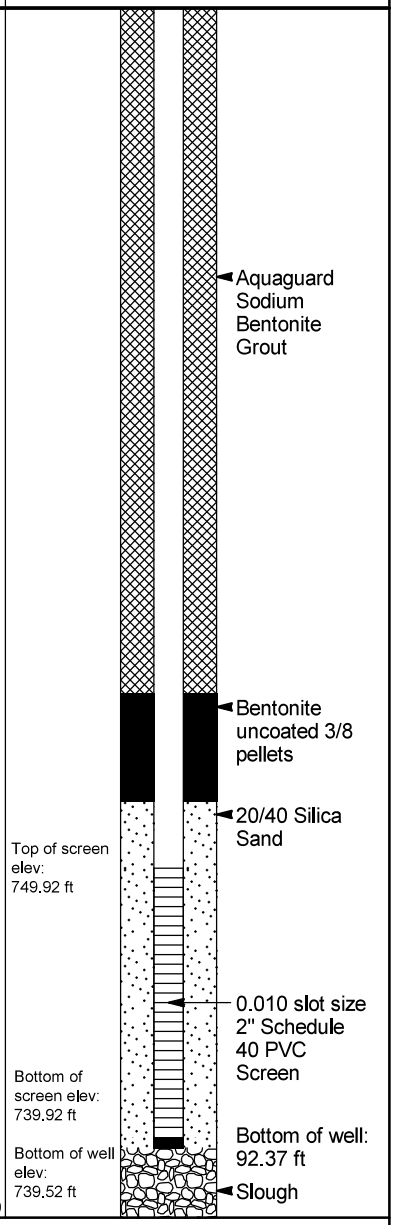
PIEZOMETER PZ-23D

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

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
50				GNEISS, gray to bluish gray, iron scaling present on fracture faces and vertical hairline fractures, broken into cobble size pieces along joints, faint thin banding, very hard, wet.
	780			53 ft: Likely fracture.
60				60 ft: Increased separation of minerals in very thin laminations.
	770			
70				
	760			75 ft: Large potassium feldspar minerals.
80				80 ft: Potassium feldspar throughout.
	750			
90		90 ft: Increased rig chatter and resistance.		
	740			
				736.9

Bottom of borehole at 95.0 feet.

CONSTRUCTION DIAGRAM



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Borehole abandoned with sodium bentonite grout

BORING PZ-25 (Abandoned)

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

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0		Boring abandoned due to jammed rods.		Air Knife Excavation (0 ft to 10 ft) NO SAMPLE
10				SAPROLITE, reddish yellow, soft, silts and fine sands, medium plasticity, iron staining between 18 ft and 19 ft, relic rock structure throughout, soft, dry. PARTIALLY WEATHERED ROCK (PWR), reddish yellow, soft, silts and fine sands, medium plasticity, iron staining between 18 ft and 19 ft, relic rock structure throughout, soft, dry.
20				20 ft: Strong brown.
30				PARTIALLY WEATHERED ROCK (PWR), gneiss,pinkish gray, weathered, silty sand, fine grained, medium plasticity, with large rock fragments, soft. 30 ft: Strong brown.
40				PARTIALLY WEATHERED ROCK (PWR), muscovite schist, brown to grayish brown, weathered, silty sand, fine to coarse grained, large rock fragments, minimal iron staining at 55 ft, dry.
50				MUSCOVITE SCHIST, black, thin laminations, hard.
				GNEISS, pink, pale brown, massive, with thin laminations, some hard, weak foliations.
60				Bottom of borehole at 60.0 feet.

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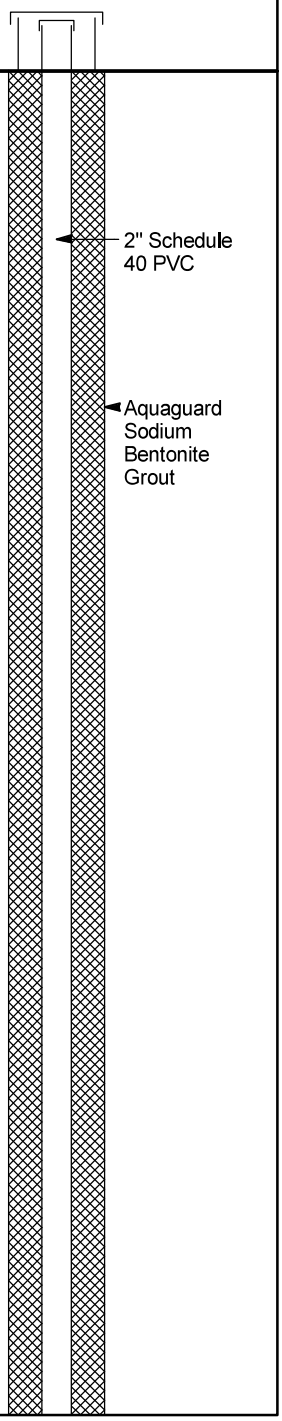
PIEZOMETER PZ-26D

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

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

CONSTRUCTION DIAGRAM



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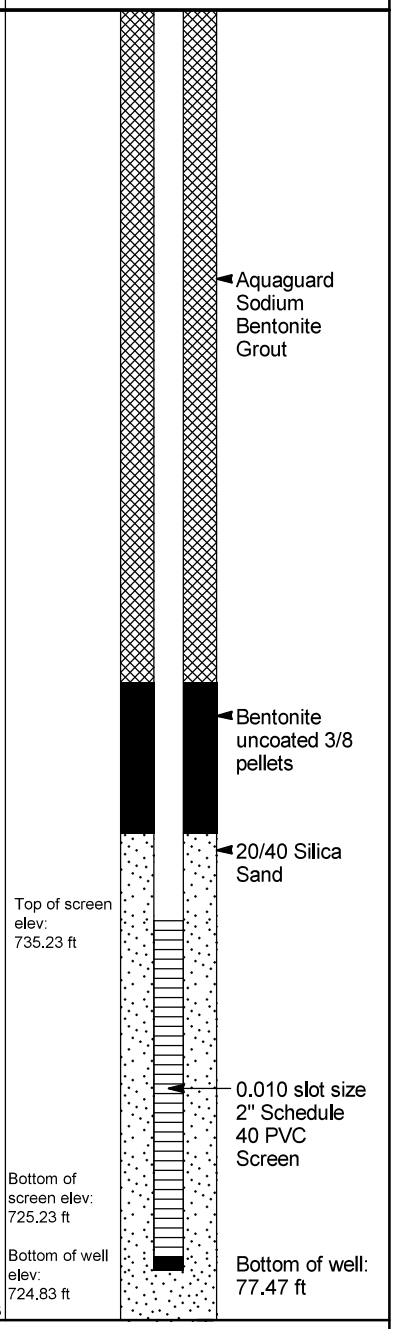
PIEZOMETER PZ-26D

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

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

CONSTRUCTION DIAGRAM



Bottom of borehole at 79.0 feet.

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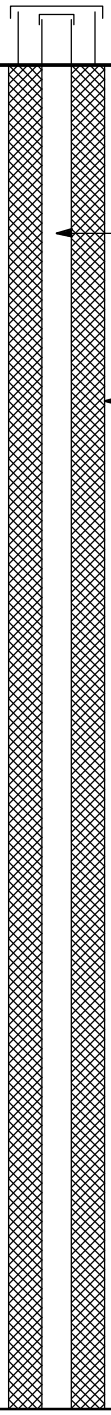
PIEZOMETER PZ-27D

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

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

CONSTRUCTION DIAGRAM



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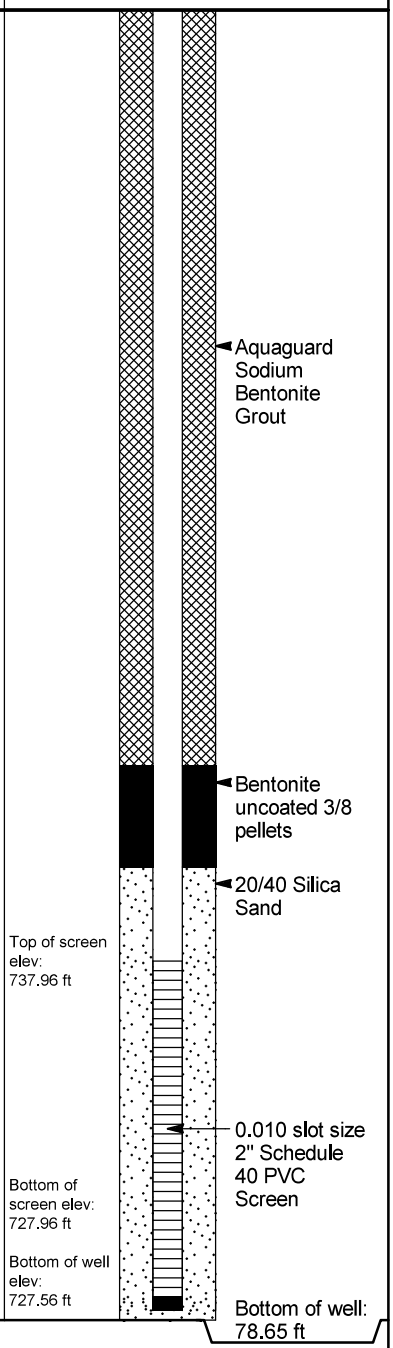
PIEZOMETER PZ-27D

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

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

CONSTRUCTION DIAGRAM



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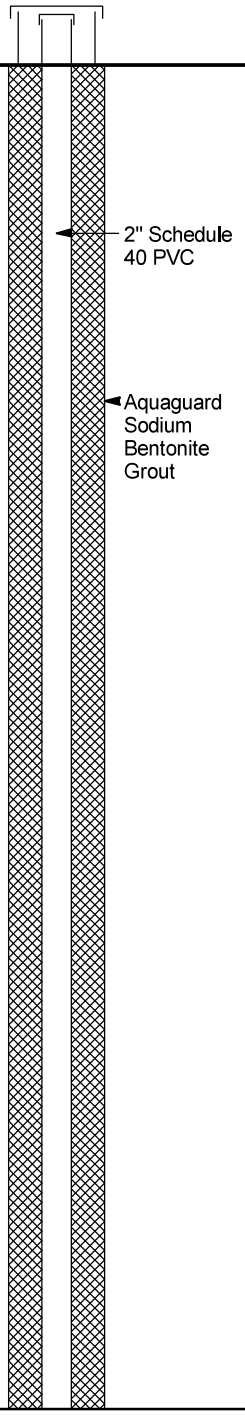
PIEZOMETER PZ-28

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

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

CONSTRUCTION DIAGRAM



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PIEZOMETER PZ-28

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

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
40				SAPROLITE, sandy silt, reddish yellow, stiff, non plastic, iron concretions and staining, faint rock fabric visible, moist.	
	770				
45					Aquaguard Sodium Bentonite Grout
	765				
50				51 ft: Dense, well graded, trace gravel, increasing gravel content with depth.	
	760				Bentonite uncoated 3/8 pellets
55					
	755				20/40 Silica Sand
60					Top of screen elev: 753.68 ft
				751.6	
				PARTIALLY WEATHERED ROCK (PWR), silty sand and gravel, very pale brown, fine to coarse grained, relic rock structure, iron staining, increasing gravel with depth, moist.	
65					0.010 slot size 2" Schedule 40 PVC Screen
	750				Bottom of screen elev: 743.68 ft
	745				Bottom of well elev: 743.28 ft
70				743.1	Bottom of well: 70.29 ft
				Bottom of borehole at 70.5 feet.	

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PIEZOMETER PZ-29S

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

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
0				Air Knife Excavation (0 ft to 10 ft) NO SAMPLE	2" Schedule 40 PVC
	800			795.8	
10				SILTY CLAY, reddish brown, firm, no plasticity, trace gravel and mica, moist.	Aquaguard Sodium Bentonite Grout
	790				
20				20 ft: Stiff, trace white sand layers, fine grained.	
	780			775.8	
30				NO RECOVERY (30 ft to 32 ft)	
				773.8	
				SILTY CLAY, reddish brown, firm, no plasticity, trace gravel, cobbles and mica, moist.	20/40 Silica Sand Top of screen elev: 770.28 ft
	770			766.3	
40				765.8 CLAYEY SILT, dark brownish yellow (10YR, 4/4), dry, loose, no plasticity, some gravel and mica.	0.010 slot size 2" Schedule 40 PVC Screen
				763.8 SANDY SILT, brown, soft, no plasticity, some clay and gravel, moist.	Bottom of screen elev: 760.28 ft
				762.1 SILTY CLAY, yellowish red, stiff, low plasticity, trace gravel and mica, moist.	
	760			760.8 SANDY SILT, brown, soft, no plasticity, some clay and gravel, moist.	Bottom of well elev: 759.88 ft
				CLAYEY SILT, dark brownish yellow, loose, no plasticity, some gravel and mica, dry.	Bottom of well: 45.92 ft
50				755.8	
				Bottom of borehole at 50.0 feet.	

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PIEZOMETER PZ-29D

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

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

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PIEZOMETER PZ-29D

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

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

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PIEZOMETER PZ-29D

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

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

Bottom of borehole at 129.0 feet.

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

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

RECORD OF BOREHOLE WGWC-14/APC-5S

SHEET 1 of 2

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

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

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

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

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

Log continued on next page

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

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

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

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

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

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

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

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

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

Golder Associates

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

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

RECORD OF BOREHOLE WGWC-14/APC-5S

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

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

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

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

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

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

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

Golder Associates

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

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

Geosyntec consultants
engineers | scientists | innovators

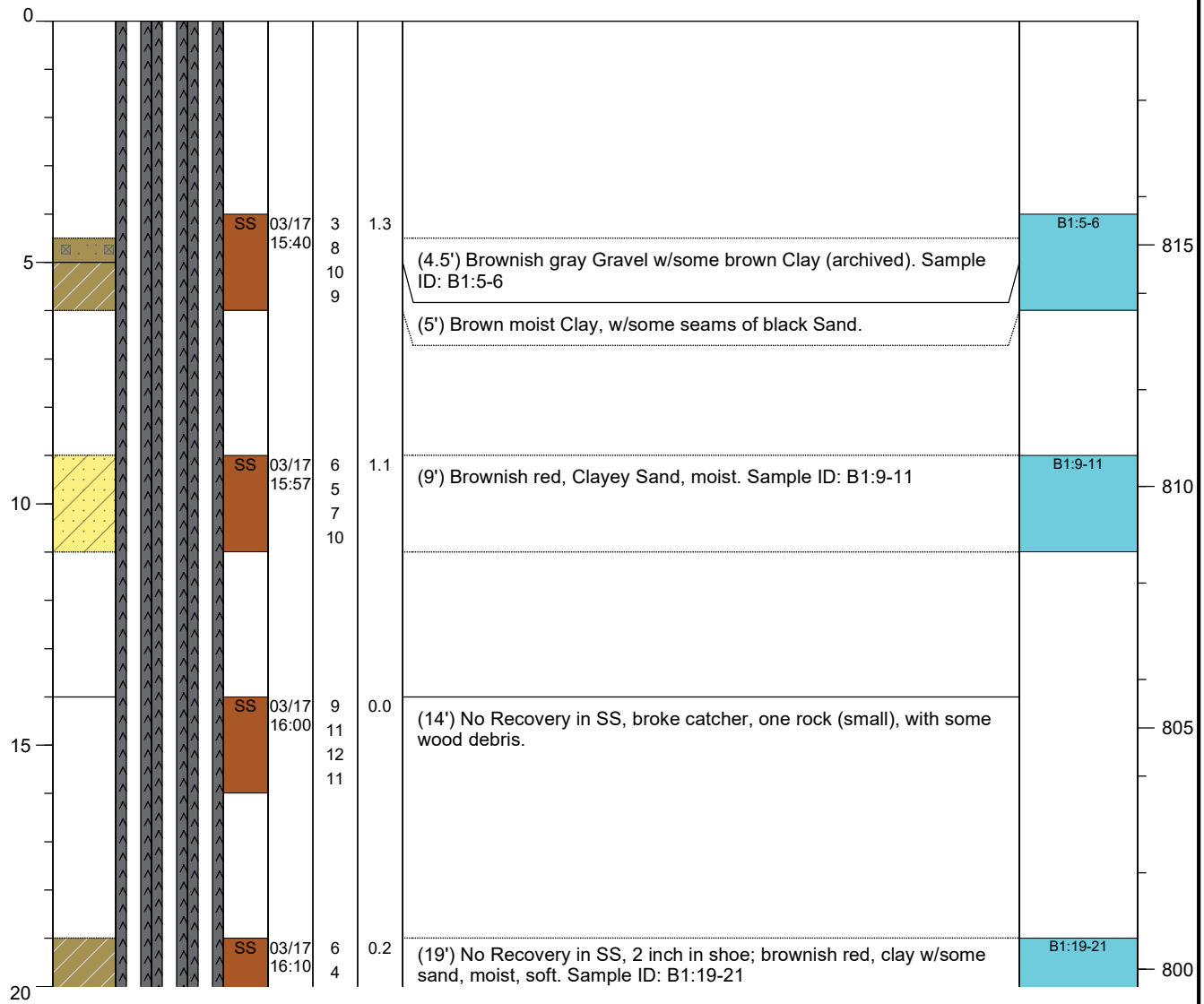
Client:	**Southern Company Services**
Project:	**Plant Wansley Ash Pond Closure**
Address:	**1371 Liberty Church Rd., Carrollton, GA**

PIEZOMETER LOG

Boring No. PZA1

Page: 1 of 7

Drilling Start Date:	**03/25/2016**	Boring Depth (ft):	**126**
Drilling End Date:	**04/11/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	**N/A**
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**25.10**
Driller:	**Russell Enfinger**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2027872.516, 1243351.278 (State Plane, GA West)**

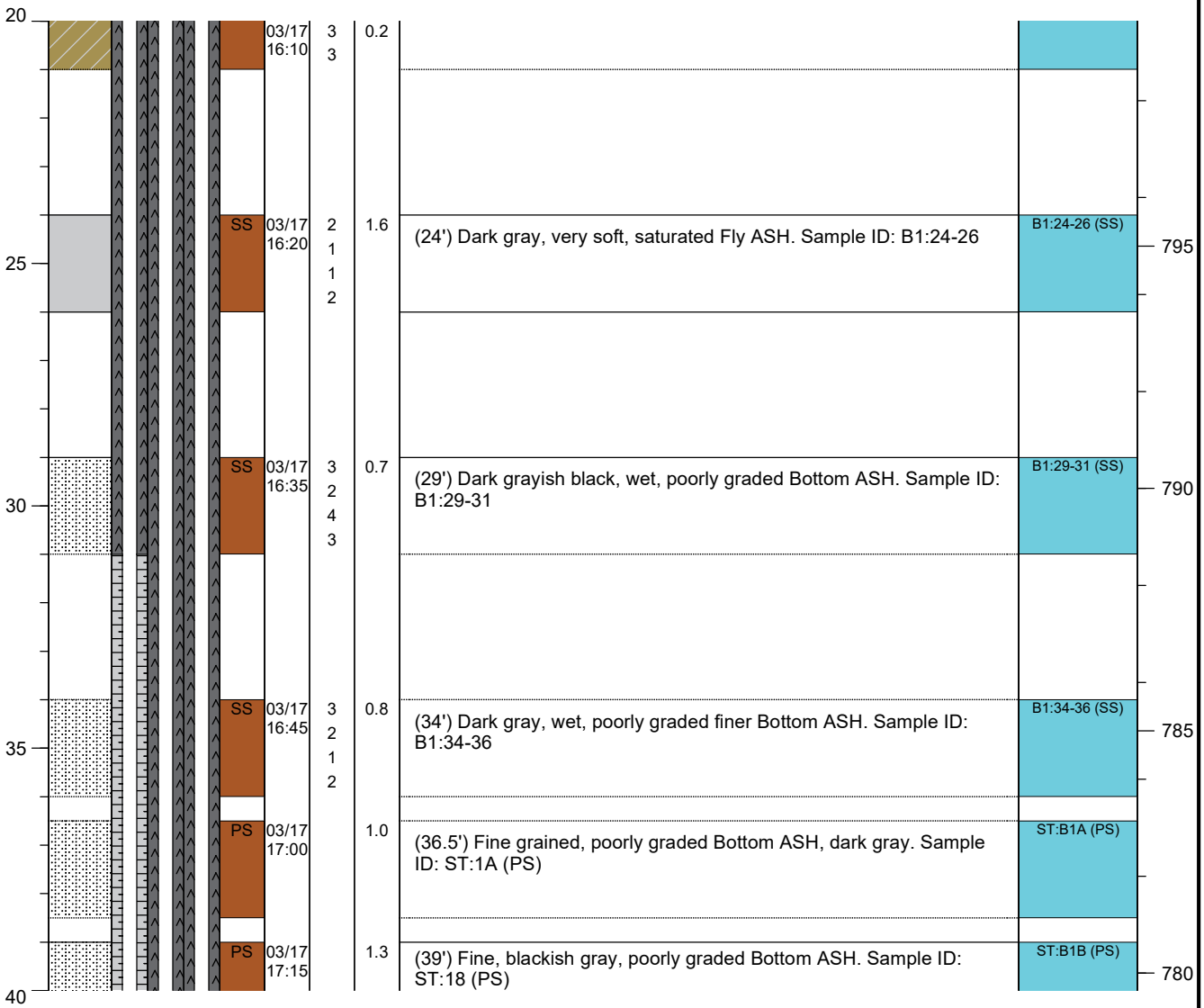


NOTES: See notes on page 7.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA1 Page: 2 of 7

Drilling Start Date:	**03/25/2016**	Boring Depth (ft):	**126**
Drilling End Date:	**04/11/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**25.10**
Driller:	**Russell Enfinger**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2027872.516, 1243351.278 (State Plane, GA West)**

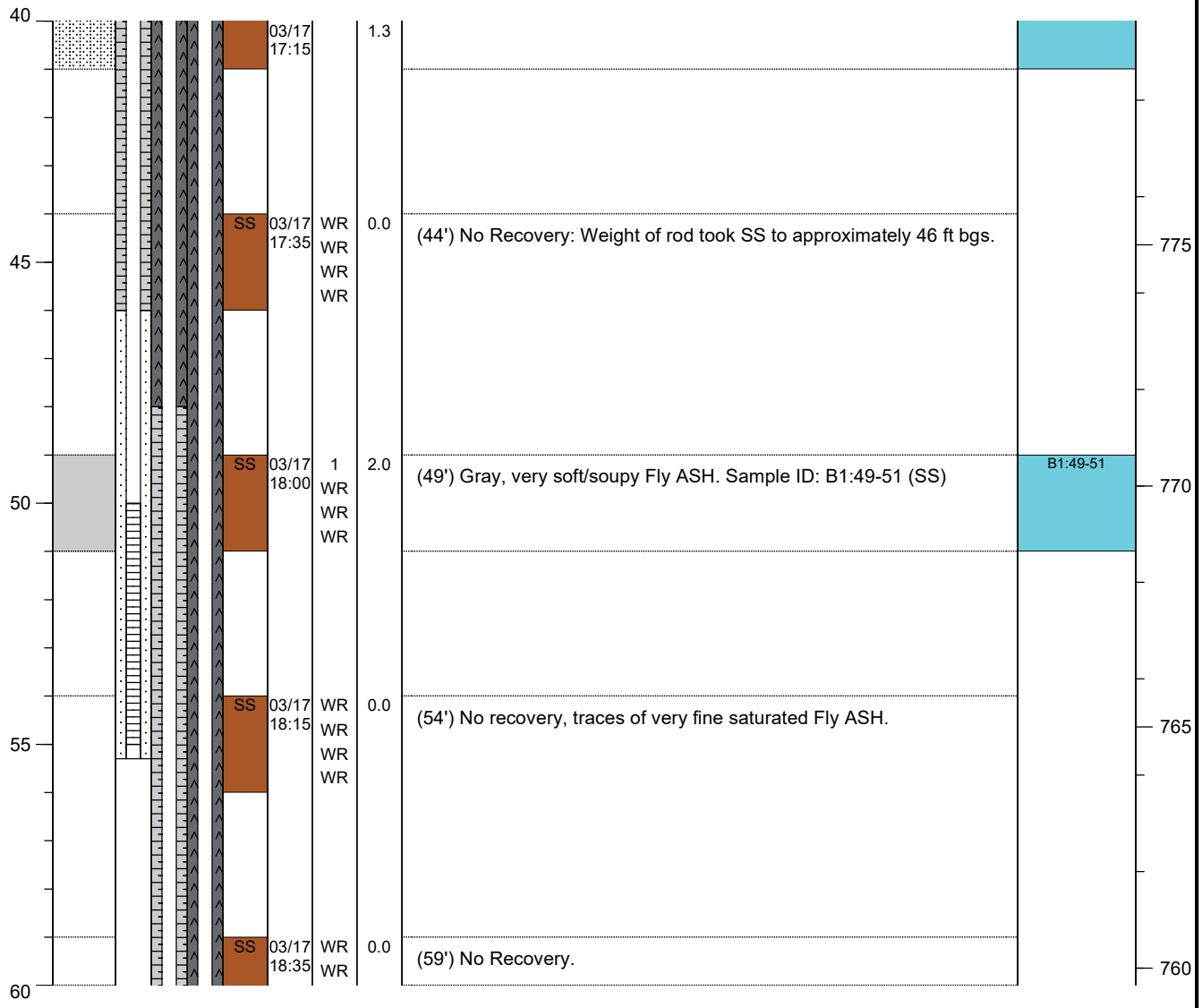


NOTES: See notes on page 7.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	**PIEZOMETER LOG** **Boring No. PZA1** **Page: 3 of 7**

Drilling Start Date:	**03/25/2016**	Boring Depth (ft):	**126**
Drilling End Date:	**04/11/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**25.10**
Driller:	**Russell Enfinger**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2027872.516, 1243351.278 (State Plane, GA West)**

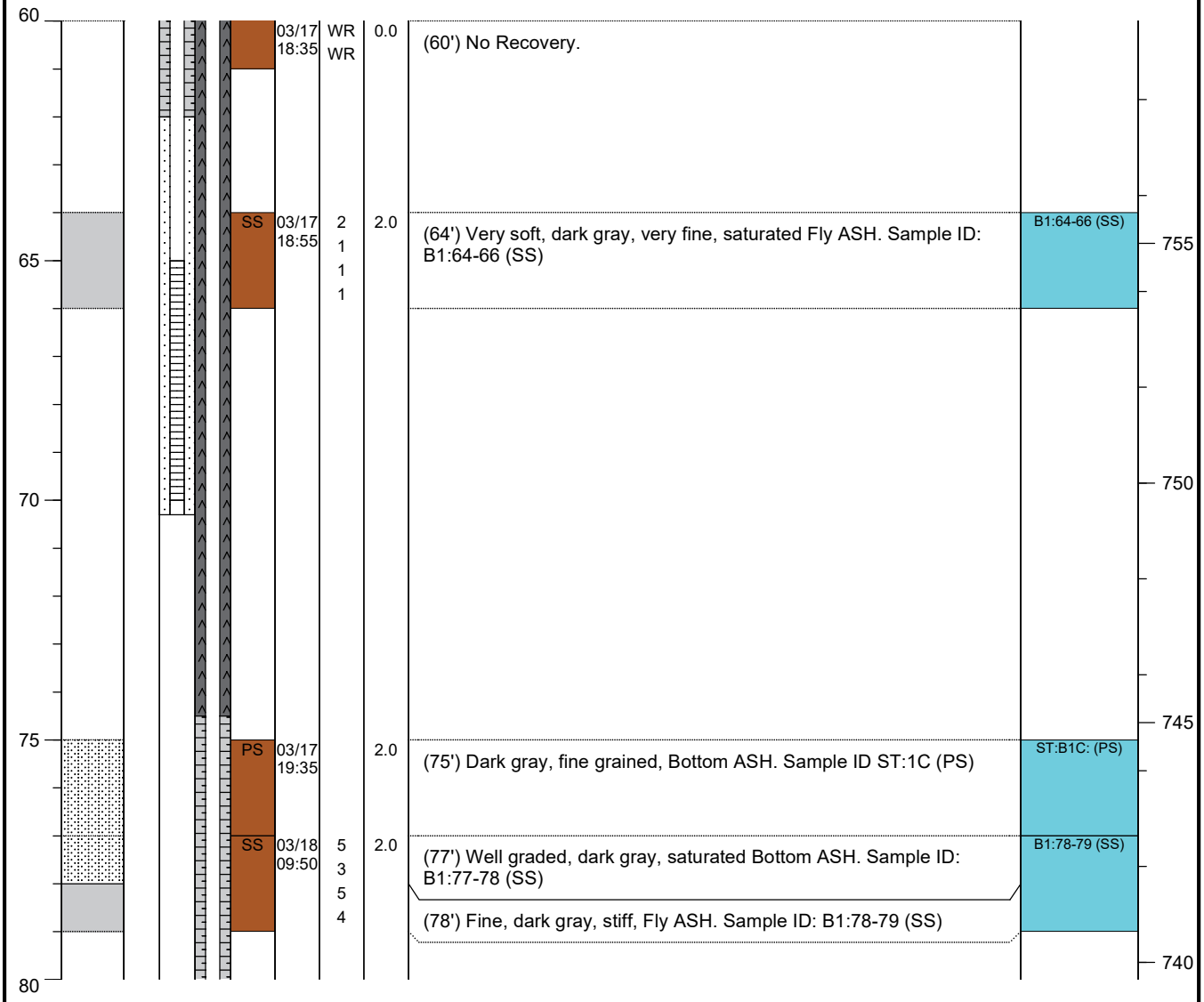


NOTES: See notes on page 7.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	**PIEZOMETER LOG** **Boring No. PZA1** **Page: 4 of 7**

Drilling Start Date:	**03/25/2016**	Boring Depth (ft):	**126**
Drilling End Date:	**04/11/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**25.10**
Driller:	**Russell Enfinger**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2027872.516, 1243351.278 (State Plane, GA West)**

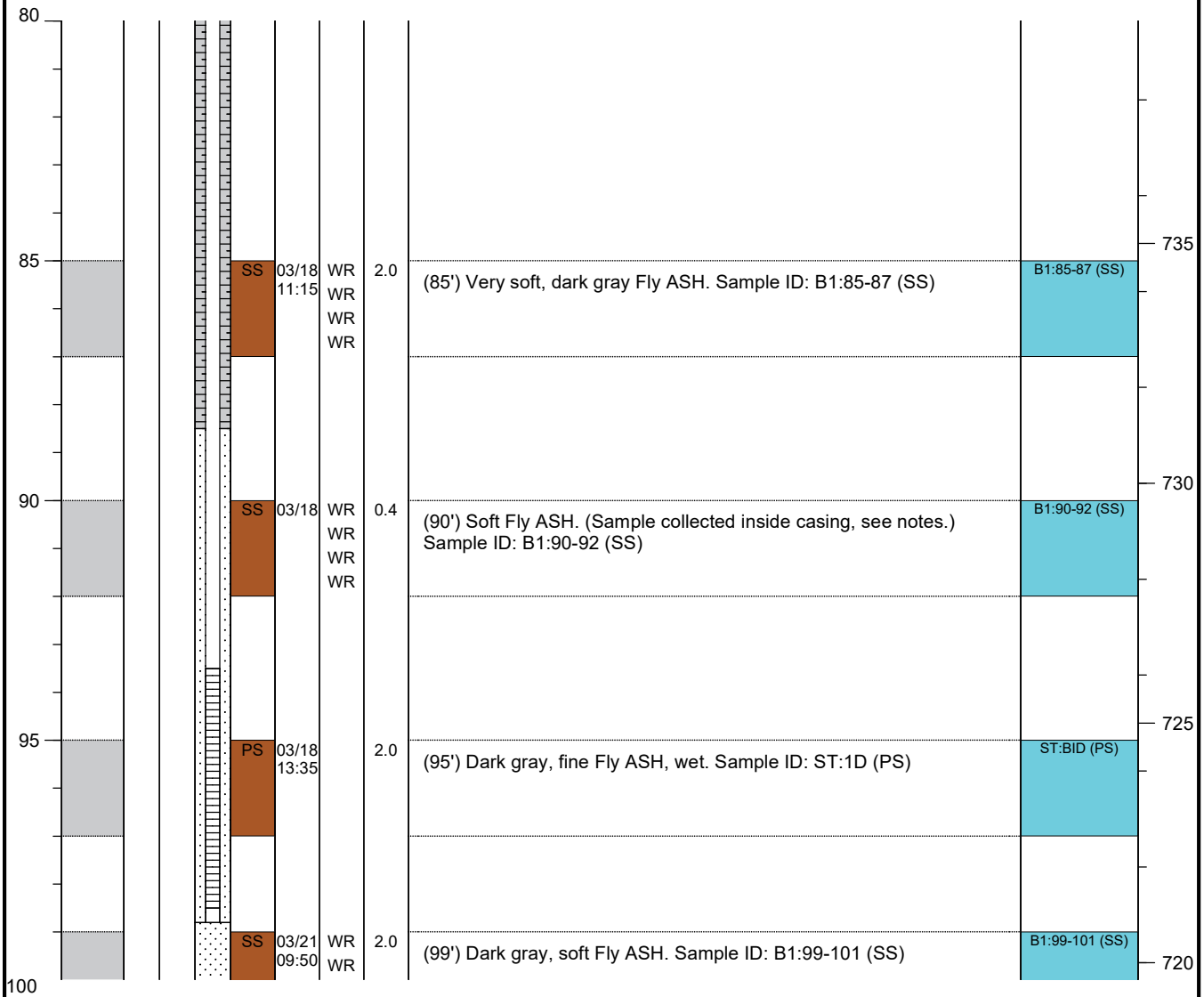


NOTES: See notes on page 7.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA1 Page: 5 of 7

Drilling Start Date:	**03/25/2016**	Boring Depth (ft):	**126**
Drilling End Date:	**04/11/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**25.10**
Driller:	**Russell Enfinger**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2027872.516, 1243351.278 (State Plane, GA West)**



NOTES: See notes on page 7.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA1 Page: 6 of 7

Drilling Start Date:	**03/25/2016**	Boring Depth (ft):	**126**
Drilling End Date:	**04/11/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**25.10**
Driller:	**Russell Enfinger**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2027872.516, 1243351.278 (State Plane, GA West)**

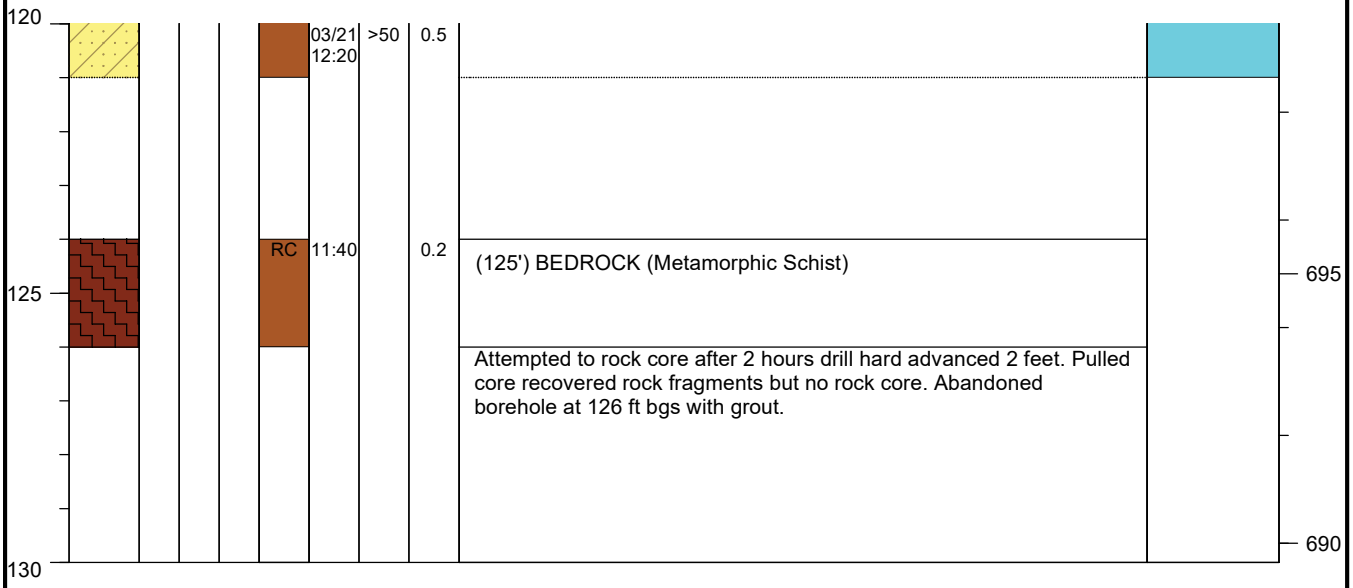
DEPTH (ft)	LITHOLOGY	PZA1-Shallow	PZA1-Mid	PZA1-Deep	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: Sample ID	ELEV. (ft msl)
100						03/21 09:50	WR WR	2.0			
105					SS	03/21 10:40	3 3	2.0	(104') Gray, coarse Bottom ASH. Sample ID: B1:104-104.5 (SS) (104.5') Gray, fine, Fly ASH. Sample ID: B1:104.5-106 (SS)	104-104.5 (SS) 104.5-106 (SS)	715
110					SS	03/21 11:45	3 3 6 8	2.0	(109') Dry, grayish black, Fly and Bottom ASH. Sample ID: B1:109-110 (SS) (110') Native Soil, brown, stiff, Silty Clay, moist. Sample ID: B1:110-111 (SS)	B1:109-110 (SS) B1:110-111 (SS)	710
115					PS	03/21 09:50		1.7	(114') BENTONITE (Bottom 4 inch of tube split open by rock; tube was trimmed prior to sealing.) (115') Brownish red Silty Clay w/gravel/rocks. Sample ID: ST:B1E (PS)	ST:B1E (PS)	705
120					SS	03/21 12:20	48 50	0.5	(119') Refusal after 12 inch, Brown Clayey Sand with Gravel. Sample ID: B1:119-121 (SS)	B1:119-121 (SS)	700

NOTES: See notes on page 7.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	**PIEZOMETER LOG** **Boring No. PZA1** **Page: 7 of 7**

Drilling Start Date:	**03/25/2016**	Boring Depth (ft):	**126**
Drilling End Date:	**04/11/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**25.10**
Driller:	**Russell Enfinger**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2027872.516, 1243351.278 (State Plane, GA West)**



NOTES:
A 4 inch borehole was drilled using only water to set the piezometers.
All three wells were fully developed by J. Gasser. At least 10 well volumes were removed and turbidity was reduced to less than 10 NTU.
Piezometer wells are 2 inch ID, Schedule 40 PVC, with a 5 foot High Yield PrePack, 0.010 inch Slot, Non metals, Fine (#0 Sand).
Boring above the top of the well was filled with approximately 2 feet of sand, 10 feet of bentonite, and cement grout.
All PVC wells were cut 3.5 feet above ground surface and covered with an aluminum protective casing.
Aluminum protective casing was filled with pea gravel and concreted in place.
A 1/4 inch Vent hole was drilled in the well, just under the cap, and a 1/4 inch Weep hole was drilled in the bottom of the aluminum casing. Four bollards were installed in front of the wells.
Screened elevations are: PZA1-Shallow (50-55 ft bgs), PZA1-Mid (65-70 ft bgs), and PZA1-Deep (93.5-98.5 ft bgs).
Depth measured during installation and as shown in this log refers to depth below ground surface.
Depth below ground surface is from the top of ground at the location, not the top of the aluminum protective casing or PVC pipe.
Elevation was measured by SCS prior to drilling.

NOTES: See notes on page 7.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	**PIEZOMETER LOG** **Boring No. PZA2** **Page: 1 of 8**

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**

DEPTH (ft)	LITHOLOGY	PZA2-Shallow	PZA2-Mid	PZA2-Deep	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: Sample ID	ELEV. (ft msl)
0											815
5											810
10											805
15											800
20											

NOTES: See notes on page 8.

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

Geosyntec consultants engineers | scientists | innovators	**Client:** Southern Company Services **Project:** Plant Wansley Ash Pond Closure **Address:** 1371 Liberty Church Rd., Carrollton, GA	**PIEZOMETER LOG** **Boring No. PZA2** **Page: 2 of 8**

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**

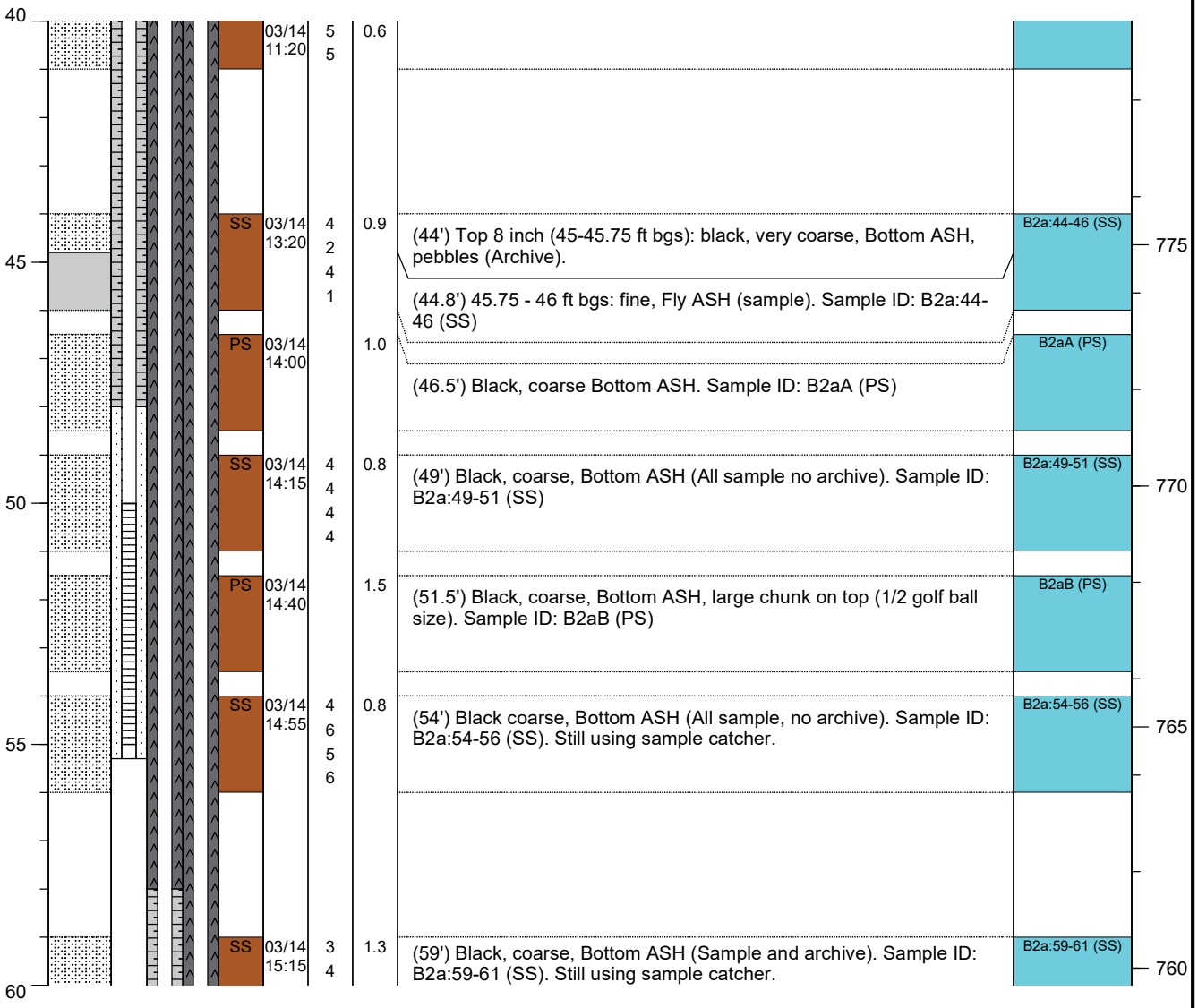
DEPTH (ft)	LITHOLOGY	PZA2-Shallow	PZA2-Mid	PZA2-Deep	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: Sample ID	ELEV. (ft msl)
20											
25											795
30											790
35					SS	03/14 10:35	6 3 3 3	0.0	(34') No recovery without sample catcher, minimum amounts of coarse, black Bottom ASH. No sample bagged.		785
40					SS	03/14 11:20	5 4	0.6	(39') Black, coarse, Bottom ASH, no archive sample. Sample ID: B2a:39-41 (SS)	B2a:39-41 (SS)	780

NOTES: See notes on page 8.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA2 Page: 3 of 8

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**

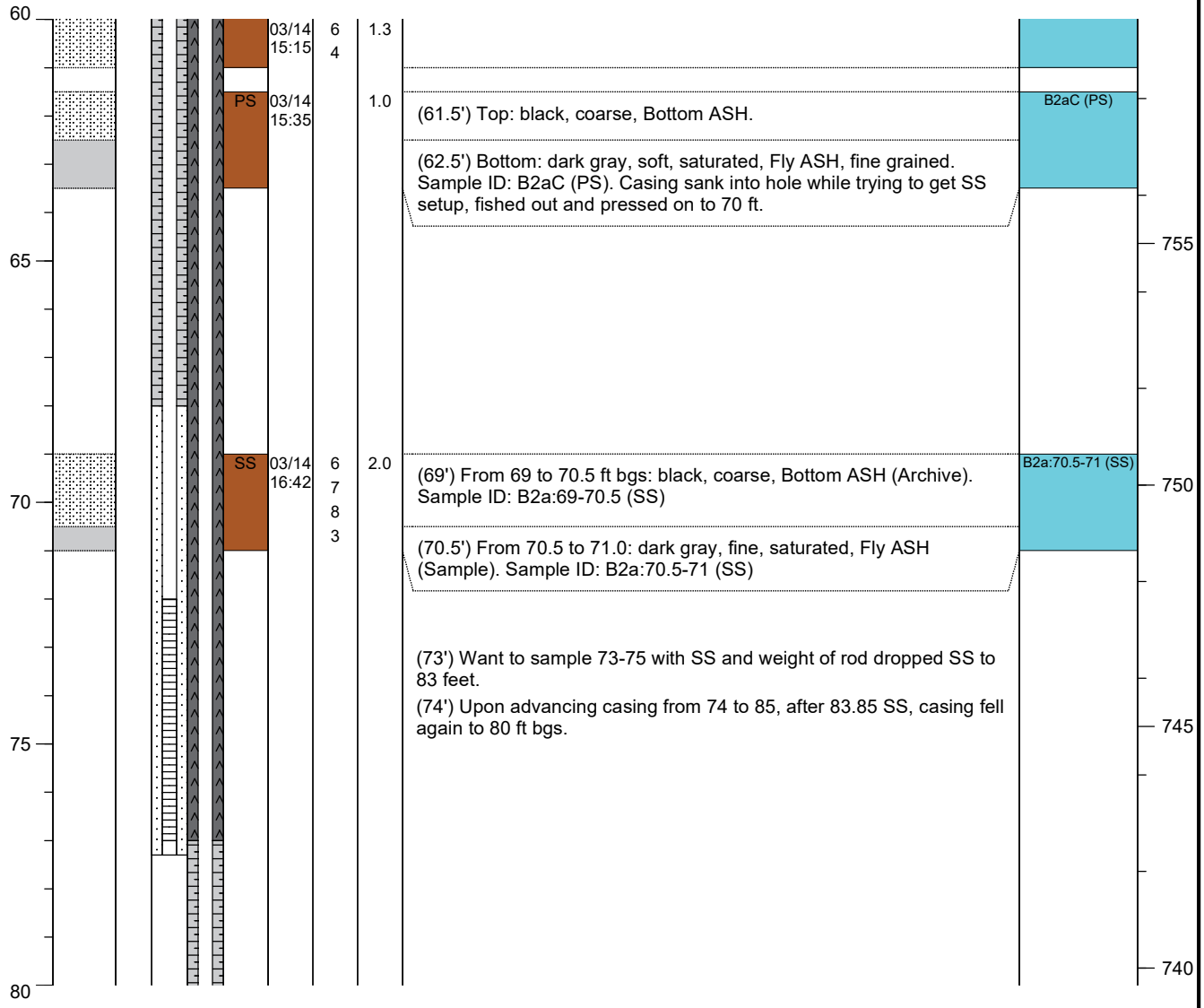


NOTES: See notes on page 8.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA2 Page: 4 of 8

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**

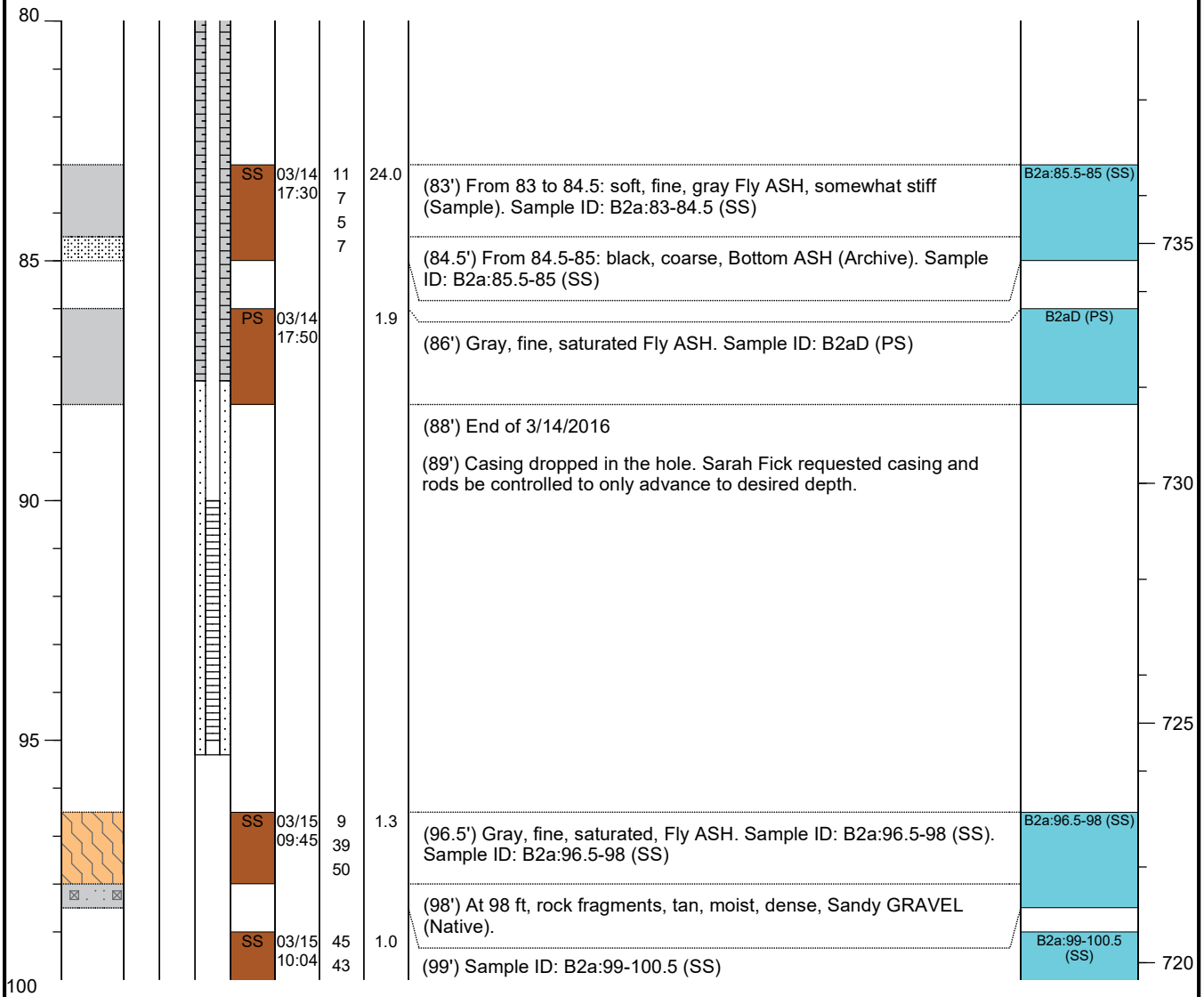


NOTES: See notes on page 8.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA2 Page: 5 of 8

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**



NOTES: See notes on page 8.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA2 Page: 6 of 8

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**WaterRotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**

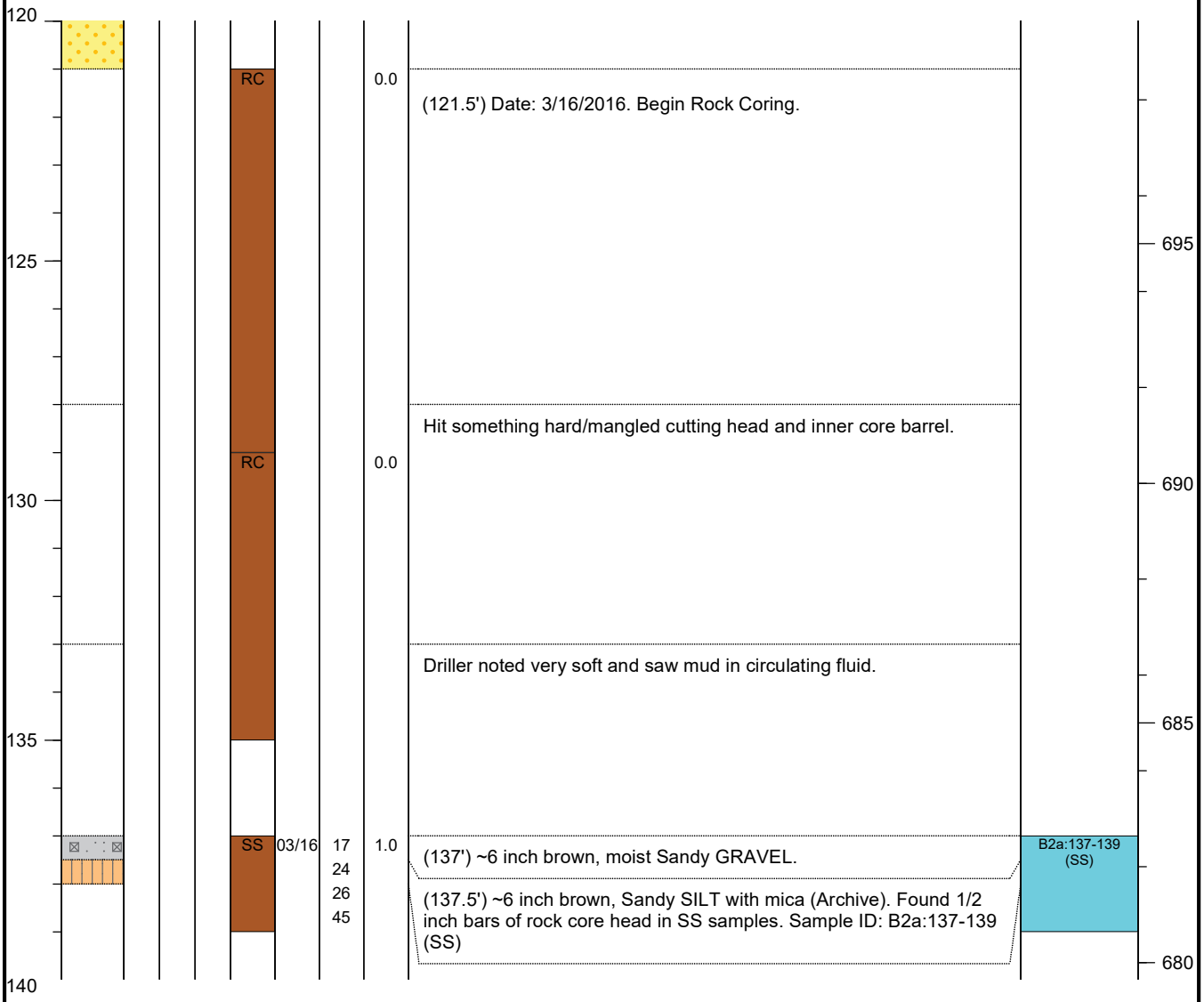
DEPTH (ft)	LITHOLOGY	PZA2-Shallow	PZA2-Mid	PZA2-Deep	COLLECT: Sample Type	Date & Time	Blow Counts	Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: Sample ID	ELEV. (ft msl)
100						03/15 10:04	50	1.0			
					SS	03/15 10:40	15 13 13 18	1.1	(102') Light brown Sandy SILT with mica, soft, moist, W/A 1 in rock in top of sample. Sample ID: B2a:103.5-104 (SS)	B2a:103.5-104 (SS)	
105									(103.5') Red (light) brown Sandy CLAY, stiff, moist. (104') ~2 inch Bentonite in top of tube. Sample ID: ST:2aE (PS)	ST:2aE (PS)	715
					SS	03/15 16:00	11 7 8 11	1.5	(107') Red brown SILT, stiff, moist. Sample ID: B2a:107-109 (SS)	B2a:107-109 (SS)	
110											710
115					SS	03/15 16:50	55	1.8	(114') Light brown, layered SAND/MICA, very friable (Archive).		705
									(119') Light brown, layered SAND/MICA, very friable (Archive).		700
120											

NOTES: See notes on page 8.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMETER LOG Boring No. PZA2 Page: 7 of 8

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**

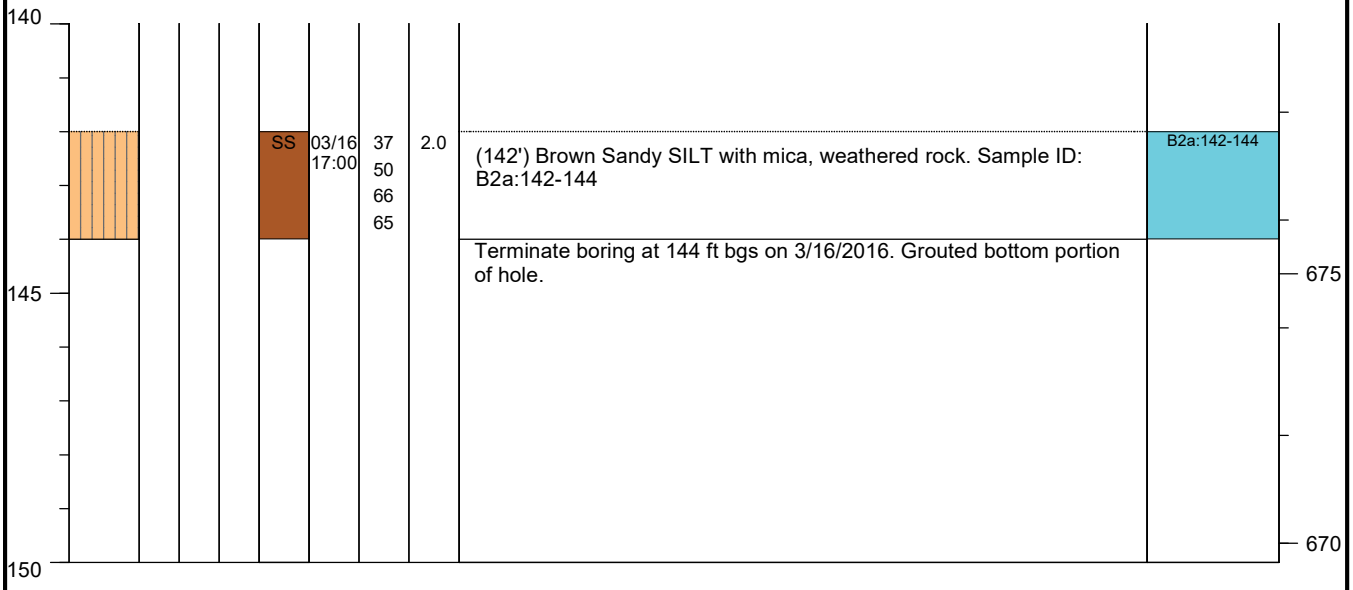


NOTES: See notes on page 8.

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

Geosyntec consultants	Client: Southern Company Services Project: Plant Wansley Ash Pond Closure Address: 1371 Liberty Church Rd., Carrollton, GA	PIEZOMTER LOG Boring No. PZA2 Page: 8 of 8

Drilling Start Date:	**04/05/2016**	Boring Depth (ft):	**144**
Drilling End Date:	**04/12/2016**	Boring Diameter (in):	**4.25**
Drilling Company:	**Walker-Hill Environmental (WHE)**	Sampling Method(s):	N/A
Drilling Method:	**Water Rotary**	DTW During Drilling (ft):	**-**
Drilling Equipment:	**Foremost B-59**	DTW After Drilling (ft):	**24.35**
Driller:	**Terry Orso**	Ground Surface Elevation (ft msl):	**819.64**
Logged By:	**Jeremy Gasser**	Location (X,Y) (ft):	**2028520.791, 1243229.309 (State Plane, GA West)**



NOTES:
A 4 inch borehole was drilled using only water to set the piezometers.
All three wells were fully developed by J. Gasser. At least 10 well volumes were removed and turbidity was reduced to less than 10 NTU.
Piezometer wells are 2 inch ID, Schedule 40 PVC, with a 5 foot High Yield PrePack, 0.010 inch Slot, Non metals, Fine (#0 Sand).
Boring above the top of the well was filled with approximately 2 feet of sand, 10 feet of bentonite, and cement grout.
All PVC wells were cut 3.5 feet above ground surface and covered with an aluminum protective casing.
Aluminum protective casing was filled with pea gravel and concreted in place.
A 1/4 inch Vent hole was drilled in the well, just under the cap, and a 1/4 inch Weep hole was drilled in the bottom of the aluminum casing. Four bollards were installed in front of the wells.
Screened elevations are: PZA2-Shallow (50-55 ft bgs), PZA2-Mid (72-77 ft bgs), and PZA1-Deep (90-95 ft bgs).
Depth measured during installation and as shown in this log refers to depth below ground surface.
Depth below ground surface is from the top of ground at the location, not the top of the aluminum protective casing or PVC pipe.
Elevation at B-2 was not measured in the field. As built elevation is reported. Dikes are relatively flat and location B-2 was comparable to location B-1, which matched the as built elevation.

NOTES: See notes on page 8.

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

BORING LOG
Boring No. CSB-2022-01
Page: 1 of 2

Drilling Start Date:	09/24/2022	Boring Depth (ft):	70
Drilling End Date:	09/24/2022	Boring Diameter (in):	6
Drilling Company:	Cascade Drilling	Sampling Method(s):	Core Barrel
Drilling Method:	Sonic 4x6	DTW During Drilling (ft):	28.0
Drilling Equipment:	Terrasonic	DTW After Drilling (ft):	--
Driller:	Cory Franklin	Ground Surface Elev. (ft):	804.93 NAV88
Logged By:	T. Kessler	Location (N,E):	1243334.918, 2029756.286

DEPTH (ft)	Sample Type	SOIL/ROCK VISUAL DESCRIPTION	REMARKS
0	GR	(0') Hand augered material. Not logged.	Dry drilled from 0-7 feet bgs due to water feed issue; powdered sample.
0	CB	(2') QUARTZITE; pinkish gray to grayish blue, dry to wet, hard, trace pyrite, abundant iron staining.	
5			Abundant rig chatter from 6-9 feet bgs.
10	CB	(9') Heavily fractured zone, green staining on fractures from 9-10 feet bgs.	Pumping test performed (recharge=0.03 gpm).
10		(10') Highly fractured, trace epidote in fractures.	
15		(15') Sand-filled fracture zone from 15-20 feet bgs consisting of poorly graded SAND (SP); light brown, moist, coarse to medium grained and subrounded with abundant quartzite gravel.	
20	CB	(20') Grayish blue with trace pinkish gray, hard, heavily fractured, trace pyrite, abundant iron staining.	Pumping test performed (recharge=0.08 gpm).
25			
30	CB	(30') Pinkish gray to grayish blue, heavily fractured, trace mafics and mica, abundant iron staining.	Pumping test performed (recharge=0.044 gpm).
35			
37		(37') PARTIALLY WEATHERED ROCK; reddish-brown, moist, firm, relict rock structures, trace clay and silt.	
40	CB	(39') QUARTZITE; pinkish gray to grayish blue, hard, heavily fractured, trace mafics and mica, abundant iron staining.	Pumping test performed (recharge=0.034 gpm).
40		(40') Grayish blue with pinkish gray in top 4 feet, heavily fractured from 40-44 feet, abundant gravel, abundant iron staining.	
45			

NOTES: Boring backfilled with cement bentonite grout. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988.

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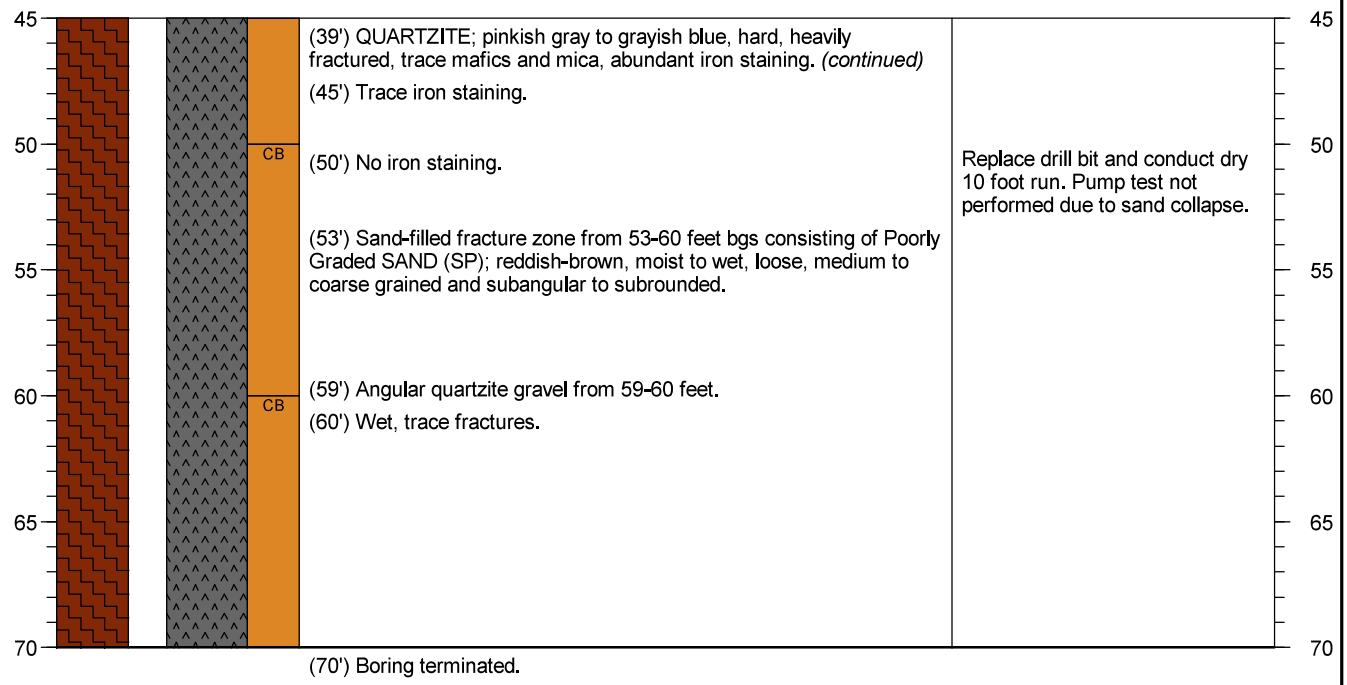
Client: Southern Company Services
Project: Plant Wansley Well Installation
Address: 1371 Liberty Church Rd, Carrollton, GA

BORING LOG
Boring No. CSB-2022-01
Page: 2 of 2

Drilling Start Date:	09/24/2022	Boring Depth (ft):	70
Drilling End Date:	09/24/2022	Boring Diameter (in):	6
Drilling Company:	Cascade Drilling	Sampling Method(s):	Core Barrel
Drilling Method:	Sonic 4x6	DTW During Drilling (ft):	28.0
Drilling Equipment:	Terrasonic	DTW After Drilling (ft):	--
Driller:	Cory Franklin	Ground Surface Elev. (ft):	804.93 NAV88
Logged By:	T. Kessler	Location (N,E):	1243334.918, 2029756.286



DEPTH (ft)	SOIL/ROCK VISUAL DESCRIPTION	REMARKS	ELEVATION (ft NAV88)
45	(39') QUARTZITE; pinkish gray to grayish blue, hard, heavily fractured, trace mafics and mica, abundant iron staining. *(continued)* (45') Trace iron staining.		45
50	(50') No iron staining.	Replace drill bit and conduct dry 10 foot run. Pump test not performed due to sand collapse.	50
55	(53') Sand-filled fracture zone from 53-60 feet bgs consisting of Poorly Graded SAND (SP); reddish-brown, moist to wet, loose, medium to coarse grained and subangular to subrounded.		55
60	(59') Angular quartzite gravel from 59-60 feet. (60') Wet, trace fractures.		60
65			65
70	(70') Boring terminated.		70

NOTES: Boring backfilled with cement bentonite grout. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988.

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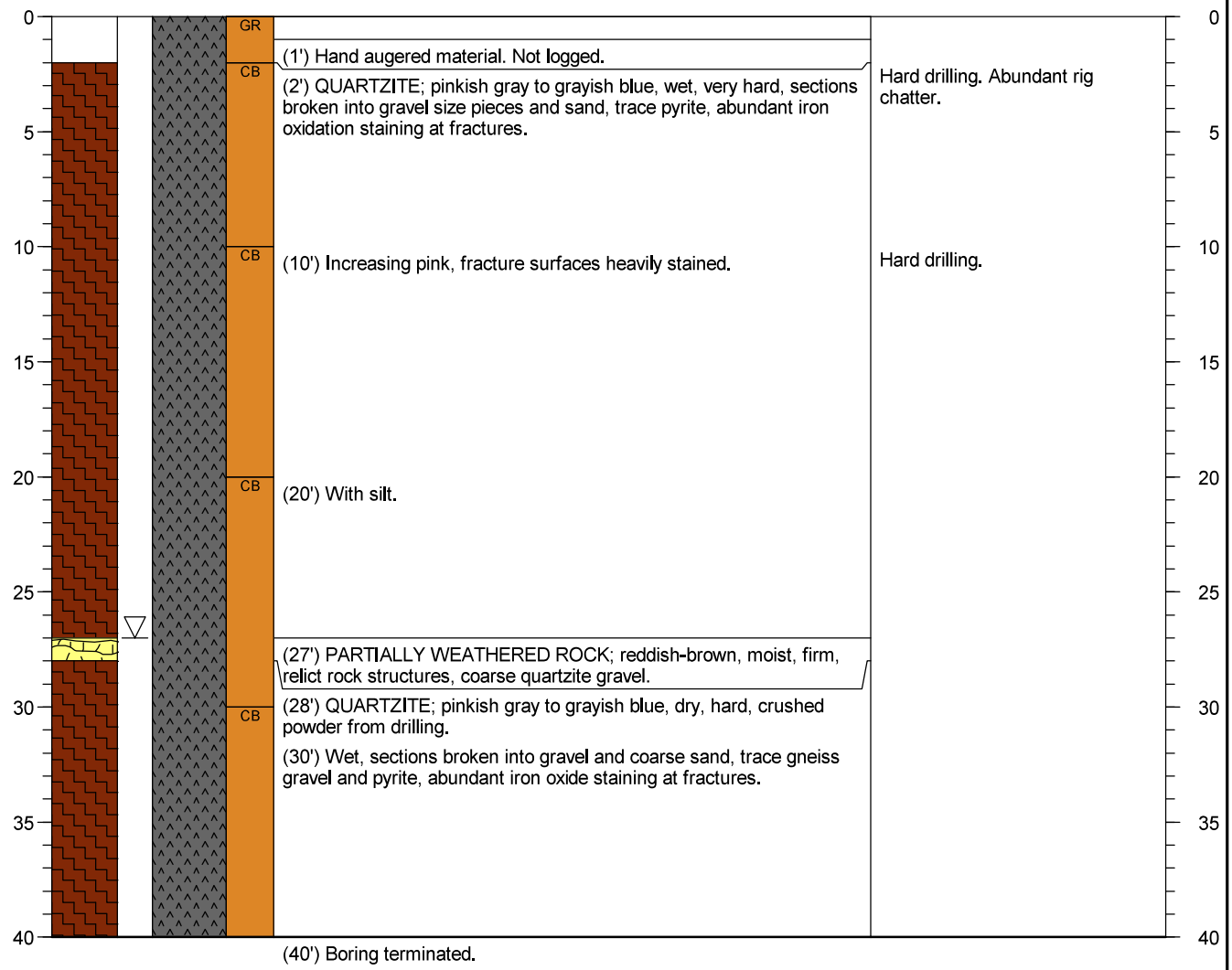
Client: Southern Company Services
Project: Plant Wansley Well Installation
Address: 1371 Liberty Church Rd, Carrollton, GA

BORING LOG
Boring No. CSB-2022-02
Page: 1 of 1

Drilling Start Date:	09/26/2022	Boring Depth (ft):	40
Drilling End Date:	09/26/2022	Boring Diameter (in):	6
Drilling Company:	Cascade Drilling	Sampling Method(s):	Core Barrel
Drilling Method:	Sonic 4x6	DTW During Drilling (ft):	27.0
Drilling Equipment:	Terrasonic	DTW After Drilling (ft):	--
Driller:	Cory Franklin	Ground Surface Elev. (ft):	804.86 NAV88
Logged By:	T. Kessler	Location (N,E):	1243337.255, 2029761.15



DEPTH (ft)	SOIL/ROCK VISUAL DESCRIPTION	REMARKS	ELEVATION (ft NAV88)
0	(1') Hand augered material. Not logged.		0
2	(2') QUARTZITE; pinkish gray to grayish blue, wet, very hard, sections broken into gravel size pieces and sand, trace pyrite, abundant iron oxidation staining at fractures.	Hard drilling. Abundant rig chatter.	
10	(10') Increasing pink, fracture surfaces heavily stained.	Hard drilling.	10
20	(20') With silt.		20
27	(27') PARTIALLY WEATHERED ROCK; reddish-brown, moist, firm, relict rock structures, coarse quartzite gravel.		
28	(28') QUARTZITE; pinkish gray to grayish blue, dry, hard, crushed powder from drilling.		
30	(30') Wet, sections broken into gravel and coarse sand, trace gneiss gravel and pyrite, abundant iron oxide staining at fractures.		30
40	(40') Boring terminated.		40

NOTES: Boring backfilled with cement bentonite grout. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988.

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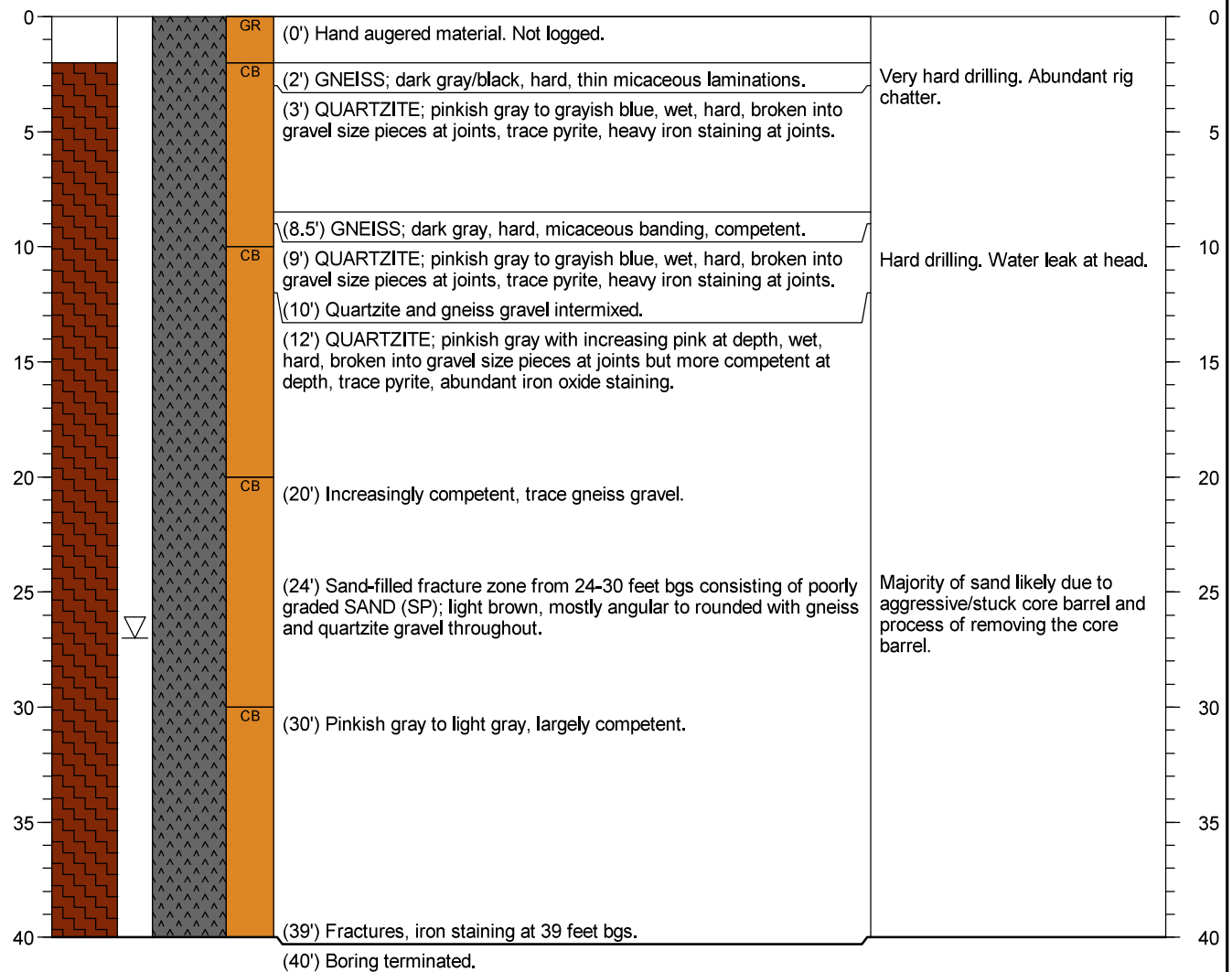
Client: Southern Company Services
Project: Plant Wansley Well Installation
Address: 1371 Liberty Church Rd, Carrollton, GA

BORING LOG
Boring No. CSB-2022-03
Page: 1 of 1

Drilling Start Date:	09/26/2022	Boring Depth (ft):	40
Drilling End Date:	09/26/2022	Boring Diameter (in):	6
Drilling Company:	Cascade Drilling	Sampling Method(s):	Core Barrel
Drilling Method:	Sonic 4x6	DTW During Drilling (ft):	27.0
Drilling Equipment:	Terrasonic	DTW After Drilling (ft):	--
Driller:	Cory Franklin	Ground Surface Elev. (ft):	804.81 NAV88
Logged By:	T. Kessler	Location (N,E):	1243341.239, 2029768.805



DEPTH (ft)	SOIL/ROCK VISUAL DESCRIPTION	REMARKS	ELEVATION (ft NAV88)
0	(0') Hand augered material. Not logged.		0
	(2') GNEISS; dark gray/black, hard, thin micaceous laminations.	Very hard drilling. Abundant rig chatter.	
5	(3') QUARTZITE; pinkish gray to grayish blue, wet, hard, broken into gravel size pieces at joints, trace pyrite, heavy iron staining at joints.		5
	(8.5') GNEISS; dark gray, hard, micaceous banding, competent.		
10	(9') QUARTZITE; pinkish gray to grayish blue, wet, hard, broken into gravel size pieces at joints, trace pyrite, heavy iron staining at joints.	Hard drilling. Water leak at head.	10
	(10') Quartzite and gneiss gravel intermixed.		
15	(12') QUARTZITE; pinkish gray with increasing pink at depth, wet, hard, broken into gravel size pieces at joints but more competent at depth, trace pyrite, abundant iron oxide staining.		15
20	(20') Increasingly competent, trace gneiss gravel.		20
25	(24') Sand-filled fracture zone from 24-30 feet bgs consisting of poorly graded SAND (SP); light brown, mostly angular to rounded with gneiss and quartzite gravel throughout.	Majority of sand likely due to aggressive/stuck core barrel and process of removing the core barrel.	25
30	(30') Pinkish gray to light gray, largely competent.		30
35			35
40	(39') Fractures, iron staining at 39 feet bgs.		40
	(40') Boring terminated.		

NOTES: Boring backfilled with cement bentonite grout. Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Vertical elevations are referenced to the North American Vertical Datum (NAVD) of 1988.

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

Abandoned in 2017 immediately following drilling and data collection.

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-1**
Page: **1 of 10**

Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
0								(0') Air knifed for utility clearance to 7'			805
5								(7') SILT with abundant mica (ML); sparse fine to medium gravel, dry, red (2.5YR 5/8)			800
10				SC	12.5			(12') SILT with clay (ML); abundant coarse mica, sparse fine gravel, dry, yellowish red (5YR 5/6)			795
15								(15') SILT with clay (ML); abundant fine mica, red (10R 4/8)			790
								(16.5') SILT with clay (ML); abundant fine mica, dry, olive brown (2.5Y 4/3) (17') SILT with clay (ML); sparse fine gravel, abundant fine mica, dry, yellowish red (5YR 5/6)			
20								(18.5') SILT with clay (ML); abundant fine gravel (one cobble ~3" diameter), dry, brown (10YR 5/3)			

NOTE: No water level measurement was taken for PB-1.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-1**
Page: **2 of 10**

Drilling Start Date:	**2/27/2017**	Boring Depth (ft):	**196**	Well Depth (ft):	**N/A**
Drilling End Date:	**3/2/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**N/A**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**N/A**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**N/A**
Drilling Equipment:	**Full size truck**	DTW After Drilling (ft):	**--**	Screen Material:	**N/A**
Driller Name:	**V. Scott**	Top of Casing Elev. (ft):	**805.86**	Seal Material(s):	**N/A**
Logged By:	**J. Griffin**	Location (Y, X):	**1245266.59, 2027870.47**	Filter Pack:	**N/A**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
20				SC	9		Photo 2 of photo log	(20') SILT with clay (ML); abundant fine to medium mica, sparse fine and coarse gravel with cobbles up to 4", dry, light yellowish brown (2.5Y 6/3)			785
25				ST	0				PB-1 (25-27)	Shelby Tube collection attempt; crushed	780
30				SC	12.5			(33') SILT with clay (ML); abundant fine to medium mica, with fine and coarse gravel, dry, yellowish red (5YR 5/6)			775
35									PB-1 (36-37)		770
				ST	2				PB-1 (37-39)	Shelby Tube collected	
40											

NOTE: No water level measurement was taken for PB-1.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-1**
Page: **3 of 10**

Drilling Start Date:	**2/27/2017**	Boring Depth (ft):	**196**	Well Depth (ft):	**N/A**
Drilling End Date:	**3/2/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**N/A**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**N/A**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**N/A**
Drilling Equipment:	**Full size truck**	DTW After Drilling (ft):	**--**	Screen Material:	**N/A**
Driller Name:	**V. Scott**	Top of Casing Elev. (ft):	**805.86**	Seal Material(s):	**N/A**
Logged By:	**J. Griffin**	Location (Y, X):	**1245266.59, 2027870.47**	Filter Pack:	**N/A**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
40				SC	1			(33') SILT with clay (ML); abundant fine to medium mica, with fine and coarse gravel, dry, yellowish red (5YR 5/6) *(continued)*	PB-1 (41-42)		765
				SC	9						
45								(46') SILT with clay (ML); with fine to medium mica, sparce fine gravel, dry, red (2.5YR 4/6), feldspathic zone at 55' to 56.5' with feldspar gravel up to 2" diameter			760
				ST	2		Photo 5 of photo log		PB-1 (47-49)	Shelby Tube collected	
50				SC	12				PB-1 (50-51)		755
55								(56.5') SILT with clay (ML); sparse fine gravel, abundant fine to medium mica, dry, red (2.5YR 5/8)			750
				SC	3						
60											

NOTE: No water level measurement was taken for PB-1.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-1**
Page: **4 of 10**

Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
60				ST	2			(56.5') SILT with clay (ML); sparse fine gravel, abundant fine to medium mica, dry, red (2.5YR 5/8) *(continued)*	PB-1 (60-62)	Shelby Tube collected as a distubed sample; tube bent	745
				ST	2			(63') SILT with clay (ML); abundant fine mica with visible rock fabric (banding of mafic minerals), trace fine gravel, red (2.5YR 5/8), SAPROLITE	PB-1 (62-64)	Shelby Tube collected	
65				SC	3				PB-1 (65-66)		740
70				SC	12		Photo 7 of photo log		PB-1 (72-73)		735
75											730
80											

NOTE: No water level measurement was taken for PB-1.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-1**
Page: **5 of 10**

Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
80				SC	12			(63') SILT with clay (ML); abundant fine mica with visible rock fabric (banding of mafic minerals), trace fine gravel, red (2.5YR 5/8), SAPROLITE *(continued)*			725
85											720
90				SC	11						715
95									PB-1 (95-96)		710
100								(99') SILT with clay (ML); abundant coarse mica, dry, grayish brown (2.5Y 5/2)			

NOTE: No water level measurement was taken for PB-1.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-1**
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Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
100								(99') SILT with clay (ML); abundant coarse mica, dry, grayish brown (2.5Y 5/2) *(continued)*			705
				SC	11				PB-1 (103-104)		
105											700
								(107') SILT with clay (ML); trace fine and medium gravel, soft, slightly moist, light olive brown (2.5Y 5/3)			
110											695
				SC	12		Photo 11 of photo log		PB-1 (113-114)		
115											690
120									PB-1		

NOTE: No water level measurement was taken for PB-1.

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

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BORING LOG
Boring No. **PB-1**
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Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
120				SC	13			(120') Becomes very dark greenish gray (5BG 3/1), schistose fabric observed; highly weathered garnets	(120-121)		685
								(123') Becomes light olive brown (2.5Y 5/3)			
125											680
								(129') Becomes olive gray (5Y 4/2)	PB-1 (130-131)		
130				SC	10						675
								(134') SCHIST, cobbles of highly weathered, foliated, weak rock with disseminated garnets and quartz banding in a silt matrix, PARTIALLY WEATHERED ROCK		Tougher drilling (slow advancement)	
135									PB-1 (136-137)		670
140											

NOTE: No water level measurement was taken for PB-1.

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BORING LOG
Boring No. **PB-1**
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Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
140								(134') SCHIST, cobbles of highly weathered, foliated, weak rock with disseminated garnets and quartz banding in a silt matrix, PARTIALLY WEATHERED ROCK *(continued)*	PB-1 (141-142)		665
				SC	7		Photo 14 of photo log	(142') SCHIST, slightly weathered, blueish black (5PB 2.5/1), intensely fractured (high angle) along foliation, iron oxide staining on fracture faces, disseminated garnets; strong			
145									PB-1 (146-147)		660
				HQ	2.5	73	Photo 15 of photo log	(147') Fine and coarse gravel with cobbles up to 4", moderately fractured, iron oxide staining on fracture faces at 147'-150' and 157'-158'		Switch to HQ Coring (3.75") 6" casing stopped	
150											655
				HQ	5.4	61		(151.5') As above; slightly fractured, no iron oxide staining on fracutre faces, unweathered		Difficulty drilling and extracting core from barrel	
155											650
160											

NOTE: No water level measurement was taken for PB-1.

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BORING LOG
Boring No. **PB-1**
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Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
160											645
				HQ	10.3	87					
165											640
170								(169') As above; slightly fractured			635
				HQ	10	100					
175								(175') Quartz band with pyrite mineralization			630
180											

NOTE: No water level measurement was taken for PB-1.

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BORING LOG
Boring No. **PB-1**
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Drilling Start Date:	2/27/2017	Boring Depth (ft):	196	Well Depth (ft):	N/A
Drilling End Date:	3/2/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.86	Seal Material(s):	N/A
Logged By:	J. Griffin	Location (Y, X):	1245266.59, 2027870.47	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
180				HQ	7	58	Photo 19 of photo log	(179') As above; moderately fractured, less quartz banding than above, iron oxide staining on fracture faces at 179.5', 183'-184', 185'-186.5' *(continued)*			625
185								(186') As above; moderately fractured zones of intense weathering at 187', 191',192',193',195'; 189'-190' intense dissolution along quartz band (with vugs) and heavy oxidation of mafic minerals			620
190				HQ	10	81		(189') Higher density of garnet and large in size, up to 0.4" diameter			615
195								(196.0') Boring Terminated			610

NOTE: No water level measurement was taken for PB-1.

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Abandoned in 2017 immediately following drilling and data collection.

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BORING LOG
Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
0								(0') Air knifed for utility clearance to 7'			805
5								(7') CLAY (CL); trace fine to coarse sand, trace angular gravel, medium plasticity, soft, moist, red (2.5YR 4/8), DIKE MATERIAL (7.5') SILT (ML); trace fine to coarse sand, trace angular gravel, medium plasticity, dry, dark brown (7.5YR 3/4), DIKE MATERIAL	PB-2 (9-10)		800
10									PB-2 (10-11)		795
15				SC	10		Photo 1 of photo log	(12') SILT (ML); abundant mica, trace fine to coarse angular gravel, medium plasticity, dry, reddish yellow (7.5YR 7/8)		Photo represents recovered sample between 13-14 ft interval.	790
20								(17') SILT with clay (ML); abundant mica, trace fine to coarse angular gravel, medium plasticity, soft, dry, brownish yellow (10YR 6/8) (18.5') Becomes dark yellowish brown (10YR 4/6) (19.5') Becomes yellowish brown (10YR 5/8)			

NOTE: No water level measurement was taken for PB-2.

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BORING LOG
Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
20								(19.5') Becomes yellowish brown (10YR 5/8) *(continued)*	PB-2 (20-21)		785
				SC	10			(21') SILT with clay (ML); abundant mica, trace fine to coarse angular gravel, medium plasticity, soft, dry, red (2.5YR 4/8) (22') Becomes brown (7.5YR 5/4)			
25								(24') Becomes yellowish brown (10YR 5/8)			780
								(27') SILT with clay (ML); abundant mica, little fine to coarse angular gravel, medium plasticity, soft, moist, reddish brown (2.5YR 4/3) (28') Becomes red (2.5YR 4/8)			
30								(29.5') Becomes trace rock fragments of slate (angular), reddish brown (2.5YR 4/3)	PB-2 (30-31)		775
				SC	10			(32') SILT with clay (ML); abundant mica, little fine to coarse angular gravel, medium plasticity, soft, moist, red (2.5YR 5/8)			
35											770
40											

NOTE: No water level measurement was taken for PB-2.

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BORING LOG
Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
40								(39') SILT with clay (ML); abundant mica, trace fine to coarse angular gravel, low plasticity, soft, dry, pinkish gray (7.5YR 6/2), slightly laminated layers *(continued)*	PB-2 (40-41)		765
				SC	10			(42') SILT with clay (ML); abundant mica (fine to coarse), trace fine to coarse angular gravel, medium plasticity, soft, dry, reddish brown (2.5YR 5/4), laminated layers near 47'			
45											760
50								(49') SILT with clay (ML); abundant mica, trace angular boulders, fine to coarse angular gravel, low plasticity, dry, light brown (7.5YR 6/4)	PB-2 (50-51)		755
				SC	10			(53.5') Becomes reddish brown (2.5YR 5/4)			
55								(54.5') Becomes light brown (7.5YR 6/4)			750
				SC	3			(57') SILT with clay (ML); abundant mica, trace angular boulders, fine to coarse angular gravel, medium plasticity, soft, moist, light brown (7.5YR 6/4), pockets of fine white sand			
60											

NOTE: No water level measurement was taken for PB-2.

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BORING LOG
Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
60								(60') SILT with clay (ML); abundant mica, trace fine grained sand, low plasticity, very soft, moist, yellow (10YR 7/8)			745
								(61') Becomes dark brown (7.5YR 3/4)			
								(61.5') Becomes trace angular boulders, trace fine to coarse sand, trace fine to coarse angular gravel, olive gray (5Y 5/2)			
								(62.5') SILT with clay (ML); abundant mica, trace fine to coarse sand and gravel, angular gravel, low plasticity, very soft, moist, light brown (7.5YR 6/4), trace angular boulders, white fine sand pockets.			
65				SC	10			(63') SILT with clay (ML); abundant mica, little fine sand, dry, yellow (10YR 7/8), trace angular boulders, trace coarse gravel (angular).	PB-2 (60-61)		740
								(65') Becomes light brown (7.5YR 6/4)			
									PB-2 (69-70)		
70				ST	2				PB-2 (70-72)		735
								(72') SILT with clay (ML); trace fine sand, abundant mica, low plasticity, soft, reddish brown (2.5YR 5/4)			
75									PB-2 (75-76)		
								(75') SILT with clay (ML); abundant mica, trace sub rounded boulders, olive brown (2.5Y 4/4)			730
				SC	11						
80											

NOTE: No water level measurement was taken for PB-2.

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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
80								(75') SILT with clay (ML); abundant mica, trace sub rounded boulders, olive brown (2.5Y 4/4) *(continued)*			725
									PB-2 (83-84)		
85				ST	0				PB-2 (84-86)	Sample was lost	720
								(86') No Recovery			
				ST	2				PB-2 (87-89)		
90								(89') SILT with clay (ML); trace fine sand, abundant mica, low plasticity, soft, reddish brown (2.5Y 5/4), trace sub rounded boulders			715
				SC	11		Photo 9 of photo log		PB-2 (89-90)	Photo represents recovered sample between 94-95 ft interval.	
95								(95') Tree branch			710
									PB-2 (97-98)		
				ST	2				PB-2 (98-100)		
100											

NOTE: No water level measurement was taken for PB-2.

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BORING LOG
Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
100				SC	6		Photo 10 of photo log	(101') SILT with clay (ML); abundant mica, trace fine to coarse angular gravel, medium plasticity, hard, moist, reddish brown (2.5YR 5/4)			705
105								(105') CLAY (CL); trace coarse gravel (sub-rounded), medium plasticity, hard, moist, reddish yellow (7.5YR 6/8)	PB-2 (106-107)	Photo represents recovered sample between 106-107 ft interval.	700
								(107') No Recovery			
110				SC	4						695
								(113') SILT with clay (ML); abundant mica, trace fine to coarse, angular gravel, low plasticity, soft, dry, olive brown (2.5Y 4/4)			
115								(115') Becomes light brown (7.5YR 6/4)	PB-2 (116-117)		690
								(117') No Recovery			
120				SC	3			(119') CLAY with silt (CL); medium plasticity, soft, moist, brown (7.5YR 5/4)			

NOTE: No water level measurement was taken for PB-2.

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BORING LOG
Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
120								(119') CLAY with silt (CL); medium plasticity, soft, moist, brown (7.5YR 5/4) *(continued)*			685
								(122') No Recovery			
125											680
								(127') CLAY (CL); little silt, medium plasticity, soft, moist, reddish yellow (7.5YR 7/8), ALLUVIUM	PB-2 (127-128)		
				SC	10		Photo 13 of photo log	(129') CLAYEY SAND (SC); little silt, medium dense, reddish yellow (7.5YR 7/8), fine grained, poorly graded, ALLUVIUM	PB-2 (129-130)	Photo represents recovered sample between 129-130 ft interval.	
130								(130.5') CLAYEY GRAVEL (GC); little silt, moist, dark gray (7.5YR 4/1), fine to coarse grained, well graded, rounded, ALLUVIUM	PB-2 (131-132)		675
								(132') CLAY with silt (CL); some silt, medium plasticity, firm, moist, olive yellow (2.5Y 6/6), SAPROLITE	PB-2 (132-133)	Photo represents recovered sample between 133-134 ft interval.	
								(134') SILT (ML); with clay, low plasticity, soft, moist, brown (7.5YR 5/4), foliation, SAPROLITE	PB-2 (134-135)		
135											670
								(137') CLAY with silt (CL); some silt, abundant mica, medium plasticity, firm, moist, light olive brown (2.5Y 5/6), SAPROLITE			
								(139') SILT (ML); soft, dry, olive yellowish brown (2.5Y 6/4), decomposed rock fragments of mica, SAPROLITE			
140											

NOTE: No water level measurement was taken for PB-2.

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

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BORING LOG
Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
140				SC	7			(139') SILT (ML); soft, dry, olive yellowish brown (2.5Y 6/4), decomposed rock fragments of mica, SAPROLITE *(continued)*	PB-2 (137-138)		665
									PB-2 (142-143)		
145								(144') No Recovery			660
150				SC	0					Driller felt drilling through competent material, but couldn't retrieve the sample	655
155								(157') No Recovery from 157' to 173'			650
160											

NOTE: No water level measurement was taken for PB-2.

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Boring No. **PB-2**
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
160								(157') No Recovery from 157' to 173' *(continued)*			645
165				SC	4					Driller felt competent material but couldn't retrieve sample	640
170											635
175								(173') SCHIST, highly weathered, high angle fractures, gray (4.5YR 5/1), fine to coarse, iron oxide staining on fracture surfaces, thin to very thick bedding, some grains of garnet, TOP OF ROCK			630
180				SC	2		Photo 16 of photo log	(177') SCHIST, intensely weathered, intensely fractured, gray (4.5YR 5/1), iron oxide staining on fracture surfaces		End of day 3/8/2017 Photo represents recovered sample between 178-179 ft interval.	

NOTE: No water level measurement was taken for PB-2.

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BORING LOG
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Drilling Start Date:	3/8/2017	Boring Depth (ft):	189	Well Depth (ft):	N/A
Drilling End Date:	3/10/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	N/A
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	N/A
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	N/A
Driller Name:	V. Scott	Top of Casing Elev. (ft):	805.81	Seal Material(s):	N/A
Logged By:	N. Tilahun	Location (Y, X):	1244620.03, 2028513.2	Filter Pack:	N/A

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
180				HQ	2	0		(177') SCHIST, intensely weathered, intensely fractured, gray (4.5YR 5/1), iron oxide staining on fracture surfaces *(continued)* (182') Same as above, intensely weathered and fractured		End of day 3/9/2017, start of day 3/10/2017, HQ Coring begins Photo represents recovered sample between 184-185 ft interval.	625
185				HQ	5	35	Photo 17 of photo log	(184') SCHIST, moderately weathered, thinly to thickly bedded, gray (7.5YR 5/1), very hard, fine to coarse crystal size, moderately fractured, high angle fractures, iron oxide staining on fracture surfaces, some fine to coarse garnet grains, fractures are planar and not healed (top 3.8'), bottom 12' is mechanical break			620

(189.0') Boring Terminated

NOTE: No water level measurement was taken for PB-2.

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BORING LOG
Boring No. **PB-3D/3S**
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Drilling Start Date:	**2/23/2017**	Boring Depth (ft):	**63**	Well Depth (ft):	**(28-38) & (52-62)**
Drilling End Date:	**2/24/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**1**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Full size truck**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**V. Scott**	Ground Surface Elev. (ft):	**804.57**	Seal Material(s):	**Bentonite**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243273.69, 2029686.62**	Filter Pack:	**20/40 silica sand**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
0							Photo 1 of photo log	(0') SILTY CLAY with gravel, with railroad ballast, fill		Air-knifed to top of rock	
								(2') METAQUARTZITE, intensely fractured, pale yellow to white, granular, very hard, iron oxide staining, cataclasite, iron oxide scale		Good water return (~50%)	
5											800
								(7') METAQUARTZITE, intensely fractured, white to pale brown, granular, iron oxide staining, cataclasite, iron oxide scaling, increasing competency with depth		Hard drilling, ~50% return	
10											795
15											790
								(17') Same as above, more fractured		Softer drilling, slightly less water return	
20											785

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BORING LOG
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Drilling Start Date:	**2/23/2017**	Boring Depth (ft):	**63**	Well Depth (ft):	**(28-38) & (52-62)**
Drilling End Date:	**2/24/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**1**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Full size truck**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**V. Scott**	Ground Surface Elev. (ft):	**804.57**	Seal Material(s):	**Bentonite**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243273.69, 2029686.62**	Filter Pack:	**20/40 silica sand**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
20								(20') METAQUARTZITE, intensely fractured, pale yellow to white, iron oxide staining, felsic cataclasite, iron oxide staining			
25		▽								Moderately hard drilling, water recovery ~30%	780
30							Photo 8 of photo log	(30') GNEISS, intensely fractured, pale blue to pink, weakly foliated, staining of fracture surfaces			775
								(32') METAQUARTZITE, intensely fractured, pale brown to tan, cataclasite, gravelly, highly oxidized			
35							Photo 11 of photo log	(36') Same rock as above, more competent, fewer natural fractures		Harder drilling, water return ~60%	770
40											765

NOTE:

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Boring No. **PB-3D/3S**
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Drilling Start Date:	2/23/2017	Boring Depth (ft):	63	Well Depth (ft):	(28-38) & (52-62)
Drilling End Date:	2/24/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	V. Scott	Ground Surface Elev. (ft):	804.57	Seal Material(s):	Bentonite
Logged By:	J. Ivanowski	Location (Y, X):	1243273.69, 2029686.62	Filter Pack:	20/40 silica sand

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
40								(40.5') GNEISS, foliated, pale blue to pink, increasing competency			
							Photo 13 of photo log				
45											760
				HQ	2	92		(47') GNEISS, distinct mineral banding, blueish gray and pink, few very high angle (~65°) healed hairline fractures; high RQD; no oxidation present		Stopped for 2/23/17, started HQ Coring on 2/24/17, water return=~80%	
50								(49') Becoming more pink, cataclastic, abundant intersecting healed hairline fractures; possible water-bearing fractures at 49.2', 50.7', 52.5', 54.0' (very slight film on fracture surfaces; no staining)			755
				HQ	7	87				Very hard, slow, 2 hrs to drill 7 ft, water return ~80%	
55											750
				HQ	3	54		(57') GNEISS, low angle open fractures, pale brown to tan, heavily oxidized, scale on surfaces		Very slow, water recovery ~60%	
								(58') GNEISS, steep foliated, blueish gray			
60											745

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Drilling Start Date:	**2/23/2017**	Boring Depth (ft):	**63**	Well Depth (ft):	**(28-38) & (52-62)**
Drilling End Date:	**2/24/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**1**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Full size truck**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**V. Scott**	Ground Surface Elev. (ft):	**804.57**	Seal Material(s):	**Bentonite**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243273.69, 2029686.62**	Filter Pack:	**20/40 silica sand**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
60								(58') GNEISS, steep foliated, blueish gray*(continued)*			
								(63.0') Boring Terminated			

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BORING LOG
Boring No. **PB-4D/4S**
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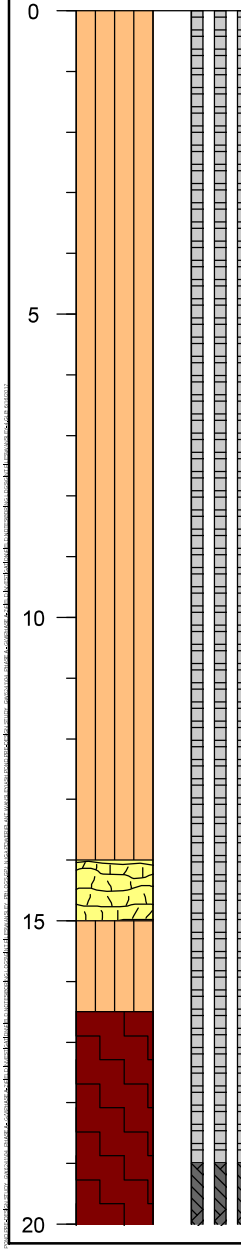
Drilling Start Date:	2/21/2017	Boring Depth (ft):	80	Well Depth (ft):	(25-35) & (63-73)
Drilling End Date:	2/22/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	V. Scott	Ground Surface Elev. (ft):	809.43	Seal Material(s):	Bentonite
Logged By:	J. Ivanowski	Location (Y, X):	1242790.61, 2029126.42	Filter Pack:	20/40 silica sand



DEPTH (ft)	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
0					(0') SANDY SILT with cobbles (ML)		0-10' removed by air knife	805
					(8') Becomes very hard			
10					(10') SILT with angular gravel (ML); very dense, wet, pale yellow to white, relict rock fabric, SAPROLITE	PB-4 (11-12)		800
	SC	8		Photo 2 of photo log			~75% water recovery	
				Photo 4 of photo log	(14') PARTIALLY WEATHERED ROCK, hard, dry, fragments of gneiss			795
15					(15') SILT with angular gravel (ML); very dense, wet, pale yellow to white, relict rock fabric, SAPROLITE	PB-4 (15-16)	Driller reporterd very hard drilling ~50% water recover	
					(16.5') METAQUARTZITE, banded, pale gray to white			
					(17.5') METAQUARTZITE, granular, intensely fractured rock, felsic gneiss to quartzite, abundant oxidation along fractures			790
20								

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BORING LOG
Boring No. **PB-4D/4S**
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Drilling Start Date:	2/21/2017	Boring Depth (ft):	80	Well Depth (ft):	(25-35) & (63-73)
Drilling End Date:	2/22/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	V. Scott	Ground Surface Elev. (ft):	809.43	Seal Material(s):	Bentonite
Logged By:	J. Ivanowski	Location (Y, X):	1242790.61, 2029126.42	Filter Pack:	20/40 silica sand

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
20				SC	6		Photo 5 of photo log	(20') As above; metaquartzite, intensely fractured, iron oxide staining along fracture surfaces, rock is broken into large gravel and small cobble size fragments		Driller reports 50% water return during run	
25									PB-4 (24-25)		785
30				SC	6.5		Photo 10 of photo log				780
35				HQ	1.8			(37') As above; intensley fractured, sand and mud filled fracture at 38.1'		Switched to HQ coring, pulled 2' core due to blockage ~40% water return	775
40										~40% water	770

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Boring No. **PB-4D/4S**
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Drilling Start Date:	2/21/2017	Boring Depth (ft):	80	Well Depth (ft):	(25-35) & (63-73)
Drilling End Date:	2/22/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	V. Scott	Ground Surface Elev. (ft):	809.43	Seal Material(s):	Bentonite
Logged By:	J. Ivanowski	Location (Y, X):	1242790.61, 2029126.42	Filter Pack:	20/40 silica sand

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
40				HQ	5	27	Photo 13 of photo log	(40') METAQUARTZITE, iron oxide staining, high angle fractures with oxide stained surfaces, surfaces are smooth-undulating		recovery	
								(43') Increasing competency with depth			
								(44') Intensely fractured zone, heavily oxidized (44.4') Sand filled fracture		~50% water recovery, used ~200 gallons per 5' run	765
45				HQ	5	43					
								(47') More competent, few high angle fractures, oxidized surfaces (47.9') Mud-filled fracture			
								(49') GNEISS, banded, dark gray to blue, more competent few fractures, fracture zone at 49.5		Used ~250 gal for this 7' run, return ~60%	760
50				HQ	7	60	Photo 16 of photo log	(52') Pale yellow to orange, open fracture (52.5') GNEISS, blue to gray, mechanical breaks (53') Pale brown, intensely fractured, oxidized fracture zone at 54.5'		End for 2/21/17	
											755
55								(54.5') GNEISS, blue to gray, mylonitized with white augen, oxidized fractures at 56.4', 59.5', 61.0', 61.5', 61.7', and 62.1'		~100 gal water used, ~70% recovery	
											750
60											

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Drilling Start Date:	2/21/2017	Boring Depth (ft):	80	Well Depth (ft):	(25-35) & (63-73)
Drilling End Date:	2/22/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Full size truck	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	V. Scott	Ground Surface Elev. (ft):	809.43	Seal Material(s):	Bentonite
Logged By:	J. Ivanowski	Location (Y, X):	1242790.61, 2029126.42	Filter Pack:	20/40 silica sand

DEPTH (ft)	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
60	HQ	8	64	Photo 20 of photo log	(54.5') GNEISS, blue to gray, mylonitized with white augen, oxidized fractures at 56.4', 59.5', 61.0', 61.5', 61.7', and 62.1'*(continued)*			
					(64') GNEISS, dark blue to gray, no staining, high angle fractures; open fractures at 64.5', 65.2', 65.4', 65.5', and 66.0'			745
65	HQ	4	21				~20% water recovery	
					(66.5') Intensely fractured from 66.5' to 67.0', filled with sand and gravel, stained with iron-oxide			
				Photo 27 of photo log	(68') GNEISS, poorly weathered, very dark blue to gray, strong quartz banding with epidote, few hairline fractures (high angle)			740
70	HQ	6	74				Very hard, slow drilling, good water return >70%	
					(74') As above; pink potassium feldspar pegmatites, nearly unfractured			735
75	HQ	6	90	Photo 31 of photo log			Very hard, slow drilling, water return ~70%	
								730
80					(80.0') Boring Terminated			

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BORING LOG
Boring No. **PB-5D/5S**
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Drilling Start Date:	3/15/2017	Boring Depth (ft):	71	Well Depth (ft):	(37-47) & (55-65)
Drilling End Date:	3/21/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	J. Chellberg	Top of Casing Elev. (ft):	807.04	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241689.23, 2028113.72	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
0								(0') Air Knifed for Utility Clearance			807
											805
5											
								(7') No Recovery			800
				SC	0						
10								(10') Shelby Tube			
				ST	2				PB-5 (10-12)		
								(12') CLAY (CL); few silt, medium plasticity, soft, moist, reddish yellow (7.5YR 7/8), SAPROLITE	PB-5 (12-13)		795
15		▽						(14.5') SILTY SAND (SM); few clay, medium dense, light brown (7.5YR 6/4), fine grained, poorly graded, SAPROLITE			
				SC	9		Photo 1 of photo log				
								(17') Becomes pink (7.5YR 8/4), laminated (undulating), dark layers	PB-5 (17-18)		790
20											

NOTE:

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-5D/5S**
Page: **2 of 4**

Drilling Start Date:	3/15/2017	Boring Depth (ft):	71	Well Depth (ft):	(37-47) & (55-65)
Drilling End Date:	3/21/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	J. Chellberg	Top of Casing Elev. (ft):	807.04	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241689.23, 2028113.72	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
20							Photo 2 of photo log	(20') CLAY (CL); few silt, medium plasticity, soft, moist, reddish yellow (7.5YR 6/8), non-uniform lamination, SAPROLITE			785
								(22.5') SAND (SP); few clay, medium dense, moist, pink (7.5YR 8/4), poorly graded, laminated, SAPROLITE	PB-5 (23-24)		
25				SC	12			(25') INTENSELY WEATHERED ROCK, pink (7.5YR 8/4), fine, dry, loose, intensely weathered rock fragments (fragile), laminated rock fragments	PB-5 (20-21) PB-5 (26-27)		780
30				SC	4				PB-5 (31-32)		
								(32') Becomes brown (7.5YR 5/4)	PB-5 (32-33)		775
								(33') GNEISS (LONG ISLAND CREEK GNEISS), moderately weathered, massive, pinkish gray (7.5YR 6/2), very hard, fine to medium crystal size, weakly foliated, slightly fractured, with quartz, TOP OF ROCK			
35				SC	7	0	Photo 3 of photo log				770
40											

NOTE:

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-5D/5S**
Page: **3 of 4**

Drilling Start Date:	3/15/2017	Boring Depth (ft):	71	Well Depth (ft):	(37-47) & (55-65)
Drilling End Date:	3/21/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	J. Chellberg	Top of Casing Elev. (ft):	807.04	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241689.23, 2028113.72	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
40				HQ	1.8	71		(40') GNEISS (LONG ISLAND CREEK GNEISS), slightly weathered, massive, pinkish gray (7.5YR 6/2), fine, very hard, weakly foliated, moderately fractured, fractured at 41' and 41.5' (narrow, not healed, iron oxide staining, planar), several vertical joints		Sonic drilling ends, HQ coring begins	
				HQ	2.5	0		(42') Becomes moderately weathered, intensely fractured			765
45				HQ	2.5	57	Photo 7 of photo log	(44.5') Becomes highly weathered and moderately fractured			
								(46') Becomes slightly weathered and fractured			
								(47') Mostly mechanical break or breaks along joint, fresh			760
50				HQ	5	100					
											755
55				HQ	5	100					
								(57') Fresh, mechanical break			750
60				HQ	3	100					

NOTE:

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-5D/5S**
Page: **4 of 4**

Drilling Start Date:	3/15/2017	Boring Depth (ft):	71	Well Depth (ft):	(37-47) & (55-65)
Drilling End Date:	3/21/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	J. Chellberg	Top of Casing Elev. (ft):	807.04	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241689.23, 2028113.72	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
60				HQ	2	71	Photo 11 of photo log	(60') Becomes slightly weathered (weathering is near fracture), fracture zone from ~60.5' to 61' (narrow, not healed, iron oxide staining, planar, horizontal to high dip angle)			745
								(62') Becomes fresh, tight fractures along joints (healed, clay staining, planar, horizontal to high angled), mostly mechanical breaks			
65				HQ	5	100		(65') Reddish yellow (7.5YR 7/8), Becomes redding yellow (7.5YR 7/8)			
								(67') Reddish yellow (7.5YR 7/8), Becomes redding yellow (7.5YR 7/8), fresh, mechanical breaks along joints			740
70				HQ	4	100					

(71.0') Boring Terminated

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Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-6D/6S**
Page: **1 of 5**

Drilling Start Date:	3/22/2017	Boring Depth (ft):	93	Well Depth (ft):	(29-39) & (70-80)
Drilling End Date:	4/6/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Top of Casing Elev. PB-6D (ft):	811.90	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-6D (Y, X):	1240830.30, 2027196.10	Filter Pack:	Sand Pack

Top of Casing Elev. PB-6S (ft): **812.07**
Location PB-6S (Y, X): **1240830.36, 2027190.85**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
0								(0') Air knifed for utility clearance			810
5								(7') INTENSELY WEATHERED ROCK, pink (7.5YR 8/3), fine, dry, loose, intensely weathered rock fragments (fragile), laminated rock fragments	PB-6 (8-9)		805
				SC	3		Photo 1 of photo log				
10								(10') Brown (7.5YR 5/4), moist, same as above (10.5') Reddish yellow (7.5YR 8/6), moist			800
				SC	8			(12.5') Brown (7.5YR 5/4) (13') Reddish yellow (7.5YR 8/6), bigger and stonger rock fragments	PB-6 (13-14)		
15											795
		▽		SC	5				PB-6 (18-19)	Shelby Tube attempt, no recovery	
20											

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BORING LOG
Boring No. **PB-6D/6S**
Page: **2 of 5**

Drilling Start Date:	3/22/2017	Boring Depth (ft):	93	Well Depth (ft):	(29-39) & (70-80)
Drilling End Date:	4/6/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Top of Casing Elev. PB-6D (ft):	811.90	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-6D (Y, X):	1240830.30, 2027196.10	Filter Pack:	Sand Pack

Top of Casing Elev. PB-6S (ft): **812.07**
Location PB-6S (Y, X): **1240830.36, 2027190.85**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
20								(20') Reddish yellow (7.5YR 8/6)			
				SC	5		Photo 4 of photo log	(21') PARTIALLY WEATHERED ROCK, moderately weathered, laminated, pink (7.5YR 8/3), fine, loose. hard rock fragments	PB-6 (23-24)	Wet due to drilling water	790
25							Photo 5 of photo log	(25') INTENSELY WEATHERED ROCK, reddish yellow (7.5YR 8/6), fine, moist, loose, intensely weathered rock fragments (fragile)	PB-6 (28-29)		785
30				SC	8			(31') PARTIALLY WEATHERED ROCK, reddish yellow (7.5YR 8/6), fine, moist (could be drilling water), loose, hard rock fragments (moderately weathered, laminated)	PB-6 (33-34)	Moist due to drilling water	780
35								(34') Pink (7.5YR 8/3), dry (35') Reddish yellow (7.5YR 8/6), bigger rock fragments			775
				SC	5				PB-6 (38-39)		
40											

NOTE:

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BORING LOG
Boring No. **PB-6D/6S**
Page: **3 of 5**

Drilling Start Date:	3/22/2017	Boring Depth (ft):	93	Well Depth (ft):	(29-39) & (70-80)
Drilling End Date:	4/6/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Top of Casing Elev. PB-6D (ft):	811.90	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-6D (Y, X):	1240830.30, 2027196.10	Filter Pack:	Sand Pack

Top of Casing Elev. PB-6S (ft): **812.07**
Location PB-6S (Y, X): **1240830.36, 2027190.85**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
40				SC	4	0	Photo 7 of photo log	(40') GNEISS, moderately weathered, massive, pinkish gray (7.5YR 6/2), fine, very hard, wet, Long Island Creek Gneiss, weakly foliated, slightly fractured, Fe stained fractures, has quartz grains (Granitic Gneiss)			770
45				HQ	3	0		(45') GNEISS, moderately weathered, massive, pinkish gray (7.5YR 6/2), fine, very hard, wet, Long Island Creek Gneiss, weakly foliated, moderately fractured, Fe staining on fractures, has quartz grains (Granitic Gneiss), high angle joints, highly fractured 47-48' bgs		Sonic drilling stops and HQ coring begins	765
								(48') As above, mechanical break along high angle joints, highly fractured from 48'-49.5' and 52'-53', 49.5'-52' is gray (7.5YR 5/1)			
50				HQ	5	0					760
								(53') As above, fractured at 53.5', 55'-56' and tight fracture from 57.5'-58', pinkinsh gray (7.5YR 6/2)			
55				HQ	5	67					755
								(58') As above, 58'-60.5' intensely fractured and moderately weathered fracture at 61.5'			
60											

NOTE:

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

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BORING LOG
Boring No. **PB-6D/6S**
Page: **4 of 5**

Drilling Start Date:	3/22/2017	Boring Depth (ft):	93	Well Depth (ft):	(29-39) & (70-80)
Drilling End Date:	4/6/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	1
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Top of Casing Elev. PB-6D (ft):	811.90	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-6D (Y, X):	1240830.30, 2027196.10	Filter Pack:	Sand Pack

Top of Casing Elev. PB-6S (ft): **812.07**
Location PB-6S (Y, X): **1240830.36, 2027190.85**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
60				HQ	5	50		(58') As above, 58'-60.5' intensely fractured and moderately weathered fracture at 61.5' *(continued)*			
											750
								(63') As above, high angle tight fractures along joints, fracture at 67.5', fresh			
65				HQ	5	100					
											745
								(68') As above, mechanical break along high angle joints			
70				HQ	5	40		(70') As above, fracture zone: green and iron oxide staining on fracture surface, moderately weahtered, gray (7.5YR 5/1)		150 to 100 gallons of water returned	
											740
								(73') As above, fracture zones from 73'-74.5' and 74.5'-78', green and iron oxide staining on fracture surface, highly weathered from 73'-74.5', red (2.5YR 5/8) and slightly weathered from 74.5'-78', gray (7.5 YR 5/1)			
75				HQ	5	20	Photo 12 of photo log			Water returned	
											735
								(78') As above, intensely fractured, slightly weathered, green staining on fracture surface, gray (7.5YR 5/1)			
80											

NOTE:

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BORING LOG
Boring No. **PB-6D/6S**
Page: **5 of 5**

Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**93**	Well Depth (ft):	**(29-39) & (70-80)**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**1**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Terra Sonic**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**A. Blackwood**	Top of Casing Elev. PB-6D (ft):	**811.90**	Seal Material(s):	**Bentonite**
Logged By:	**N. Tilahun**	Location PB-6D (Y, X):	**1240830.30, 2027196.10**	Filter Pack:	**Sand Pack**

Top of Casing Elev. PB-6S (ft): **812.07**
Location PB-6S (Y, X): **1240830.36, 2027190.85**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft msl)
80				HQ	5	50		(78') As above, intensely fractured, slightly weathered, green staining on fracture surface, gray (7.5YR 5/1) *(continued)*			730
								(83') As above, slightly weathered and fractured, fractures at 83.7' and 86', gray (7.5YR 5/1)			
85				HQ	5	72				Water returned (which could be from any of the fractures from 70'-88'	725
								(88') As above, fresh, mechanical break along joints			
90				HQ	5	100					720
								(93.0') Boring Terminated			

NOTE:

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-7**
Page: **1 of 9**

Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
0								(0') Air knifed for utility clearance			815
5											810
								(7') No recovery			
10				SC	0						805
15				SC	3						800
								(17') CLAY with silt (CL); some silt, medium plasticity, soft, moist, reddish yellow (7.5YR 6/8), foliation (angular rock fragments in a black layer near the bottom), SAPROLITE	PB-7 (18-19)		
20											

NOTE:

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

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BORING LOG
Boring No. **PB-7**
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Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
20							Photo 2 of photo log	(17') CLAY with silt (CL); some silt, medium plasticity, soft, moist, reddish yellow (7.5YR 6/8), foliation (angular rock fragments in a black layer near the bottom), SAPROLITE*(continued)*			795
									PB-7 (24-25)		
25		▽		SC	6.5						790
									PB-7 (29-30)		
30								(30') Becomes red (2.5YR 5/8)			785
				SC	7						
									PB-7 (34-35)		
35								(35') Angular fine gravel (quartz) in black layer at 49'			
				ST	2				PB-7 (35-37)		780
				SC	3						
40											

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BORING LOG
Boring No. **PB-7**
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Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
40								(35') Angular fine gravel (quartz) in black layer at 49'*(continued)*			775
									PB-7 (44-45)		
45				SC	10						770
50								(51') As above, abundant white banding			765
									PB-7 (54-55)		
55				SC	12						760
60											

NOTE:

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

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Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **PB-7**
Page: **4 of 9**

Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
60								(51') As above, abundant white banding *(continued)*			755
									PB-7 (64-65)		
65				SC	11			(65') Coarse angular cobbles (quartz?)			750
70											745
									PB-7 (74-75)		
75				SC	10			(75') Becomes light olive brown (2.5Y 5/3)			740
80											

NOTE:

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BORING LOG
Boring No. **PB-7**
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Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
80								(80') Becomes brownish yellow (10YR 6/8)			735
									PB-7 (83-84)		
									PB-7 (84-85)		
85				SC	13.5		Photo 9 of photo log				
									PB-7 (86-87)		730
								(86') Fine and coarse gravel (quartz?) layer, angular, up to 2" diameter			
90								(90') CLAY with intact rock fragment (CL); olive (5Y 4/2), easily broken by hand, some fragments cannot be broken by hand, INTENSELY WEATHERED ROCK	PB-7 (90-91)		725
									PB-7 (94-95)		
95										Hard drilling, core barrel is advancing very slowly	720
							Photo 10 of photo log				
100											

NOTE:

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BORING LOG
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Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
100								(100') PARTIALLY WEATHERED ROCK, slightly weathered, gray (7.5YR 5/1), fine to coarse, moist, thinly to thickly bedded, loose, hard rock fragments (abundant mica, some grains of garnet and quartz)			715
								(104') Becomes reddish yellow (7.5YR 6/8)	PB-7 (104-105)		
105				SC	11.5		Photo 11 of photo log			Hard drilling	710
									PB-7 (108-109)		
110				SC	4					Hard drilling	705
									PB-7 (114-115)		
115								(115') Becomes gray (7.5YR 5/1)			
				SC	6				PB (117-119)	Hard drilling	700
								(118') Becomes pinkish gray (7.5YR 6/2), dry			
120				SC	1						

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Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
120								(118') Becomes pinkish gray (7.5YR 6/2), dry *(continued)*			
								(121') No Recovery			695
								(122') Becomes gray (7.5YR 5/1), moist			
									PB-7 (124-125)		
125				SC	9					Hard drilling	
									PB-7 (127-128)		690
								(128.5') Becomes pinkish gray (7.5YR 6/2), dry	PB-7 (129-130)		
130								(130') Becomes pinkish gray (7.5YR 5/1), moist, abundant platy rock fragments (schist), some rock fragments contain large grains of quartz and have irregular shape (non-platy)			685
135				SC	6					Hard drilling	
									PB-7 (137-138)		680
140											

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Drilling Start Date:	3/23/2017	Boring Depth (ft):	167	Well Depth (ft):	(65-75)
Drilling End Date:	3/31/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	A. Blackwood	Ground Surface Elev. (ft):	816.51	Seal Material(s):	Bentonite
Logged By:	N. Tilahun and J. Griffin	Location (Y, X):	1240837.08, 2026768.14	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
140				SC	3		Photo 16 of photo log	(140') SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to coarse, very hard, fresh, weak bedding planes and high angle joints, some quartz banding, TOP OF ROCK		Hard drilling	675
145				HQ	4	100		(143') SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to coarse, very hard, fresh, unfractured, mechanical breaks along high angled joints, few quartz banding, some coarse quartz grains, abundant mica		Sonic drilling ends at 143' (3/29/2017), HQ rock coring begins at 143' (3/30/2017)	670
150				HQ	5.5	100					665
155				HQ	5	100					660
160							Photo 20				

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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**167**	Well Depth (ft):	**(65-75)**
Drilling End Date:	**3/31/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**2**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Terra Sonic**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**A. Blackwood**	Ground Surface Elev. (ft):	**816.51**	Seal Material(s):	**Bentonite**
Logged By:	**N. Tilahun and J. Griffin**	Location (Y, X):	**1240837.08, 2026768.14**	Filter Pack:	**Sand Pack**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
160				HQ	5	100	of photo log	(143') SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to coarse, very hard, fresh, unfractured, mechanical breaks along high angled joints, few quartz banding, some coarse quartz grains, abundant mica*(continued)*			655
165				HQ	4.5	100					650

(167.0') Boring Terminated

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BORING LOG
Boring No. **PB-8D/I/S**
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Drilling Start Date:	4/12/2017	Boring Depth (ft):	147	Well Depth (ft):	(45-55) (75-85) (121-131)
Drilling End Date:	4/20/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. PB-8D (ft):	847.24	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-8D (Y, X):	1241128.67, 2026529.99	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
0								(0') Topsoil; FILL			
								(2') CLAY with silt (CL); some silt, abundant mica, medium plasticity, soft, dry, reddish yellow (7.5YR 6/8), foliation, SAPROLITE			845
									PB-8 (4-5)		
5				SC	10		Photo 1 of photo log				
								(7') SANDY SILT (ML); abundant mica, non plastic, loose, dry, reddish yellow (7.5YR 8/6), mostly silt, foliation, rock fragments of mica (fragile), INTENSELY WEATHERED ROCK			840
									PB-8 (8-9)		
10							Photo 2 of photo log				835
									PB-8 (14-15)		
15				SC	10						830
									PB-8 (19-20)		
20											

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BORING LOG
Boring No. **PB-8D/I/S**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**147**	Well Depth (ft):	**(45-55) (75-85) (121-131)**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**N/A**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Terra Sonic**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**M. Hanson and J. Triepke**	Ground Surface Elev. PB-8D (ft):	**847.24**	Seal Material(s):	**Bentonite**
Logged By:	**N. Tilahun**	Location PB-8D (Y, X):	**1241128.67, 2026529.99**	Filter Pack:	**Sand Pack**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
20								(19') CLAY with silt (CL); trace fine to coarse gravel of quartz, some silt, low plasticity, soft, dry, brown (7.5YR 5/4), foliation, SAPROLITE			
								(20') CLAY with silt (CL); some silt, abundant mica, medium plasticity, soft, dry, brown (7.5YR 5/4), foliation, SAPROLITE			825
							Photo 3 of photo log		PB-8 (24-25)		
25				SC	10						
								(26') Becomes reddish yellow (7.5YR 8/6)			820
30											
											815
				SC	8				PB-8 (34-35)		
35											
											810
40											

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Boring No. **PB-8D/I/S**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**147**	Well Depth (ft):	**(45-55) (75-85) (121-131)**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**N/A**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Terra Sonic**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**M. Hanson and J. Triepke**	Ground Surface Elev. PB-8D (ft):	**847.24**	Seal Material(s):	**Bentonite**
Logged By:	**N. Tilahun**	Location PB-8D (Y, X):	**1241128.67, 2026529.99**	Filter Pack:	**Sand Pack**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
40				SC	12			(40') CLAY (CL); some fine to coarse gravel, some mica, medium plasticity, soft, dry, brown (7.5YR 5/4)			
								(42') Hard, gray (7.5YR 5/1), angular			805
									PB-8 (44-45)		
45								(45') CLAY with silt (CL); some silt, abundant mica, low plasticity, soft, dry, gray (7.5YR 6/1), foliation			
											800
				SC	8				PB-8 (49-50)		
50		▽					Photo 6 of photo log				
											795
55				SC	10						
											790
							Photo 7 of photo log	(58') CLAY with silt (CL); some silt, abundant mica, low plasticity, soft, dry, gray (7.5YR 6/1), fragile, mica rock fragments, INTENSELY WEATHERED ROCK (58.9') Becomes trace fine to coarse sand, moist	PB-8 (59-60)		
60											

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BORING LOG
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Drilling Start Date:	4/12/2017	Boring Depth (ft):	147	Well Depth (ft):	(45-55) (75-85) (121-131)
Drilling End Date:	4/20/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. PB-8D (ft):	847.24	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-8D (Y, X):	1241128.67, 2026529.99	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
60								(60') Becomes dry			785
				SC	10.5			(64') Becomes slightly hard, some rock fragments of mica, fine to coarse grained (65') Becomes wet, driller saw water dripping as he pulled out sample	PB-8 (66-67)		
65								(67') Becomes wet, medium plasticity			780
				SC	4.5			(68.5') Becomes medium hard, some rock fragments of mica, fine to coarse grained, dry, low plasticity			
70								(72') No recovery			775
75				SC	2			(78') Becomes wet, medium plasticity	PB-8 (79-80)		770
80								(79.5') Becomes dry			

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Drilling Start Date:	4/12/2017	Boring Depth (ft):	147	Well Depth (ft):	(45-55) (75-85) (121-131)
Drilling End Date:	4/20/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. PB-8D (ft):	847.24	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-8D (Y, X):	1241128.67, 2026529.99	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
80							Photo 11 of photo log	(80') No recovery (81') Becomes dry			
											765
85				SC	9						
								(87') Becomes dry, reddish yellow (7.5YR 8/6), low plasticity			760
									PB-8 (89-90)		
90											
								(92') Becomes moist, light brown (7.5YR 6/4), medium plasticity			755
95				SC	8						
								(96') Becomes moist, gray (7.5YR 5/1), low plasticity			750
100								(99') Becomes dry	PB-8 (99-100)		

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Drilling Start Date:	4/12/2017	Boring Depth (ft):	147	Well Depth (ft):	(45-55) (75-85) (121-131)
Drilling End Date:	4/20/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. PB-8D (ft):	847.24	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-8D (Y, X):	1241128.67, 2026529.99	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
100								(100') No recovery			
								(102') Mica SCHIST, gray (7.5YR 5/1), highly fractured rock, rounded, fine to coarse grain, TOP OF ROCK		Broken due to drilling	745
105				SC	8						
								(108') Bigger rock fragments		Too hard to push Shelby Tube from 108' to 110'	740
							Photo 13 of photo log				
110								(111.5') Mica SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to medium, medium hard, fresh, platy rock fragments, slightly fractured (pyrite staining on fracture surfaces), some quartz grains			735
115				SC	8.5			(115') Irregular shaped (not platty) rock fragments			
								(117') As above, GNEISS, massive bedding, banded, foliation, hard			730
120											

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Boring No. **PB-8D/I/S**
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Drilling Start Date:	4/12/2017	Boring Depth (ft):	147	Well Depth (ft):	(45-55) (75-85) (121-131)
Drilling End Date:	4/20/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	N/A
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. PB-8D (ft):	847.24	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location PB-8D (Y, X):	1241128.67, 2026529.99	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
120				HQ	1.5	75	Photo 15 of photo log	(120') No recovery (120.5') GNEISS, massive, gray (7.5YR 5/1), medium to coarse, very hard, fresh, black and white (mafic and felsic) banding, abundant mica, pyrite fillings in tight/healed fractures (122') Mica SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to medium, hard, fresh, platy rock fragments, abundant mica, fracture zone from 122'-124', return water is clayey which indicated clay filled fractures		Sonic drilling ends at 120' (4/13/2017), HQ coring begins at 120' (4/20/2017)	
				HQ	5	87		(124') Massive mechanical breaks along tight fractures, slight banding			725
125											
								(127') As above, slight banding, fracture at 128'			720
				HQ	5	90					
130											
								(132') As above, fracture at 133' and 134', thin white banding, ~4" quartz layer near bottom (137')			715
				HQ	5	100					
135											
								(137') As above, fracture at 138.5' and 140', thin white banding, ~4" thich quartz layer near top (137')			710
				HQ	5	100					
140											

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Boring No. **PB-8D/I/S**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**147**	Well Depth (ft):	**(45-55) (75-85) (121-131)**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**6" x 4"**	Well Diameter (in):	**N/A**
Drilling Company:	**Cascade**	Sampling Method(s):	**ST, SC, HQ**	Screen Slot (in):	**0.01**
Drilling Method:	**Sonic/HQ Rock Coring**	DTW During Drilling (ft):	**--**	Riser Material:	**PVC**
Drilling Equipment:	**Terra Sonic**	DTW After Drilling (ft):	**--**	Screen Material:	**PVC**
Driller Name:	**M. Hanson and J. Triepke**	Ground Surface Elev. PB-8D (ft):	**847.24**	Seal Material(s):	**Bentonite**
Logged By:	**N. Tilahun**	Location PB-8D (Y, X):	**1241128.67, 2026529.99**	Filter Pack:	**Sand Pack**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
140								(137') As above, fracture at 138.5' and 140', thin white banding, ~4" thich quartz layer near top (137')*(continued)*			
								(142') As above, tight fractures at 143.5' and 144', thin white banding			705
145				HQ	5	100					
								(147.0') Boring Terminated			

NOTE:

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BORING LOG
Boring No. **PB-9**
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Drilling Start Date:	4/13/2017	Boring Depth (ft):	75	Well Depth (ft):	(60-70)
Drilling End Date:	4/19/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. (ft):	820.49	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241490.28, 2026504.40	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
0								(0') Topsoil; FILL			820
								(3') CLAY with silt (CL); some silt, low plasticity, soft, moist, brown (7.5YR 5/4), SAPROLITE	PB-9 (4-5)		
5				SC	9		Photo 1 of photo log				815
								(7') SILT with fine sand (ML); some fine sand, loose, moist, light brown (7.5YR 6/3), fragile mica rock fragments, INTENSELY WEATHERED ROCK	PB-9 (7-8)		
10								(9') SILT with clay (ML); some clay, some rock fragments of mica (small to large, hard, irregular to platy), low plasticity, soft, moist, light brown (7.5YR 6/3)			810
				SC	10		Photo 2 of photo log				
15								(17') Becomes gray (7.5YR 6/1), platy rock fragments	PB-9 (17-18)		805
				SC	1			(18') Becomes gray (7.5YR 6/1)			
20											

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BORING LOG
Boring No. **PB-9**
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Drilling Start Date:	4/13/2017	Boring Depth (ft):	75	Well Depth (ft):	(60-70)
Drilling End Date:	4/19/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. (ft):	820.49	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241490.28, 2026504.40	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
20								(19') MICA SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to medium, hard, fresh, platy rock fragments, abundant mica grains and pyrite, few bands of quartz layer, TOP OF ROCK*(continued)*			800
				SC	8		Photo 4 of photo log				
25		▽									795
								(29') MICA SCHIST, thinly to thickly bedded, gray (7.5YR 5/1), fine to coarse, hard, fresh, tight fractures along bedding plane, abundant mica and pyrite, some quartz		Sonic drilling ends at 29' (4/13/2017), HQ rock coring begins at 29' (4/18/2017)	
30				HQ	2						790
								(31') As above, slightly fractured, fresh, potential water bearing fractures at 33' and 35'			
				HQ	5	100				Fast drilling (1 ft/min)	
35											785
								(36') As above, fresh, mechanical break along tight fractures on joints			
				HQ	5	70				Fast drilling (1 ft/min)	
40											

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BORING LOG
Boring No. **PB-9**
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Drilling Start Date:	4/13/2017	Boring Depth (ft):	75	Well Depth (ft):	(60-70)
Drilling End Date:	4/19/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. (ft):	820.49	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241490.28, 2026504.40	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
40								(36') As above, fresh, mechanical break along tight fractures on joints *(continued)*			780
								(41') As above, fresh, mechanical break along tight fractures or joints			
				HQ	5	100				Fast drilling (1 ft/min)	
45											775
								(46') As above, fresh, mechanical break along tight fractures or joints			
				HQ	5	100		(48.6') Thick quartz layer from 48.6'-49', white		Fast drilling (1 ft/min)	
50											770
								(51') As above, fresh mechanical break along tight fractures or joints			
				HQ	5	100				0.3 ft/min drilling	
55											765
								(56') As above, fresh, fractures at 57.5' and 59.1' (slight clay and pyrite staining, narrow, parrallel to bedding plane, planar, not healed), mechanical breaks along bedding planes			
				HQ	5	93				0.3 ft/min drilling	
60											

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BORING LOG
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Drilling Start Date:	4/13/2017	Boring Depth (ft):	75	Well Depth (ft):	(60-70)
Drilling End Date:	4/19/2017	Boring Diameter (in):	6" x 4"	Well Diameter (in):	2
Drilling Company:	Cascade	Sampling Method(s):	ST, SC, HQ	Screen Slot (in):	0.01
Drilling Method:	Sonic/HQ Rock Coring	DTW During Drilling (ft):	--	Riser Material:	PVC
Drilling Equipment:	Terra Sonic	DTW After Drilling (ft):	--	Screen Material:	PVC
Driller Name:	M. Hanson and J. Triepke	Ground Surface Elev. (ft):	820.49	Seal Material(s):	Bentonite
Logged By:	N. Tilahun	Location (Y, X):	1241490.28, 2026504.40	Filter Pack:	Sand Pack

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: RQD (%)	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft NAVD 88)
60											760
				HQ	4	40		(61') As above, fresh, moderately fractured, slight pyrite and clay staining, clay fillings might be washed away by drilling water, fractures have irregular surface (planar to andulating), rock fragments don't fit well and only 4' of rock recovered which could imply soft fillings (clay) existed between rock fragments and washed out		Drilling water is muddy	
65											755
				HQ	5	75	Photo 12 of photo log	(66') Same as above, fresh, intensely fractured, soft near fractures (67.5') Same as above, fresh, mechanical break along bedding planes and tight fractures			
70								(70') Same as above, fresh, mechanical break along bedding planes and tight fractures			750
				HQ	5	100					
75								(75.0') Boring Terminated			

NOTE:

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BORING LOG
Boring No. **S-1**
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Drilling Start Date:	**4/27/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**4/27/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1242218, 2026683.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			
		▼					(3.3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-1**
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Drilling Start Date:	**4/27/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**4/27/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1242218, 2026683.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			
							(21.4') Top of Ash, dark gray, very fine grained		Top of ash determined using weighted tag line. Photo represents recovered sample between 22-24 ft interval.	
25			CB	3						775
								S-1 (29-30)		
30										770
35			CB	4						765
								S-1 (39-40)		
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-1**
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Drilling Start Date:	**4/27/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**4/27/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1242218, 2026683.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(21.4') Top of Ash, dark gray, very fine grained *(continued)*			
								S-1 (43-44)		
							(44') SILT with minor clay (ML); fine mica, non plastic, dry, olive (5Y 5/3), fine grained, weak relict rock fabric, coarse mica from 51-52' and 59-60', SAPROLITE			
45			CB	10			(44.5') White micaceous (fine) silt lens underlain by ~2" of coarse angular gravel			755
								S-1 (46-47)	Photo represents recovered sample between 47-49 ft interval.	
50							(51') Coarse mica from 51' to 52'			750
							(52') Becomes brownish yellow (10YR 6/8)			
								S-1 (54-55)		
55			CB	10						745
							(59') As above with sparse angular gravel, olive (5Y 5/3), coarse mice from 59' to 60'			
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-1**
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Drilling Start Date:	**4/27/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**4/27/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1242218, 2026683.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(59') As above with sparse angular gravel, olive (5Y 5/3), coarse mice from 59' to 60' *(continued)*			
									Photo represents recovered sample between 63-65 ft interval.	
65			CB	10			(64') Sparse, coarse, angular gravel from 64-65'	S-1 (64-65)		735
70										730
			CB	8			(72') SILT with minor clay (ML); dry, light greenish gray (10Y 8/1), micaceous (fine), fissle parting along relict foliations, SAPROLITE		Photo represents recovered sample between 74-76 ft interval.	
75										725
							(76.5') Pegmatitic texture, cobbles with granitic texture and very coarse mica		Driller stopped at 78' to start running water, possible rock	
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-1**
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Drilling Start Date:	**4/27/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**4/27/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1242218, 2026683.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80			CB	6			(80') METAMORPHIC ROCK (GARNET SCHIST), greenish black (10Y 2.5/1), hard, highly fractured, abundant iron oxide staining on fracture faces, weathered; PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 84-85 ft interval.	
85							(87') Greenish gray (10Y 6/1), some rock fragments that cannot be broken by hand in silt matrix, PARTIALLY WEATHERED ROCK			715
90							(90') METAMORPHIC ROCK (GARNET SCHIST), greenish black (10Y 2.5/1), large porphyroblastic garnets (dark red), abundant pyrite, high angle fractures along foliation, iron oxide staining on fracutre faces, weathered			710
95			CB	5						705
100										700

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-1**
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Drilling Start Date:	**4/27/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**4/27/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1242218, 2026683.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(90') METAMORPHIC ROCK (GARNET SCHIST), greenish black (10Y 2.5/1), large porphyroblastic garnets (dark red), abundant pyrite, high angle fractures along foliation, iron oxide staining on fracutre faces, weathered *(continued)*			
105			CB	5					Photo represents recovered sample between 108-110 ft interval.	695
110							(110.0') Boring Terminated			690

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-2**
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Drilling Start Date:	**4/24/2017**	Boring Depth (ft):	**85**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Griffin**	Location (Y, X):	**1242377.9, 2026690.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			
		▼					(3.3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-2**
Page: **2 of 5**

Drilling Start Date:	**4/24/2017**	Boring Depth (ft):	**85**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Griffin**	Location (Y, X):	**1242377.9, 2026690.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			
25							(24.3') Top of Ash, dark gray, very fine grained		Top of ash determined using weighted tag line.	775
			CB	3					Photo represents recovered sample between 28'-30' interval.	
30										770
35			CB	6				S-2 (39-40)	Photo represents recovered sample between 38'-40' interval.	765
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-2**
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Drilling Start Date:	**4/24/2017**	Boring Depth (ft):	**85**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Griffin**	Location (Y, X):	**1242377.9, 2026690.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(24.3') Top of Ash, dark gray, very fine grained *(continued)*			
45			CB	8				S-2 (46-47)	Photo represents recovered sample between 47'-49' interval.	755
50							(49') SILT with minor clay (ML); and fine rounded gravel (some garnets), non plastic, soft, moist, brownish yellow (10YR 6/6), micaceous (fine), homogeneous texture, SAPROLITE	S-2 (49-50)	Photo represents recovered sample between 51'-53' interval.	750
55			CB	10			(54') SILT with minor clay (ML); and fine to medium mica, dark gray (10YR 4/1), relict rock fabric (schistose texture), large (up to 1") garnets (rounded and dark red) (55') Large sub-angular cobble	S-2 (54-55)		745
60							(58') SILT with minor clay (ML); greenish gray (10G 5/1), homogeneous texture, non-micaceous, large sub-angular gravel (quartz) at 58'	S-2 (59-60)		740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-2**
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Drilling Start Date:	**4/24/2017**	Boring Depth (ft):	**85**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Griffin**	Location (Y, X):	**1242377.9, 2026690.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(60') Intermixed with silt, minor clay and sparse fine sand (fines are primary component of this interval), cobbles consist of highly weathered mica, garnet SCHIST. Cobbles are white (7.5R8/1) at 60' and 70', quartz band (1" thick) at 60', silica rich, sparse fine weathered garnets; PARTIALLY WEATHERED ROCK			
								S-2 (64-65)		
65			CB	9			(65') Cobbles are greenish black (10GY 2.5/1) from 65-68'		Photo represents recovered sample between 66'-68' interval.	735
								S-2 (67-68)		
70							(70') SCHIST, highly weathered, white (7.5YR 8/1), (near complete dissolution of mica and garnets), fractured along foliation, silica-rich, sparse garnets			730
75			CB	6					Outer Casing set at 70'	725
									Photo represents recovered sample between 78'-80' interval.	
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-2**
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Drilling Start Date:	**4/24/2017**	Boring Depth (ft):	**85**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Griffin**	Location (Y, X):	**1242377.9, 2026690.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80			CB	2			(80') As above, iron oxide staining along fracture faces			715
85							(85.0') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-3**
Page: **1 of 7**

Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**140**
Drilling End Date:	**4/24/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1242720.3, 2026787.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799.55
		▼					(3.3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-3**
Page: **2 of 7**

Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**140**
Drilling End Date:	**4/24/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1242720.3, 2026787.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			
25			CB	2			(24') Top of Ash, SILT with very fine sand (ML-SM); non plastic, very soft, saturated, dark gray		Top of ash determined using weighted tag line. Photo represents recovered sample between 24'-26' interval.	775
30										770
35			CB	3				S-3 (38-39)		765
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-3**
Page: **3 of 7**

Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**140**
Drilling End Date:	**4/24/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1242720.3, 2026787.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(24') Top of Ash, SILT with very fine sand (ML-SM); non plastic, very soft, saturated, dark gray *(continued)*		Photo represents recovered sample between 40'-42' interval.	
45			CB	1						755
50										750
55			CB	1			(58') CLAY (CL); non plastic, very soft, saturated, very dark gray, silty, FLY ASH			745
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-3**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**140**
Drilling End Date:	**4/24/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1242720.3, 2026787.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(58') CLAY (CL); non plastic, very soft, saturated, very dark gray, silty, FLY ASH *(continued)*	S-3 (62-63)	Photo represents recovered sample between 60'-80' interval.	
65			CB	4						735
70										730
75			CB	3						725
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-3**
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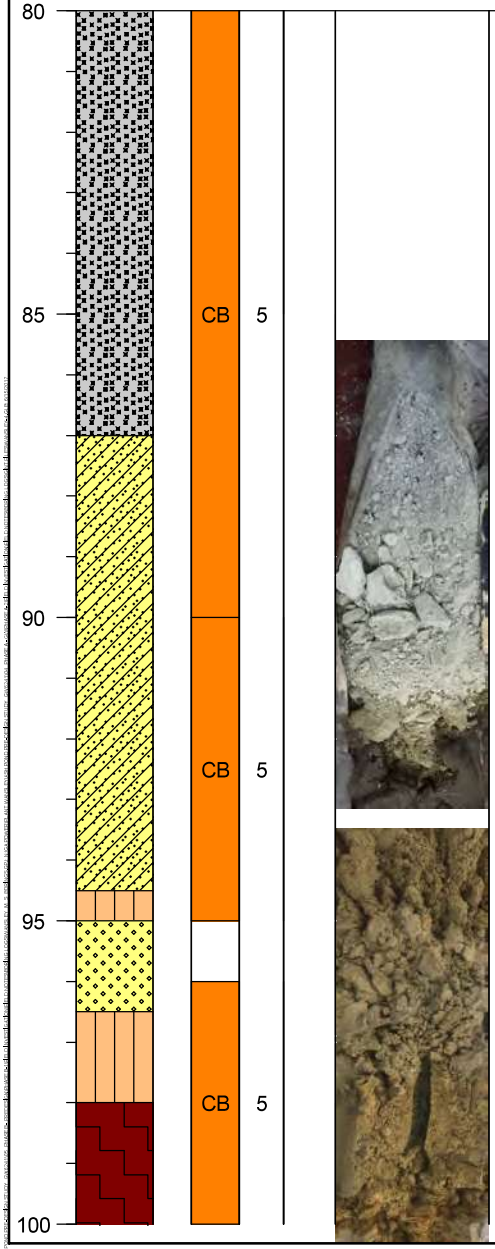
Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**140**
Drilling End Date:	**4/24/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1242720.3, 2026787.5**



DEPTH (ft)	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80					(80') Becomes very loose, with silt, very fine grained, saturated, FLY ASH			715
85	CB	5			(85') Soft soupy mix of FLY ASH (above) and native soil (below)			
					(87') CLAYEY SAND (SC); soft, strong brown, fine grained, organic rich, roots, ALLUVIUM	S-3 (87-88)		
					(89') CLAYEY SAND (SC); mottled very dark gray and pale greenish gray, fine grained, ALLUVIUM	S-3 (89-90)		710
90					(90.5') Pale gray, hard, dry, decomposed rock (quartzite), PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 92'-94' interval.	
	CB	5				S-3 (92-93)	Driller reports hard drilling, "feels like rock"	
					(93.5') CLAYEY SAND with roots (SC); with rounded gravel, soft, wet, very dark brown, ALLUVIUM			705
95					(94.5') SANDY SILT (ML); moderately stiff, dry, red brown, ALLUVIUM	S-3 (95-96)		
					(95') SAND with angular schist gravel (SW); loose, wet, light brown, fine to medium grained, ALLUVIUM			
					(96.5') SANDY SILT (ML); stiff, dry, light olive brown, relict rock fabric, SAPROLITE	S-3 (97-98)		
	CB	5			(98') PARTIALLY WEATHERED ROCK, pale yellow to gray, very hard, dry, foliation visible, decomposed rock; SCHIST		Photo represents recovered sample between 95'-97' interval. Very hard drilling	700
100								

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-3**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**140**
Drilling End Date:	**4/24/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1242720.3, 2026787.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(100') PARTIALLY WEATHERED ROCK, Same as above, decomposed rock, cobble sized fragments of rock, very hard, dry, quartzite; PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 99'-100' interval.	
							(103') Gravelly-sandy zone, wet			
							(103.5') PARTIALLY WEATHERED ROCK, Same as above (at 100'), dry quartzite; PARTIALLY WEATHERED ROCK			
105			CB	10						695
							(107') Becoming dry pulverized rock			
110									Photo represents recovered sample between 110'-113' interval.	690
							(111') QUARTZITE, yellow to brown, fine to medium, intensely fractured, weathered surfaces with abundant iron-oxide staining, metamorphic fabric present, abundant sand filling of fractures, trace mica			
115			CB	8						685
120										680

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-3**
Page: **7 of 7**

Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**140**
Drilling End Date:	**4/24/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.55**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1242720.3, 2026787.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(120') METAQUARTZITE, intensely fractured, granular (fine to medium), very hard, metamorphic fabric (faint foliation), iron-oxide on fracture surfaces, trace mica, few very small garnets	S-3 (123-124)	Photo represents recovered sample between 123'-126' interval.	
125			CB	8						675
130										670
135			CB	5					Stopped drilling for day (4/21/2017)	665
140							(140.0') Boring Terminated			660

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.55 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-4**
Page: **1 of 8**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799.3
		▼					(3.3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-4**
Page: **2 of 8**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			775
25										
30										770
35			CB	1			(32.7') Top of Ash, SANDY SILT (SM-ML); non plastic, very loose, saturated, gray, very fine grained, poorly graded		Top of ash determined using weighted tag line. Photo represents recovered sample between 33'-40' interval.	765
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-4**
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Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(32.7') Top of Ash, SANDY SILT (SM-ML); non plastic, very loose, saturated, gray, very fine grained, poorly graded *(continued)*	S-4 (42-43)	Photo represents recovered sample between 40'-50' interval.	
45										755
50			CB	5			(49.5') SILTY SAND (SM); very loose, saturated, dark gray to red, well graded, BOTTOM ASH			750
							(51') SILT (ML); trace clay, non plastic, very soft, gray, FLY ASH			
55			CB	4					Photo represents recovered sample between 50'-60' interval.	745
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-4**
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Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(60') Becomes more clayey with depth, FLY ASH			
65			CB	4					Photo represents recovered sample between 60'-70' interval.	735
70								S-4 (72-73)		730
75			CB	3					Photo represents recovered sample between 70'-80' interval.	725
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-4**
Page: **5 of 8**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(60') Becomes more clayey with depth, FLY ASH *(continued)*			
									Photo represents recovered sample between 90'-92' interval.	
							(84') ORGANIC CLAY (CL); non plastic, very soft, wet, black			715
85			CB	6.5			(84.5') VERY CLAYEY SAND (SC); soft, olive brown, fine grained, poorly graded, organic material, roots throughout, ALLUVIUM	S-4 (86-87)		
									Photo represents recovered sample between 94'-97' interval.	710
90							(91') CLAYEY SAND (SC); stiff, wet, pale blue gray, ALLUVIUM	S-4 (92-93)		
							(93') SANDY SILT (ML-SM); stiff, moist, mottled yellow brown to gray	S-4 (94-95)		705
95			CB	10						
							(96.5') SILTY GRAVEL (GP-GM); wet, gray to brown, BLASTED ROCK	S-4 (97-97.5)	Photo represents recovered sample between 97'-100' interval.	
							(97.5') SILTY SAND (SM); stiff, dry, brown to gray, fine grained, relict gneissic structure, SAPROLITE			700
100										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-4**
Page: **6 of 8**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(100') Becomes very gravelly, SAPROLITE	S-4 (101-102)		
							(103') Mottled dark gray to brown, angular gravel bound in clay, (quarzite), PARTIALLY WEATHERED ROCK		Driller reports much harder drilling	
							(103.5') QUARTZITE, intensely weathered, pale gray to blue to pink, very hard, dry, pulverized by drilling, PARTIALLY WEATHERED ROCK			695
105			CB	10						
							(106') Dry, SAPROLITE		Photo represents recovered sample between 106'-108' interval.	
							(107.5') QUARTZITE, intensely weathered, dry, PARTIALLY WEATHERED ROCK	S-4 (109-110)		690
110										
										685
115			CB	10			(115.5') QUARTZITE, rock			
							(116') SAND with silt (SM-SP); very hard, dry, pale yellow brown to gray, fine grained, relict rock fabric, SAPROLITE	S-4 (117-118)	Photo represents recovered sample between 117'-120' interval.	
120										680

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-4**
Page: **7 of 8**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(116') SAND with silt (SM-SP); very hard, dry, pale yellow brown to gray, fine grained, relict rock fabric, SAPROLITE *(continued)* (121') QUARTZITE, pale yellow to brown, fine, intensely fractured, metamorphic fabric, oxide staining on surfaces			
							(123') DECOMPOSED QUARTZITE, dry, PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 125'-130' interval.	675
125			CB	9						
							(129') QUARTZITE, steep fractures (>45°), yellow brown, metamorphic fabric, mica, iron oxide staining along surfaces, fine to medium quartz grains			670
130										
							(133') CLAYEY SAND (SC); very loose, saturated, pale yellow to brown, fine to coarse grained	S-4 (133-134)		
							(134') Interbedded lenses of quartzite and clayey sand (SC), about 1' thick, sand zones are very loose, likely sand filled large fractures		Driller could feel the soft sandy zones Stopped drilling for day (4/19/2017), resumed drilling on 4/20/2017 Photo represents recovered sample between 136'-140' interval.	665
135			CB	8						
										660
140										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-4**
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Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**160**
Drilling End Date:	**4/20/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.3**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1242966.6, 2026848.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140							(140') SAND (SW); loose, saturated, light reddish brown, fine to coarse grained, quartz (141') QUARTZITE, steep fractures, reddish brown, intensely to moderately fractured, iron oxide staining throughout mica, fine to medium quartz grains		Driller reports harder drilling, sandy return water Photo represents recovered sample between 140'-143' interval.	
145			CB	7						655
							(147') Sandy-gravelly zone, weathered quartzite fracture zone			
150									Photo represents recovered sample between 150'-154' interval.	650
										645
155			CB	6			(157') DECOMPOSED QUARTZITE, dark blue gray, wet, rock and clay, PARTIALLY WEATHERED ROCK (157.5') QUARTZITE, massive, dark blue to gray, dry, very fine grained, intensely fractured		Photo represents recovered sample between 158'-160' interval.	
160										640
							(160.0') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-5**
Page: **1 of 8**

Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			
		▼					(3.3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-5**
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Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			
25										775
30										770
35										765
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-5**
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Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(39.9') Top of Ash, fine grained *(continued)*			
45			CB	0					Top of ash determined using weighted tag line.	755
50										750
55			CB	5				S-5 (59-60)	Photo represents recovered sample between 58'-60' interval.	745
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-5**
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Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(39.9') Top of Ash, fine grained *(continued)*			
65			CB	6				S-5 (69-70)	Photo represents recovered sample between 68'-70' interval.	735
70										730
75			CB	7				S-5 (79-80)	Photo represents recovered sample between 79'-80' interval.	725
80										720

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

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BORING LOG
Boring No. **S-5**
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Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(39.9') Top of Ash, fine grained *(continued)*			
85			CB	8			(87') CLAY with silt (CL); and fine sand, medium plasticity, stiff, moist, brown to red (7.5YR 5/3 to 2.5YR 5/6), color variation over several layers, FILL	S-5 (87-88)	Photo represents recovered sample between 86'-88' interval.	715
90							(89') SILT with clay (ML); trace fine to medium sand, stiff, slightly moist, light olive brown (2.5Y 5/6), moderate relict rock fabric present, micaceous (fine), SAPROLITE	S-5 (92-93) S-5 (93-94)		710
95			CB	10					Photo represents recovered sample between 96'-98' interval.	705
100										700

NOTE:
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BORING LOG
Boring No. **S-5**
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Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(89') SILT with clay (ML); trace fine to medium sand, stiff, slightly moist, light olive brown (2.5Y 5/6), moderate relict rock fabric present, micaceous (fine), SAPROLITE *(continued)*			
							(102') As above; coarse mica (abundant), strong relict rock fabric		Photo represents recovered sample between 103'-105' interval.	
105			CB	10				S-5 (103-104)		695
							(107') Becomes brownish yellow (10YR 6/6)			
								S-5 (109-110)		
110										690
115			CB	10				S-5 (115-116)	More difficult drilling	685
									Photo represents recovered sample between 117'-119' interval.	
120										680

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-5**
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Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(120') Becomes light olive gray (5Y 6/2)			
125			CB	10			(126') Pockets of white, completely weathered feldspar with a granite texture; pegmatite	S-5 (128-129)	Photo represents recovered sample between 124'-125' interval.	675
130			CB	2			(130') PARTIALLY WEATHERED ROCK, very dark greenish gray (10GY 3/1), schistose texture, abundant fine material, sand, gravel, cobbles are angular, abundant iron staining on fracture faces, feldspar pyroclasts, schist cobble recovered from drill bit			670
135							(134') AMPHIBOLITE GNEISS, very dark blue gray, very hard, moderately fractured, few quartz veins, steep foliation >45°, some staining on fracture surfaces, few small garnets, trace mica		Stopped for the day (4/13/2017) Photo represents recovered sample between 134'-136' interval.	665
140										660

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**4/13/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243209.6, 2026961.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140									Photo represents recovered sample between 140'-142' interval.	
145			CB	8.5			(144') As above, distorted mineral-filled near vertical fractures, more abundant garnet, trace pyrite, green mineral (chlorite) along fractures (147') Vertical fracture with iron oxide staining from 147-150' bds.		Driller reports hard drilling, 90% water loss	655
150							(150.0') Boring Terminated			650

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-6**
Page: **1 of 8**

Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799.8
		▼					(3.3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-6**
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Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			
25										775
30										770
35										765
40							(37') Top of Ash, dark gray, very fine grained		Top of ash determined using weighted tag line.	760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-6**
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Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(37') Top of Ash, dark gray, very fine grained *(continued)*			
45			CB	0					No Recovery	755
50										750
55			CB	5					Photo represents recovered sample between 55'-57' interval.	745
60								S-6 (59-60)		740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-6**
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Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(37') Top of Ash, dark gray, very fine grained *(continued)*			
65			CB	7						735
								S-6 (69-70)	Photo represents recovered sample between 69'-70' interval.	
70			ST	2			(70') CLAY with silt (CL); with fine sand, medium plasticity, stiff, moist, pale yellow and red and brown (2.5Y 7/4 and 2.5YR 4/6 and 10YR 5/3), color variation over several layers, coarse angular quartz gravel at 72', root material throughout, large schistose cobble at 74'	S-6 (70-72)		730
75			CB	10			(76') SILT with clay (ML); with fine sand, non plastic, medium stiff, moist, yellow (10YR 7/6), weak relict rock fabric present, coarse angular gravel at 78', SAPROLITE	S-6 (72-73)	Photo represents recovered sample between 73'-75' interval.	725
								S-6 (79-80)		
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
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Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(76') SILT with clay (ML); with fine sand, non plastic, medium stiff, moist, yellow (10YR 7/6), weak relict rock fabric present, coarse angular gravel at 78', SAPROLITE *(continued)*		Photo represents recovered sample between 80'-81' interval.	
85			CB	10			(84') CLAY with minor silt (CL); dry, grayish brown (2.5Y 5/2), strong relic rock fabric present, fissile fracturing, SAPROLITE	S-6 (85-86)		715
90							(87.5') SILT with clay (ML); trace fine sand, dark gray (5Y 4/2), Micaceous (fine), iron staining throughout interval, SAPROLITE	S-6 (88-89)	Photo represents recovered sample between 86'-87' interval.	710
95			CB	10			(93') PARTIALLY WEATHERED ROCK, dark gray (5Y 4/2), dry, schistose texture, abundant iron staining on fracture faces, micaceous, matrix composed of silt with clay and fine sand (mostly silt), rock fragments from gravel to cobble size	S-6 (97-98)	Photo represents recovered sample between 97'-99' interval.	705
100										700

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
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Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(100') Becomes moist			
								S-6 (104-105)		
105			CB	10					Photo represents recovered sample between 107'-109' interval.	695
							(107') Becomes dry			
								S-6 (109-110)		
110										690
115			CB	10					Photo represents recovered sample between 113'-115' interval.	685
							(119') Becomes bluish gray (5PB 6/1), very micaceous (coarse), no oxidation			
120										680

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(120') METAMORPHIC ROCK (SCHIST), highly fractured (gravel to cobble size), very micaceous, abundant iron staining on fracture faces, appears to have abundant dissolution of minerals in rock fabric, sand and fines between solid core pieces, unweathered pieces contain very large mica and disseminated garnets, abundant feldspar porphyroclasts throughout			
125			CB	5					Photo represents recovered sample between 124'-125' interval. Used water, fines washed out	675
130										670
135			CB	7				S-6 (138-139)	Photo represents recovered sample between 137'-138' interval.	665
140										660

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-6**
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Drilling Start Date:	**4/11/2017**	Boring Depth (ft):	**150**
Drilling End Date:	**4/12/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Griffin**	Location (Y, X):	**1243480.8, 2027022.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140							(120') METAMORPHIC ROCK (SCHIST), highly fractured (gravel to cobble size), very micaceous, abundant iron staining on fracture faces, appears to have abundant dissolution of minerals in rock fabric, sand and fines between solid core pieces, unweathered pieces contain very large mica and disseminated garnets, abundant feldspar porphyroclasts throughout *(continued)*			
145			CB	5			(145') As above, highly fractured rock composed of medium gravel to large cobbles, trace fines, abundant natrual fracturing with iron staining on fracture faces, some mechanical fracturing from sonic methods		Photo represents recovered sample between 148'-149' interval.	655
150							(150.0') Boring Terminated			650

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
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3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-7**
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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			800
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			780
25										775
30										770
35										765
40									Top of ash determined using	760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(39.5') Top of Ash, SILT (ML); trace fine clay, very loose, saturated, very dark gray *(continued)*		weighted tag line.	760
45			CB	2					Poor recovery due to very loose near-liquid consistancy of ash Photo represents recovered sample between 45'-46' interval.	755
50										750
55			CB	3				S-7 (53-54)	Photo represents recovered sample between 55'-56' interval.	745
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(39.5') Top of Ash, SILT (ML); trace fine clay, very loose, saturated, very dark gray *(continued)*		Photo represents recovered sample between 60'-65' interval.	740
65			CB	5						735
70							(69') SILTY CLAY (CL); non plastic, very soft, saturated, black, gelatinous, FLY ASH (71') SILT (ML); non plastic, moderately stiff to medium stiff, moist, brown, micaceous flakes, RESIDUUM	S-7 (72-73)	Photo represents recovered sample between 70'-72' interval.	730
75			CB	8.5			(76') SILTY SAND (SM); medium stiff, dry, mottled yellowish brown and light gray, fine grained, relict weak rock fabric, SAPROLITE	S-7 (77-78)		725
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-7**
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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(80.5') SILT with fine sand (SM-ML); medium stiff, moist, gray to brown, micaceous, strong relict rock fabric, SAPROLITE	S-7 (81-82)	Photo represents recovered sample between 80'-82' interval.	720
							(82') CLAYEY SAND (SC); soft, saturated, pale red to brown, fine grained, no rock fabric			
85			CB	10				S-7 (85-86)		715
							(88') CLAYEY SAND with large gravel (SC-GC); loose, saturated, brown to gray, fine to medium grained, rock fragments (quartzite fragments), SAPROLITE-PARTIALLY WEATHERED ROCK	S-7 (88-89)		
90							(90') CLAYEY SAND (SC); non plastic, medium stiff, moist, red to yellow to brown, fine grained, weak relict rock fabric, SAPROLITE			710
95			CB	10					Photo represents recovered sample between 87'-90' interval.	705
							(97.5') SILT (ML); trace angular gravel, very stiff, dry, mottled white and brown and gray, relict fabric, iron oxide staining, SAPROLITE	S-7 (98-99)		
100										700

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(97.5') SILT (ML); trace angular gravel, very stiff, dry, mottled white and brown and gray, relict fabric, iron oxide staining, SAPROLITE *(continued)*			700
								S-7 (103-104)	Photo represents recovered sample between 102'-104' interval.	
105			CB	10			(105') PARTIALLY WEATHERED ROCK, pale brown, dry, pulverized			695
							(107') Mottled brown and tan and yellow, very stiff, dry, strong relict rock fabric, angular rock fragments throughout, schistose, PARTIALLY WEATHERED ROCK	S-7 (108-109)	Photo represents recovered sample between 108'-110' interval. Driller reports very hard drilling	
110							(109.5') Crushed rock, quartz fragments broken by drilling (110') SANDY SILT (ML); non plastic, stiff, dry, brown, fine sand, weak relict structure, SAPROLITE		Driller reports soft drilling throughout this run Very poor recovery of 15' run from 110-125' Difficult to determine which section of core was lost	690
115			CB	3					Photo represents recovered sample between 115'-116' interval.	685
120										680

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-7**
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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(110') SANDY SILT (ML); non plastic, stiff, dry, brown, fine sand, weak relict structure, SAPROLITE *(continued)*			680
							(123') Lens of quartzite gravel, rock fragments			
125							(125') SILT with fine sand (SM-GM); medium to coarse gravel, pale yellow (2.5Y 8/4), gravel has weak relict tock fabric, pieces can be broken by hand		Photo represents recovered sample between 126'-128' interval.	675
			CB	5					Stopped drilling for the day (4/7/17)	
130										670
135			CB	0					Material fell out of the core barrel	665
								S-7 (137-138)		
140										660

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-7**
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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140							(140') SAND with silt (SM); fine to coarse grained, abundant angular coarse and fine angular gravel (up to 0.5"), gravel has weak relict rock fabric, some places cannot be broken by hand, PARTIALLY WEATHERED ROCK with SAPROLITE			660
145			CB	5				S-7 (148-149)	Photo represents recovered sample between 148'-150' interval.	655
150							(150') PARTIALLY WEATHERED ROCK, with few large cobbles of competent rock up to core barrel diameter			650
155			CB	7				S-7 (155-156)	Photo represents recovered sample between 154'-155' interval.	645
160										640

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-7**
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Drilling Start Date:	**4/7/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/10/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**800**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1243715.9, 2027092.2**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
160							(160') AMPHIBOLITE, dark greenish gray (10GY 4/1), highly fractured			640
165			CB	2.5			(168') Cobbles and coarse gravel have abundant iron staining	S-7 (169-170)	Boring collapse Photo represents recovered sample between 165'-166' interval.	635
170							(170.0') Boring Terminated			630

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-8**
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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			
		▼					(3.3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-8**
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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			
25										775
30										770
35										765
40							(38.5') Top of Ash, SILT (ML); non plastic, very soft, loose, saturated, dark gray		Top of ash determined using weighted tag line.	760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-8**
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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(38.5') Top of Ash, SILT (ML); non plastic, very soft, loose, saturated, dark gray *(continued)*			
45			CB	9				S-8 (48-49)	Photo represents recovered sample between 40'-50' interval.	755
50										750
55			CB	0			(55') SAND (SW-SM); trace fine gravel, loose, wet, dark gray, fine to medium grained, BOTTOM ASH	S-8 (56-57)	Photo represents recovered sample between 57'-60' interval.	745
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-8**
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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(55') SAND (SW-SM); trace fine gravel, loose, wet, dark gray, fine to medium grained, BOTTOM ASH *(continued)*			
65			CB	0					Sample lost, based on soft drilling, suspected ash	735
70							(70') SILTY SAND (SM); loose, saturated, red to brown, fine grained, ALLUVIUM (71') SANDY CLAY (SC); soft, wet, yellow to red to brown, laminated, ALLUVIUM		Photo represents recovered sample between 70'-72' interval.	730
75			CB	9				S-8 (74-75) S-8 (70-71)		725
80							(79') Becomes yellow brown, more sandy			720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-8**

Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(79') Becomes yellow brown, more sandy *(continued)*			
							(82') CLAY (CL); trace fine sand, low plasticity, medium stiff, wet, light yellow to brown, very weak relict rock fabric, SAPROLITE	S-8 (84-85)		
85			CB	10						715
									Photo represents recovered sample between 88'-90' interval.	
90										710
							(94') SANDY CLAY (SC-CL); non plastic, soft, pale brown to pink, quartz sand grains, weak relict rock fabric, SAPROLITE		Photo represents recovered sample between 95'-97' interval.	
95			CB	10				S-8 (96-97)		705
100										700

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(100') Becomes stiffer with depth		Photo represents recovered sample between 103'-105' interval.	
105			CB	10						695
110							(109') SILT (ML); trace clay, non plastic, very stiff, dry, brown, relict foliation, SAPROLITE			690
			CB	5			(112') SILT with fine to coarse gravel (ML); non plastic, very stiff, dry, streaked white and brown and pink, grading to PARTIALLY WEATHERED ROCK	S-8 (113-113.5)	Photo represents recovered sample between 112'-115' interval.	
115										685
			CB	5			(116')(116') Dry White, pulverized PARTIALLY WEATHERED ROCK, quartz and feldspar (116.5') DECOMPOSED SCHIST, strongly foliated, very dark gray to brown, amphibolite, PARTIALLY WEATHERED ROCK			
120										680

NOTE:
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3. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120			CB	0			(116.5') DECOMPOSED SCHIST, strongly foliated, very dark gray to brown, amphibolite, PARTIALLY WEATHERED ROCK *(continued)*		Core sample lost, driller reports soft zone from 122-125	
125			CB	5			(124.5') SILT (ML); dry, pale yellow to brown, relict rock structure, SAPROLITE (126') DECOMPOSED SCHIST, pale yellow to white to brown, hard, dry	S-8 (127-128)	Photo represents recovered sample between 128'-130' interval.	675
130										670
135			CB	0					Driller made 20' run after reporting intermittant soft and hard drilling zones, concerned about core loss	665
140										660

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
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3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-8**
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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140							(140') Soft sand-filled zones, loose pink quartz and feldspar gravel, fine to coarse sand			
145			CB	2.5			(147.5') Quartz-feldspar pegmatite fragments (148') DECOMPOSED SCHIST, very stiff to hard, moist, amphibolite, PARTIALLY WEATHERED ROCK		Lost most of core, driller reported interlayered hard (rock) and soft zones	655
150			CB	2					Driller could not advance deeper without using mud, very hard, open hole from 130-152', core barrel contained 10' of fine to medium sand with gravel	650
155			CB	2.5			(155') Pink quartz and potassium feldspar rock fragments, PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 152'-160' interval.	645
160										640

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-8**
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Drilling Start Date:	**4/4/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1243963.6, 2027141.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
160			CB	6.5			(160') QUARTZITE, massive, hard, intensely fractured, iron oxide staining on fracture surfaces, possible pegmatite	S-8 (164-165)	Photo represents recovered sample between 160'-162' interval.	
							(162') SAND with gravel, quartz fragments, loose, saturated, yellow to reddish brown			
							(162.5') DECOMPOSED GNEISS, banded, dark gray, dry, strong relict rock fabric, friable, PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 164'-166' interval. Using water to drill, likely flushed out the softer partially weathered rock zone, driller reports interlayered hard and soft zones	
165										635
							(168') SAND, loose, saturated, reddish brown, fine to coarse grained, well graded, angular, quartz, potassium feldspar			
							(169') Dry, as at 162.5, PARTIALLY WEATHERED ROCK			
170										630

(170.0') Boring Terminated

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-9**
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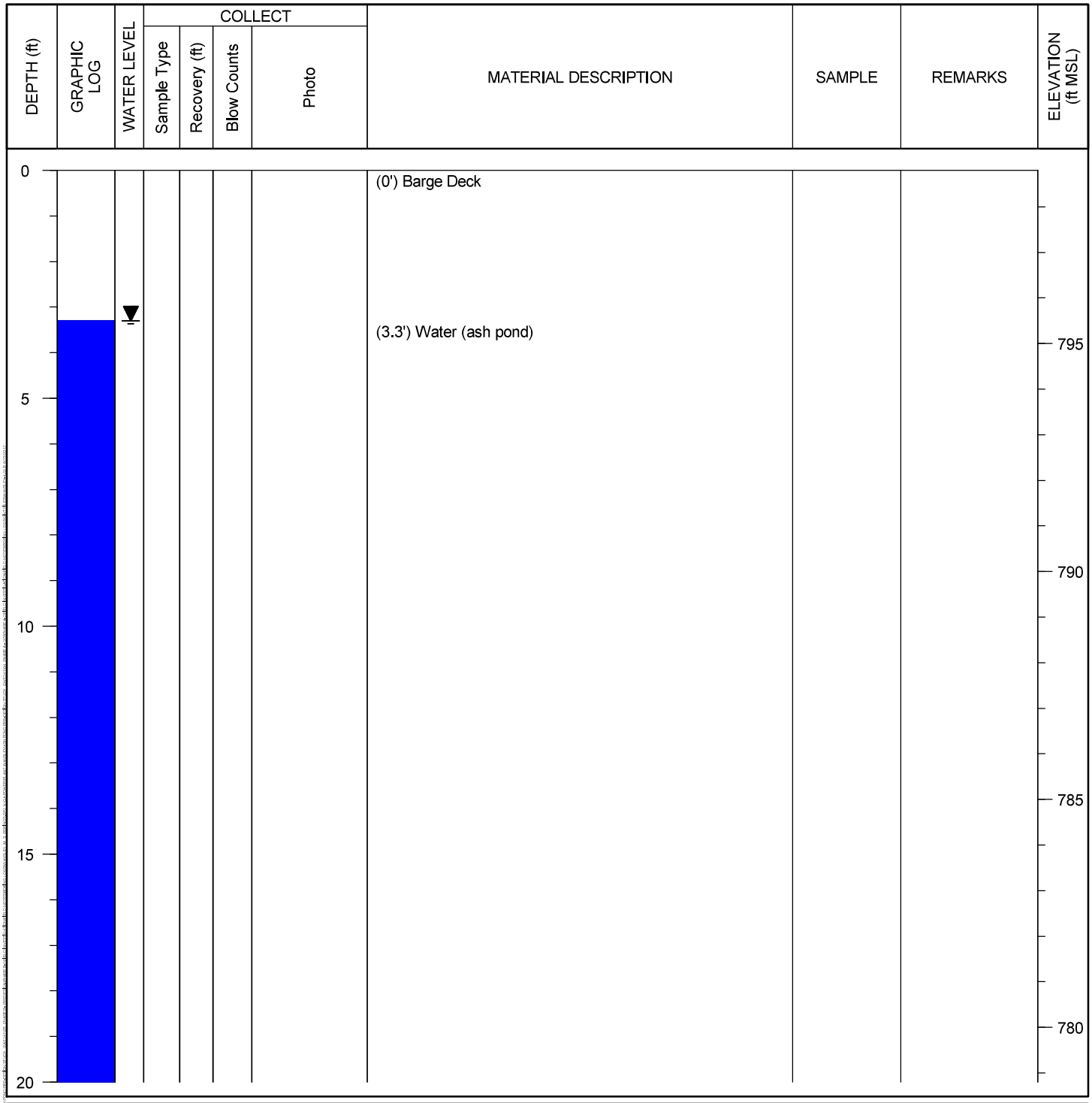
Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**



NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			775
25										
30										770
35			CB	0			(31.5') Top of Ash, no recovery		Photo represents recovered sample between 35'-37' interval. Top of ash determined using weighted tag line.	765
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-9**
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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(40') SILT (ML); very loose, wet, very dark gray, FLY ASH			755
45			CB	4			(48') Silty medium sand (SW-SM); very loose, wet, very dark gray, BOTTOM ASH (49') CLAY (CL); non plastic, very soft, wet, black, FLY ASH		Photo represents recovered sample between 50'-53' interval.	750
50								S-9 (52-53)		
55			CB	8			(53') SILT (ML); non plastic, very soft, black, FLY ASH (54') SILT (ML); very soft to loose, wet, black to gray, FLY ASH (56') SANDY SILT (SM-ML); stiff, dry, mottled yellow and red and brown, relict banding and rock fabric, oxide staining along fracture surfaces, SAPROLITE	S-9 (54-55)	Photo represents recovered sample between 57.5'-60' interval.	745 740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.8 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-9**
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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60										
							(61') SANDY CLAY (SC-CL); soft, moist, reddish brown, relict rock fabric, weathered feldspar veins, occasional zones (~3" thick) of very soft, wet sandy clay to clayey sand, SAPROLITE			735
65			CB	10					Photo represents recovered sample between 60'-63' interval.	
							(68.5') Becomes wet, softer			730
70										
										725
75			CB	10				S-9 (75-76)	Photo represents recovered sample between 74'-76' interval.	
							(78') VERY SANDY CLAY (CL); non plastic, stiff, moist, mottled yellow and brown, SAPROLITE		Driller reports stiffer drilling	720
80										

NOTE:
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BORING LOG
Boring No. **S-9**
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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(78') VERY SANDY CLAY (CL); non plastic, stiff, moist, mottled yellow and brown, SAPROLITE *(continued)*			
							(82') CLAYEY SAND (SC); soft, wet, yellow to red, fine grained, no rock fabric evident		Photo represents recovered sample between 84'-86' interval.	715
85			CB	11			(85') SANDY CLAY (SC-CL); non plastic, soft, moist, red, rock fabric present, SAPROLITE			
							(88.6') Thin (~1") vein of quartz rock			710
90										
										705
95			CB	9.5			(97') Becomes stiff, more dry, more pronounced rock fabric	S-9 (98-99)	Photo represents recovered sample between 96'-98' interval.	
										700
100										

NOTE:
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3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-9**
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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(97') Becomes stiff, more dry, more pronounced rock fabric *(continued)*			
							(101.6') SANDY CLAY (CL); medium plasticity, soft, moist, brown, no rock structure		Photo represents recovered sample between 104'-106' interval.	695
105			CB	8.5			(106') SILT (SM-ML); stiff, dry, dark brown, mica and feldspar, SAPROLITE			
								S-9 (108-109)		
							(109') Weathered feldspar vein			690
110										
							(114') Partially weathered rock vein (potassium feldspar) (~3" thick)			685
115			CB	10			(116') Becomes very stiff, dry, occasional gravel size rock fragments and small garnets (5mm)		Photo represents recovered sample between 116'-118' interval.	
										680
120										

NOTE:
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3. Borings were backfilled with grout using tremie method.

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

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Boring No. **S-9**
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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(116') Becomes very stiff, dry, occasional gravel size rock fragments and small garnets (5mm) *(continued)*	S-9 (120-121.5)		
									Photo represents recovered sample between 124'-126' interval.	675
125			ST	2			(125') SILTY SAND with gravel (SM); medium stiff, wet, white, quartz and potassium feldspar, rock fragments, PARTIALLY WEATHERED ROCK	S-9 (125-127)	Driller reports harder drilling	
							(127') SILT (SM-ML); stiff, dry, brown, relict banding, SAPROLITE			
							(129') PARTIALLY WEATHERED ROCK lens			670
130							(130.5') Becomes very stiff, rock structures becoming more pronounced			
										665
135							(137.5') PARTIALLY WEATHERED ROCK lens		Photo represents recovered sample between 136'-138' interval.	
							(138.5') PARTIALLY WEATHERED ROCK, hard, dry, schistose, mica lenses			660
140										

NOTE:
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3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-9**
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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140			CB	6			(138.5') PARTIALLY WEATHERED ROCK, hard, dry, schistose, mica lenses *(continued)* (143') WEATHERED QUARTZ-MICA SCHIST, dry pulverized rock, PARTIALLY WEATHERED ROCK		6' run from 140'-146' due to hard drilling and rig chatter, photo represents recovered sample between 140'-142' interval.	655
145							(146') QUARTZ-MICA SCHIST			
			CB	2.7			(147') DECOMPOSED SCHIST, intensely fractured bordering on PARTIALLY WEATHERED ROCK		Driller began using water while advancing the core barrel	650
150							(150') QUARTZ-MICA SCHIST, thinly foliated, oxide staining, sandy, intensely fractured, quartz-potassium feldspar pegmatite present at ~153'		Photo represents recovered sample between 152-154' interval. Low recovery due to wash out	645
155			CB	3			(155') Very stiff to hard, dry, schist parent material, PARTIALLY WEATHERED ROCK			
160							(158.75') MICA SCHIST, foliated, sandy, intensely fractured, weathered			640

NOTE:
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3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-9**
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Drilling Start Date:	**3/22/2017**	Boring Depth (ft):	**170**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.8**
Logged By:	**J. Ivanowski**	Location (Y, X):	**1244281.3, 2027256.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
160							(158.75') MICA SCHIST, foliated, sandy, intensely fractured, weathered *(continued)* (161') GNEISS, blue to gray, granular to aphanitic, visible mica, amphibole, pink potassium feldspar and quartz pegmatites at 163' (fracture extent is difficult to determine due to sonic disturbance)		Driller reports much harder drilling. Return water changed from red-brown to greenish-gray. Photo represents recovered sample between 163'-166' interval. Water loss decreased but driller reports "crunchy" drilling suggesting that rock is fractured	
165			CB	8						635
170							(170.0') Boring Terminated			630

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BORING LOG
Boring No. **S-10**
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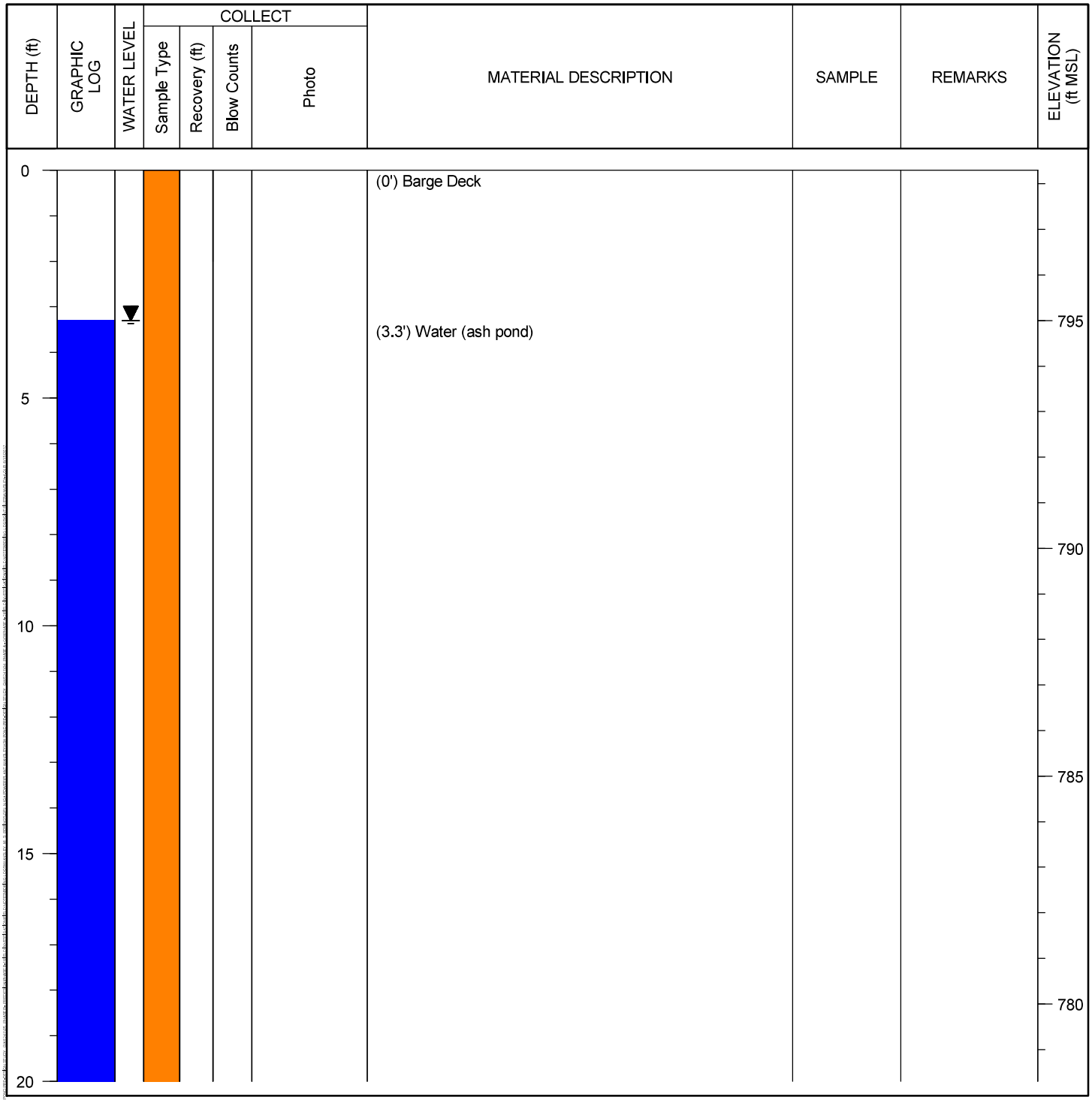
Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**



NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3.3') Water (ash pond) *(continued)*			775
25							(25.5') Top of Ash, dark gray, very fine grained		Top of ash determined using weighted tag line.	770
30			CB	2						765
35									Photo represents recovered sample between 35'-40' interval.	760
40										

NOTE:
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BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(25.5') Top of Ash, dark gray, very fine grained *(continued)*			
45										755
50										750
55										745
60			ST	2				S-10 (58-60)	0'-60' of core only resulted in 2' of material at the bottom from 58'-60'; most ash	740

NOTE:
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BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(60') SILT with fine and medium angular gravel (ML); wet, light red (2.5YR 7/8), mafic banding (relict rock fabric), SAPROLITE		washed out of core barrel; only water remained in sample bags Photo represents recovered sample between 62'-64' interval.	
									A core catcher was used. Although there was only 2' of ash recovered, there was saprolite residue on the core catcher at the bottom of the core barrel.	735
65			CB	2						
									Photo represents recovered sample between 69'-70' interval.	730
								S-10 (69-70)		
70										
								S-10 (73-74)		725
							(73.5') Becomes white and pink (2.5YR 8/4), with mica			
							(74') Light greensih gray (10GY 7/1) bands with coarse angular gravel from 74' to 74.5'			
75			CB	8						
							(78') Fine angular gravel to 79'			720
								S-10 (79-80)		
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(80') Becomes soft, with sand, and fine gravel, moist, yellow (10YR 8/6)		Photo represents recovered sample between 80'-82' interval. Originally supposed to be a 20' run but driller stopped at 15' due to tighter drilling.	715
85								S-10 (85-86)		
			CB	15						710
90								S-10 (93-94)		
										705
95							(95') Becomes pale brown (10YR 6/3), 1" gravel at 96'			
							(96') Becomes stiff, dry			
			CB	3					Photo represents recovered sample between 98'-100' interval.	700
100										

NOTE:
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BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100			CB	3			(100') Becomes wet, pale brown (10YR 6/3), sparse fine and coarse gravel (up to 2" in diameter)	S-10 (104-105)		695
105							(105') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), felspathic, micaceous with visible jointing, cobbles up to 4" in diameter (same diameter of the core barrel), some sand present, but primarily angular gravel that is fractured into shards (given the fissile nature of the rock) with sand and clay, PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 108'-110' interval.	690
110			CB	5						685
115							(115') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), reddish yellow (5YR 6/6), highly fractured, abundant iron staining on fracture faces, mineral dissolution along fractures, HIGHLY FRACTURED ROCK	S-10 (114-115) S-10 (116-117)	Photo represents recovered sample between 115'-117' interval.	680
120			CB	5						

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(115') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), reddish yellow (5YR 6/6), highly fractured, abundant iron staining on fracture faces, mineral dissolution along fractures, HIGHLY FRACTURED ROCK *(continued)*		Photo represents recovered sample between 120'-122' interval. Driller indicates that approximately 5' of material fell back into the boring; sloughing/loose material.	675
125			CB	1						
									Photo represents recovered sample between 130'-132' interval.	670
130							(130') SAND, reddish yellow (5YR 6/6), highly decomposed rock, primarily clean, medium to coarse subangular sand with cobbles up to 4" diameter, trace fines, cobbles have iron staining on fracture faces, near complete disintegration of rock in this interval			665
135			CB	6				S-10 (138-139)		660
140										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140							(130') SAND, reddish yellow (5YR 6/6), highly decomposed rock, primarily clean, medium to coarse subangular sand with cobbles up to 4" diameter, trace fines, cobbles have iron staining on fracture faces, near complete disintegration of rock in this interval *(continued)*			
145			CB	0					Driller indicates the casing is dropping in the boring. Casing advanced to 135'. The driller indicates the sand is flowing back into the casing and could lock the core barrel inside the casing, gel added to prevent this.	655
150							(150') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), slightly weathered, very dark greenish gray (10GY 3/1), fresh, pieces up to 4" diameter, mixed with clay (likely due to drilling), feldspar, mica			650
155			CB	7					Photo represents recovered sample between 154'-155' interval.	645
160										640

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-10**
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Drilling Start Date:	**3/13/2017**	Boring Depth (ft):	**168**
Drilling End Date:	**3/17/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.3**
Logged By:	**J. Griffin**	Location (Y, X):	**1244514.9, 2027234**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
160			CB	2			(150') METAMORPHIC ROCK (GNEISS/AMPHIBOLITE), slightly weathered, very dark greenish gray (10GY 3/1), fresh, pieces up to 4" diameter, mixed with clay (likely due to drilling), feldspar, mica *(continued)*			
							(163') Some pyrite along fractured surfaces			635
165			CB	4						
							(168.0') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.3 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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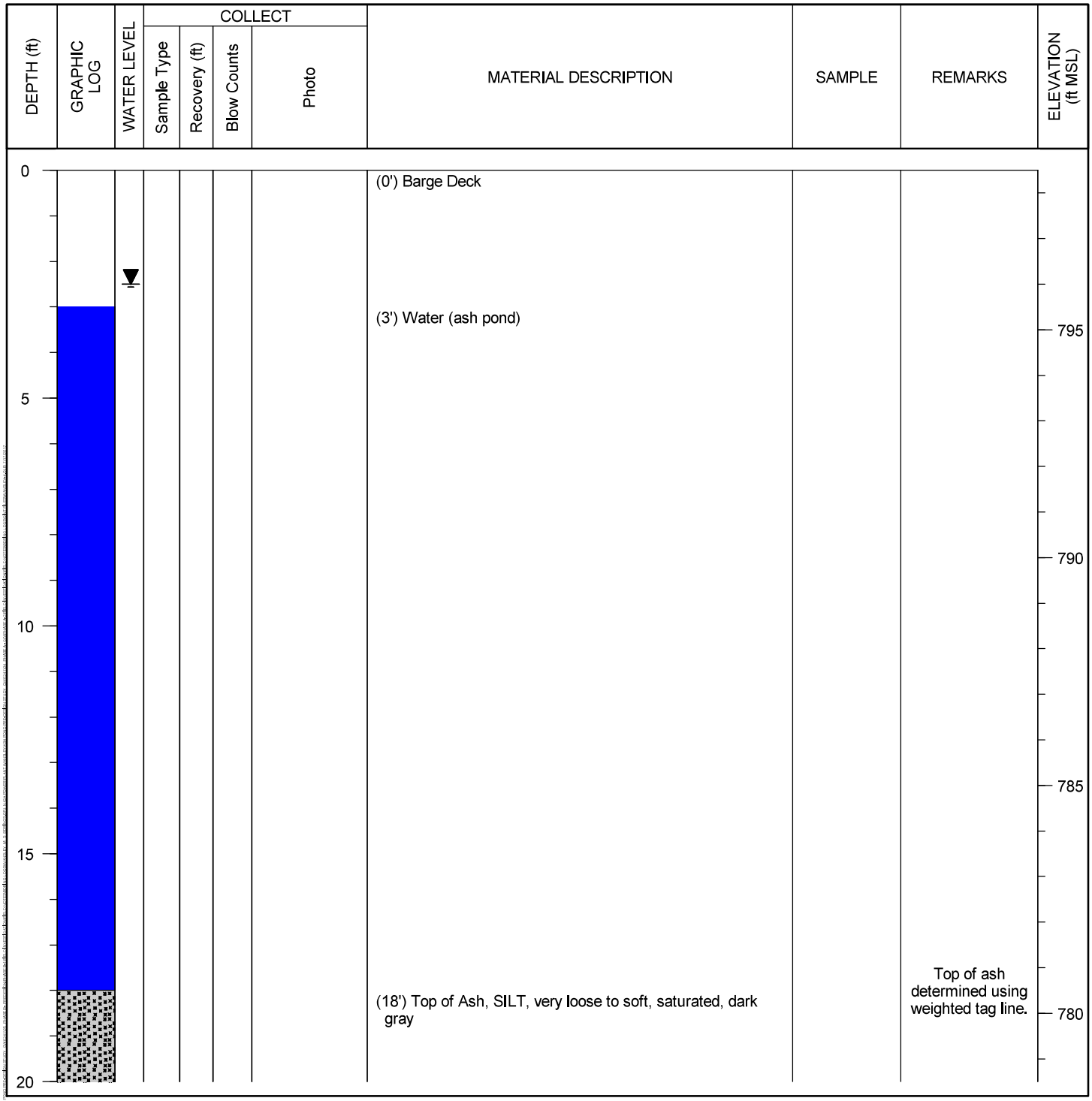
BORING LOG
Boring No. **S-11**
Page: **1 of 7**

Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**130**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.5**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1244858.6, 2027430.6**



NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-11**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**130**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.5**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1244858.6, 2027430.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(18') Top of Ash, SILT, very loose to soft, saturated, dark gray *(continued)*			
								S-11 (22-23)		775
25										
							(28') With trace fine sand			770
30										
										765
35										
										760
40										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-11**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**130**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.5**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1244858.6, 2027430.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(40') Becomes very fine sand to silt		40'-45'	
							(42') SILTY SAND (SM); very loose, saturated, black, medium to coarse grained, BOTTOM ASH	S-11 (42-43)	Photo represents recovered sample between 40'-45' interval.	
45							(43') SILT, dark gray, FLY ASH			755
							(48') SILT with clay (ML); non plastic, very soft, black, FLY ASH			750
50									50'-52' Photo represents recovered sample between 50'-52' interval.	
							(51.5') SILT (ML); non plastic, soft, moist, red to brown, relict rock fabric, micaceous, SAPROLITE	S-11 (52-54)		745
55									Photo represents recovered sample between 56'-58' interval. 56'-58'	
							(57') SANDY SILT (ML); soft, moist, red, SAPROLITE			740
60								S-11 (59-60)		

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-11**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**130**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.5**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1244858.6, 2027430.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(57') SANDY SILT (ML); soft, moist, red, SAPROLITE *(continued)*			
							(63') SILT (ML); non plastic, soft, moist, brown, no rock fabric evident			735
65							(65') VERY SILTY SAND (SM); wet, yellow to brown, fine grained, gravel is weathered rock fragments, iron oxide nodules	S-11 (67-68)	Photo represents recovered sample between 66'-68' interval. 66'-68'	
										730
70							(71') Becomes mottled, with brown sandy saprolite nodules			
										725
75							(75') SILT (ML); non plastic, medium stiff, moist, gray to brown, very micaceous rock fabric, SAPROLITE			
								S-11 (78-79)		720
80							(79') Becomes dry			

NOTE:
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2. Depths are in feet below deck surface. Deck surface at time of drilling was 798.5 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-11**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**130**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.5**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1244858.6, 2027430.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(80') Becomes micaceous, dry, SAPROLITE			
85									84'-86' Photo represents recovered sample between 84'-86' interval.	715
90							(91') SILT (ML); and gravel, ~15% clay, non plastic, very stiff, dry, gray to brown, micaceous, strong relict foliation, SAPROLITE		90'-92' Photo represents recovered sample between 90'-92' interval.	710
95								S-11 (94-95)		705
100							(97.75') As above with fragments of weathered rock, very stiff, dry, PARTIALLY WEATHERED ROCK	S-11 (96-97)	98'-100' Photo represents recovered sample between 98'-100' interval.	700

NOTE:
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3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-11**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**130**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.5**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1244858.6, 2027430.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100			CB	3			(97.75') As above with fragments of weathered rock, very stiff, dry, PARTIALLY WEATHERED ROCK *(continued)*		Stop drilling for the day (3/23/2017)	695
105			CB	4			(106') METAMORPHIC ROCK (SCHIST) (CL); with medium to coarse gravel (schist), olive (5Y 5/2), one piece of gravel is the same diameter as the inner core barrel (3.75"), PARTIALLY WEATHERED ROCK	S-11 (109-110)	Drilling very slow, 108'-110' Photo represents recovered sample between 108'-110' interval.	690
110							(110') METAMORPHIC ROCK (SCHIST), greenish black (5GY 2.5/1), highly fractured, very micaceous, small weathered garnets, abundant iron staining on fracture faces (MUSCOVITE SCHIST)			685
115			CB	3			(115') As above, competent rock, larger dissimenated garnets with very strong banding			680
120										

NOTE:
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3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-11**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**130**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**798.5**
Logged By:	**J. Ivanowski and J. Griffin**	Location (Y, X):	**1244858.6, 2027430.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(115') As above, competent rock, larger dissimenated garnets with very strong banding *(continued)*			
									122'-124' Photo represents recovered sample between 122'-124' interval.	675
125			CB	6					Material left in hole	
										670
130							(130.0') Boring Terminated			

NOTE:
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3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-12**
Page: **1 of 6**

Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**3/31/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Griffin**	Location (Y, X):	**1245104.9, 2027483.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			
		▼					(3') Water (ash pond)			
										795
5										
										790
10										
										785
15										
										780
20										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-12**
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Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**3/31/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Griffin**	Location (Y, X):	**1245104.9, 2027483.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			
							(21') Top of Ash, gray (N6), very fine grained		Top of ash determined using weighted tag line.	
										775
25			CB	6						
								S-12 (29-30)		770
30									Photo represents recovered sample between 30'-32' interval.	
										765
35			CB	5						
								S-12 (39-40)		760
40										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-12**
Page: **3 of 6**

Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**3/31/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Griffin**	Location (Y, X):	**1245104.9, 2027483.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(21') Top of Ash, gray (N6), very fine grained *(continued)*			
										755
45			CB	8.5			(45') CLAY (CL); dry, red (2.5YR 4/8), SAPROLITE (46') SILT with clay (ML); wet, light yellowish brown (2.5Y 6/3), homogenous texture (i.e. no rock fabric evident), micaceous (fine)	S-12 (45-46)	Photo represents recovered sample between 44'-46' interval.	
50										750
55			CB	9					Photo represents recovered sample between 55'-57' interval.	745
60								S-12 (59-60)		740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **S-12**
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Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**3/31/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Griffin**	Location (Y, X):	**1245104.9, 2027483.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(60') CLAY (CL); dry, light olive to brown (2.5Y 5/3), minor rock fabric texture (localized); micaceous (fine)			
								S-12 (64-65)		735
65			CB	9.5						
							(68') Fine angular gravel at 68'			730
70										
								S-12 (74-75)	Photo represents recovered sample between 74'-76' interval.	725
75			CB	10			(75') White clay/silt lens from 75-80', dry			
										720
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **S-12**
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Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**3/31/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Griffin**	Location (Y, X):	**1245104.9, 2027483.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(75') White clay/silt lens from 75-80', dry *(continued)*	S-12 (80-81)		
								S-12 (84-85)		715
85			CB	10			(87') SCHIST, light olive brown (2.5Y 5/3), dry, coarse grained mica, strong foliation, coarse gravel to cobbles with clay, PARTIALLY WEATHERED ROCK		Photo represents recovered sample between 87'-89' interval.	
								S-12 (89-90)		710
90							(90') As above, SCHIST, competent, sparse weathered garnets			
										705
95			CB	7			(94') Becomes well foliated (fine) gneisic texture, abundant mica, white (2.5Y 8/1), highly fractured with abundant iron staining on fracture faces, tranisition zone with weathering/dissolution, sparse weathered garnets		Photo represents recovered sample between 95'-97' interval.	
										700
100										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **S-12**
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Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**110**
Drilling End Date:	**3/31/2017**	Boring Diameter (in):	**4 x 6**
Drilling Company:	**Cascade**	Sampling Method(s):	**CB, ST**
Drilling Method:	**Sonic**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**Mini Sonic 100C**	DTW After Drilling (ft):	**--**
Driller Name:	**B. Lindsey**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Griffin**	Location (Y, X):	**1245104.9, 2027483.6**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(94') Becomes well foliated (fine) gneisic texture, abundant mica, white (2.5Y 8/1), highly fractured with abundant iron staining on fracture faces, tranisition zone with weathering/dissolution, sparse weathered garnets *(continued)*			
							(104') Becomes greenish black (10Y 2.5/1)			695
105			CB	8					Photo represents recovered sample between 106'-108' interval.	
							(108') SCHIST, with dissemimated garnets, small fractures			690
110							(110.0') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-1**
Page: **1 of 5**

Drilling Start Date:	**3/21/2017**	Boring Depth (ft):	**84**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser**	Location (Y, X):	**1242292.9, 2026700.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799
		▼					(3.5') Water (ash pond)			795
5										
										790
10										
										785
15										
										780
20							(19') Top of Ash, very soft, wet, dark gray to black, fine grained		Top of ash determined using weighted tag line.	

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-1**
Page: **2 of 5**

Drilling Start Date:	**3/21/2017**	Boring Depth (ft):	**84**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser**	Location (Y, X):	**1242292.9, 2026700.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(19') Top of Ash, very soft, wet, dark gray to black, fine grained *(continued)*			
			SPT		WOR WOR WOR WOR				Sample poured out of split spoon N=0	775
25										
			SPT	0	WOH WOH WOH WOH				Sample poured out of split spoon N=0	770
30										
			SPT	1.7	WOR WOR WOR WOR		(32') FLY ASH, non plastic, very soft, wet, black, fine grained, non cohesive		N=0	765
35										
			SPT	1.8	WOR WOR WOH 3				N=0	
							(38.7') SILT with mica (ML); non plastic, moist, light brown, cohesive		Top of Native Soil 38.7'	760
40							(39') As above; non plastic, moist, cohesive		Drilled to 39' and set bentonite plug	

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-1**
Page: **3 of 5**

Drilling Start Date:	**3/21/2017**	Boring Depth (ft):	**84**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser**	Location (Y, X):	**1242292.9, 2026700.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(39') As above; non plastic, moist, cohesive *(continued)*		from 39-41'	
			SPT	1.6	6 9 12 15		(42') SILT with mica (ML); non plastic, very stiff, moist, light brown with layering of dark brown, fine grained, non cohesive		Top 2" of spoon were bentonite plug, N=21	755
45			ST	1				ST-M1-1	Could only push 13", pushing barge up	
			SPT	1.5	8 9 12 15		(46') SILT with medium grain mica (ML); very stiff, moist, light brown, fine grained (46.9') SILT (ML); with medium grained mica, non plastic, very stiff, moist, brown, non cohesive		N=21 Photo represents recovered sample between 46'-48' interval.	
			SPT	1	2 9 9 15		(48') SILT (ML); and medium grained mica, non plastic, very stiff, moist, brownish red to brownish gray, non cohesive		N=18	750
50			SPT	1.5	13 26 33 50		(50') SILT with increasing amounts of mica (ML); and schist (medium grained with trace coarse grain), non plastic, hard, moist, gray, non cohesive		N=59	
			SPT	1.3	7 9 13 49		(52') SILT (ML); low plasticity, moist, brown, cohesive (53') SILT with feldspar and trace quartz grains (ML); non plastic, very stiff, white, non cohesive		N=22	
55			SPT	0.3	2 50/4.5		(54') SILT with feldspars (ML); non plastic, hard, white, non cohesive		Hard layer at 54.5'	745
			SPT	2	2 2 2 4		(57') LEAN CLAY with silt (CL); medium plasticity, very soft, moist, brown (57.7') SILT (ML); non plastic, very soft, moist, white (58') SILT (ML); low plasticity, soft, moist, brownish orange		N=4 Photo represents recovered sample between 57'-59' interval.	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-1**
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Drilling Start Date:	**3/21/2017**	Boring Depth (ft):	**84**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser**	Location (Y, X):	**1242292.9, 2026700.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60			ST	1.6			(58') SILT (ML); low plasticity, soft, moist, brownish orange *(continued)*	ST-M1-2		
			SPT	1.4	5 11 16 20		(62') SILT with increasing amounts of medium grained mica (ML); non plastic, very stiff, moist, brown with gray streaks, non cohesive		N=27	
			SPT	1.6	6 13 16 23		(64') SANDY SILT with mica (SM); non plastic, very stiff, moist, brown to gray, non cohesive			735
65			SPT	1.8	11 12 18 23		(66') SANDY SILT with medium grain mica (SM); non plastic, hard, moist, gray with brown, non cohesive		N=30, Photo represents recovered sample between 66'-68' interval.	
			SPT	1.7	9 13 18 28		(68') SANDY SILT with medium grain mica (SM); non plastic, hard, moist, gray with brownish white, non cohesive			730
70			SPT	1.6	11 23 38 50/5.5		(70') SANDY SILT with mica (SM); non plastic, hard, moist, gray with brown, non cohesive, increased mica and garnets (most medium grain, some coarse)		N=61	
			SPT	1.8	20 30 30 31				N=60, Photo represents recovered sample between 72'-74' interval.	725
75			SPT	0.7	25 50/2		(77') SCHIST, with mica sheeting and feldspars, black, crumbles easily, some brown silt, PARTIALLY WEATHERED ROCK		Partially Weathered Rock contact at 78.5'	720
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-1**
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Drilling Start Date:	**3/21/2017**	Boring Depth (ft):	**84**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser**	Location (Y, X):	**1242292.9, 2026700.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80			SPT		50/1.5		(77') SCHIST, with mica sheeting and feldspars, black, crumbles easily, some brown silt, PARTIALLY WEATHERED ROCK *(continued)* (82') SCHIST, with mica, felspars, black, very hard, quartz placed in layers, PARTIALLY WEATHERED ROCK			715

(84.0') Boring Terminated

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-2**
Page: **1 of 4**

Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**76.2**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.5**
Logged By:	**J. Gasser**	Location (Y, X):	**1242560.2, 2026755.1**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			795
5		▼					(4') Water (ash pond)			790
10										785
15										780
20										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-2**
Page: **2 of 4**

Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**76.2**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.5**
Logged By:	**J. Gasser**	Location (Y, X):	**1242560.2, 2026755.1**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(4') Water (ash pond) *(continued)*			
							(24') Top of Ash		Top of ash determined using weighted tag line.	775
25										
			SPT	0	WOR WOR WOR WOR		(28') FLY ASH, very soft, dark gray, fine		N=0	770
30										
			SPT	1	WOR WOR WOR WOR		(33') FLY ASH, non plastic, very soft, wet, dark gray to black, fine grained, non cohesive		N=0	765
35										
			SPT	1.3	WOR WOR WOR WOR		(38') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive		N=0	760
40										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-2**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**76.2**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.5**
Logged By:	**J. Gasser**	Location (Y, X):	**1242560.2, 2026755.1**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(38') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive *(continued)*			
			SPT	1.3	WOR WOR WOR WOR		(43') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive		N=0 Photo represents recovered sample between 43'-45' interval.	755
45										
			ST	0			(48') FLY ASH, very soft, wet, dark gray, fine grained	M2 (48-50)	Attempted Shelby Tube, no recovery.	750
50										
			SPT	1.2	WOR WOR WOR WOR		(53') FLY ASH, non plastic, very soft, wet, dark gray with black, fine grained, non cohesive		N=0	745
55										
			SPT	1.9	WOR WOR WOR WOR		(58') FLY ASH, non plastic, very soft, wet, dark gray with black, fine grained, non cohesive		N=0	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-2**
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Drilling Start Date:	**3/23/2017**	Boring Depth (ft):	**76.2**
Drilling End Date:	**3/23/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.5**
Logged By:	**J. Gasser**	Location (Y, X):	**1242560.2, 2026755.1**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(58') FLY ASH, non plastic, very soft, wet, dark gray with black, fine grained, non cohesive *(continued)*			
			SPT	1.3	13 15 18 23		(63') SILT (ML); non plastic, hard, moist, light brown with orange sections, non cohesive		Top of Native Soil assummed at 63', N=33 Photo represents recovered sample between 63'-65' interval.	735
65									Set casing into native at 66' and overdrilled to 68'	
			SPT	1.9	12 11 25 50/5		(68') SILT (ML); non plastic, hard, moist, gray with white brown to tan layers, non cohesive		N=36 Photo represents recovered sample between 68'-70' interval; Estimated recovery based on drilled depth during SPT run Partially Weathered Rock at 69.5'	730
70			SPT	0.8	39 50/3		(70') SILT (ML); non plastic, hard, moist, light brownish tan, non cohesive			
			SPT	0.4	50/5		(73') SILT with sand (little fine to medium non-uniform) (ML); non plastic, hard, moist, gray with light brown and some faint streaks of red, non cohesive		Photo represents recovered sample between 70'-72' interval.	725
75			SPT	0.2	50/2		(76') SCHIST, light brownish tan with white, hard, highly fractured, with mica and feldspars, laid in sheets that can be split apart		Auger Refusal	
							(76.2') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.5 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-3**
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Drilling Start Date:	**3/27/2017**	Boring Depth (ft):	**94.6**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Ivanowski and H. Lutz**	Location (Y, X):	**1242893.1, 2026855.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-3**
Page: **2 of 5**

Drilling Start Date:	**3/27/2017**	Boring Depth (ft):	**94.6**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Ivanowski and H. Lutz**	Location (Y, X):	**1242893.1, 2026855.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			
										775
25										
							(27') Top of Ash		Top of ash determined using weighted tag line.	
										770
30			SPT		WOR WOR WOR WOR		(31') BOTTOM ASH with silt, and poorly sorted coarse sand, very loose, wet, black to light yellowish brown (31.5') SANDY SILT (SM); very loose, wet, gray, very fine grained, poorly graded, FLY ASH		N=0	
										765
35										
			SPT		WOR WOR WOR WOR		(38') SANDY SILT (SM); very loose, wet, gray, very fine grained, poorly graded, FLY ASH		N=0	
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-3**
Page: **3 of 5**

Drilling Start Date:	**3/27/2017**	Boring Depth (ft):	**94.6**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Ivanowski and H. Lutz**	Location (Y, X):	**1242893.1, 2026855.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(38') SANDY SILT (SM); very loose, wet, gray, very fine grained, poorly graded, FLY ASH *(continued)*			
			SPT		WOR WOR WOR WOR		(43') SILT (ML); non plastic, very soft, wet, very dark gray, FLY ASH		N=0	755
45							(44.5') SILTY CLAY (CL); low plasticity, very soft, wet, dark gray, cohesive, FLY ASH			
			SPT		WOR WOR WOR WOR		(48') CLAYEY SILT (ML); trace very fine grained sand, low plasticity, very soft, wet, dark gray, cohesive, FLY ASH		N=0	750
50										
			SPT		WOR WOR WOR WOR		(53') SANDY SILT (ML); little fine sand, non plastic, very soft, wet, dark gray, FLY ASH		N=0	745
55									Rods and sampler slipped and pushed to ~75' the driller recovered the rods	
			SPT		WOR WOR WOR WOR		(58') SANDY SILT (ML); little fine sand, non plastic, very soft, wet, dark gray, FLY ASH		N=0	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-3**
Page: **4 of 5**

Drilling Start Date:	**3/27/2017**	Boring Depth (ft):	**94.6**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Ivanowski and H. Lutz**	Location (Y, X):	**1242893.1, 2026855.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(58') SANDY SILT (ML); little fine sand, non plastic, very soft, wet, dark gray, FLY ASH *(continued)*			
			SPT		WOR WOR WOR WOR		(63') SILT (ML); trace fine sand, non plastic, very soft, wet, very dark gray, uniform, FLY ASH		N=0	735
65							(64.5') SILTY SAND (ML); trace clay, very loose, wet, dark gray, fine to medium grained, well graded, FLY ASH			
			ST	0.9			(68') FLY ASH	M-3 (68-70)	Collected Shelby Tube with Piston Sampler	730
70										
			SPT		WOR WOR WOR WOR		(73') SILT, trace clay, non plastic, very soft, wet, dark gray (2.5Y 3/1), uniform, FLY ASH		N=0, Photo represents recovered sample between 73'-75' interval.	725
75										
			SPT		WOR WOR WOR WOR		(78') SILT, trace clay, non plastic, very soft, wet, dark gray (2.5Y 3/1), uniform, FLY ASH		N=0	720
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-3**
Page: **5 of 5**

Drilling Start Date:	**3/27/2017**	Boring Depth (ft):	**94.6**
Drilling End Date:	**3/28/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Ivanowski and H. Lutz**	Location (Y, X):	**1242893.1, 2026855.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(78') SILT, trace clay, non plastic, very soft, wet, dark gray (2.5Y 3/1), uniform, FLY ASH *(continued)*		Mud rotary to 83'	
			SPT		WOR WOR WOR WOR		(83') SILT (ML); trace fine sand, non plastic, very soft, wet, dark gray, FLY ASH		N=0, Photo represents recovered sample between 83'-85' interval. Ash-Native soil contact at 84.1'	715
85			ST	1.4			(84.1') SAND (SW-SM); low plasticity, loose, wet, light olive brown (2.5Y 5/3), fine to coarse grained (84.6') SAND with silt (SP-SC); with roots and woody debris, non plastic, soft, wet, very dark grayish brown, very fine grained (85') SAND with silt (SP-SC); and clay, medium dense, wet, dark grayish brown (2.5Y 4/2), very fine grained, uniform			
			SPT		1 WOH WOH WOH				Sampler dropped full length of SPT and 6-8" with one blow of hammer, N=0	710
90			SPT		12 50/4		(90.3') SCHIST, very light gray, weathered bedrock, friable sandy, mica component of parent rock obvious, while no garnet obvious, possible garnet schist parent rock		Contact defined for top of partially weathered rock at 90.3' Photo represents recovered sample between 91'-92' interval.	
			SPT		50/4		(92.5') SCHIST, micaceous weathered schist rock as above, has large angular gravels of quartzite within schist			705
			SPT		50/1					

(94.6') Boring Terminated

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-4**
Page: **1 of 6**

Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**107.3**
Drilling End Date:	**3/29/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243097.5, 2026930.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-4**
Page: **2 of 6**

Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**107.3**
Drilling End Date:	**3/29/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243097.5, 2026930.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			
25										775
30										770
35							(34.5') Top of Ash, SAND with silt (SM); non plastic, very soft, wet, very dark gray (2.5Y 3/1), very fine grained, uniform, poorly graded		Top of ash determined using weighted tag line - recovery not anticipated from this material	765
40			SPT	0	WOR WOR WOR WOR				No Recovery, N=0	760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-4**
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Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**107.3**
Drilling End Date:	**3/29/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243097.5, 2026930.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(34.5') Top of Ash, SAND with silt (SM); non plastic, very soft, wet, very dark gray (2.5Y 3/1), very fine grained, uniform, poorly graded *(continued)*			
			SPT	1	WOR WOR WOR WOR				N=0	755
45										
			SPT	0	WOR WOR WOR WOR				No Recovery, N=0	750
50										
			SPT	0	WOR WOR WOR WOR				No Recovery, N=0	745
55										
			SPT	0.4	WOR WOR WOR WOR				N=0	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-4**
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Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**107.3**
Drilling End Date:	**3/29/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243097.5, 2026930.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60										
			SPT	1.4	WOR WOR WOR WOR		(63') SAND with silt (SC); and increasing clay content, low to medium plasticity, soft, wet, dark gray, fine grained, ASH		N=0, Photo represents recovered sample between 63'-65' interval.	735
65										
			ST	1.1				M-4 (68-70)		730
70										
			SPT	2	WOR WOR WOR WOR		(73') FLY ASH (SC); low plasticity, very soft, saturated to wet, dark gray, fine grained		N=0	725
75										
			SPT	2	WOR WOR WOR WOR		(78') FLY ASH (SC); low plasticity, very loose, dark gray, fine grained		N=0	720
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-4**
Page: **5 of 6**

Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**107.3**
Drilling End Date:	**3/29/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243097.5, 2026930.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(78') FLY ASH (SC); low plasticity, very loose, dark gray, fine grained *(continued)*			
			SPT	2	WOR WOR WOR WOR		(83') FLY ASH, very soft, dark gray, fine grained		N=0	715
85										
			SPT	1.1	WOR WOR WOR 1		(88') LEAN CLAY (CL); few organics, medium plasticity, very soft, moist, brown, cohesive (88.92') LEAN CLAY (CL); very soft, gray		Native at 88'	710
90										
			SPT	0.4	28 31 14 8		(91.5') LEAN CLAY (CL); with sand, medium plasticity, very stiff, moist, brown to gray, cohesive, PARTIALLY WEATHERED ROCK		N=45	
										705
95			SPT	0.9	2 7 27 50/5		(94') SILTY SAND with gravel (SM); non plastic, very dense, moist, light brown to brown, quartzite, non cohesive, PARTIALLY WEATHERED ROCK		Partially Weathered Rock at 95.5'	
			SPT	1.2	11 28 46 48		(98') SILTY SAND with gravel (SM); non plastic, very dense, moist, brown with layers of light brown, non cohesive		N=74	700
100										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-4**
Page: **6 of 6**

Drilling Start Date:	**3/28/2017**	Boring Depth (ft):	**107.3**
Drilling End Date:	**3/29/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243097.5, 2026930.5**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(98') SILTY SAND with gravel (SM); non plastic, very dense, moist, brown with layers of light brown, non cohesive *(continued)*			
			SPT	0.8	25 31 50/4		(103') SILTY SAND with gravel (5m) (SM); non plastic, moist, brown, non cohesive			695
105			SPT		50/3		(107') SCHIST, gray to brown, highly fractured			
							(107.3') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-5**
Page: **1 of 7**

Drilling Start Date:	**3/30/2017**	Boring Depth (ft):	**128.2**
Drilling End Date:	**4/4/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243387.8, 2027006.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-5**
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Drilling Start Date:	**3/30/2017**	Boring Depth (ft):	**128.2**
Drilling End Date:	**4/4/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243387.8, 2027006.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			
										775
25										
										770
30										
										765
35										
										760
40									Top of ash	

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-5**
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Drilling Start Date:	**3/30/2017**	Boring Depth (ft):	**128.2**
Drilling End Date:	**4/4/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243387.8, 2027006.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(40') Top of Ash		determined using weighted tag line.	
							(43') FLY ASH, dark gray			
			SPT	0	WOR WOR WOR WOR				No recovery, N=0	755
45										
							(48') FLY ASH, non plastic, wet, dark gray, fine grained, non cohesive			
			SPT	1.3	WOR WOR WOR WOR				N=0	750
50										
							(53') FLY ASH, low plasticity, wet, dark gray, fine grained, cohesive (from 53' 9" to 53' 10" coarse grained botton ash)			
			SPT	1.3	WOR WOR WOR WOR				N=0	745
55										
							(58') FLY ASH, low plasticity, wet, dark gray, fine grained, cohesive			
			SPT	2	WOR WOR WOR WOR				N=0	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-5**
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Drilling Start Date:	**3/30/2017**	Boring Depth (ft):	**128.2**
Drilling End Date:	**4/4/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243387.8, 2027006.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(58') FLY ASH, low plasticity, wet, dark gray, fine grained, cohesive *(continued)*			
			ST	0			(63') As above; FLY ASH	M-5 (63-65)	Attempted Shelby Tube with Piston Sampler, no recovery	735
65										
			ST	0			(68') As above; FLY ASH	M-5 (68-70)	Attempted Shelby Tube, no recovery	730
70										
			SPT	1.1	WOR WOR WOR WOR		(73') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, cohesive		N=0	725
75										
			SPT	2	WOR WOR WOR WOR		(78') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive		N=0	720
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
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Drilling Start Date:	**3/30/2017**	Boring Depth (ft):	**128.2**
Drilling End Date:	**4/4/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243387.8, 2027006.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(78') FLY ASH, non plastic, very soft, wet, dark gray, fine grained, non cohesive *(continued)*			
							(82') CLAYEY SAND with gravel (SC); medium plasticity, moist, light gray, cohesive		Driller encountered native soil at 82'	
			ST	1.5				M-5 (83-85)		715
85			SPT	1	3 5 7 12		(85.17') SILT with sand (ML); little uniform fine to medium sand, non plastic, stiff, moist, brown, cohesive, 1 large rock		N=12	
			SPT	1.6	4 8 15 15		(87') SILT (ML); non plastic, very stiff, moist, brown with some red and brown mixed, non cohesive		N=23	
										710
90			SPT	1.8	5 10 14 30		(89') SILT with fine to medium sand (ML); non plastic, very stiff, moist, brown, non cohesive, sand increases with depth, one large rock		N=24	
			SPT	1.8	12 26 33 44		(91') SANDY SILT (ML); non plastic, hard, moist, brown, non cohesive, PARTIALLY WEATHERED ROCK		N=59	
			SPT	1.3	15 25 33 50/4		(93') SILTY SAND (SM); non plastic, very dense, moist, brown with red, non cohesive, sand is non-uniform medium to coarse, PARTIALLY WEATHERED ROCK		N=58	705
95										
			SPT	1.9	6 9 13 19		(98') SILT with sand, trace clay, low plasticity, very stiff, moist, dark brown, cohesive		N=22	700
100										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Drilling Start Date:	**3/30/2017**	Boring Depth (ft):	**128.2**
Drilling End Date:	**4/4/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243387.8, 2027006.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(98') SILT with sand, trace clay, low plasticity, very stiff, moist, dark brown, cohesive *(continued)*			
			SPT	1.7	11 18 26 34		(103') SILT (ML); non plastic, hard, moist, dark brown with some red and gray, non cohesive		N=44	695
105										
			SPT	1.6	13 24 29 40		(107') SILT with sand (ML); non plastic, hard, moist, brown with black seams, non cohesive		N=53	
							(109') SILTY SAND with gravel (SM); some clay, low to medium plasticity, loose, moist, mottled reddish brown with very pale brown with black lenses (2.5YR 4/4, 10YR7/4,), structure apparent, angular gravel sized fragments, weathered in place, saprolite, angular medium to coarse grained sand, SAPROLITE-WEATHERED ROCK			690
110			SPT	1.6	16 16 20 32				Photo represents recovered sample between 113'-115' interval. N=36	
			SPT	1.7	18 35 46 50/4				N=81	685
115										
			SPT	2	11 21 28 32				Photo represents recovered sample between 118'-120' interval.	
							(118.7') SAND (SP); non plastic, dense, dry, light gray (2.5Y 7/1), fine to medium grained, poorly graded			680
120										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
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Drilling Start Date:	**3/30/2017**	Boring Depth (ft):	**128.2**
Drilling End Date:	**4/4/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1243387.8, 2027006.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(119.3') SILTY SAND (SM); non plastic, dry, pale yellow (2.5Y 4/4), fine to medium grained, friable *(continued)*		N=49	
							(122') SILTY SAND with gravel (SM); some clay, non plastic, weathered to dense, dry, mottled black with strong brown with dark brown with light gray (7.5YR 2.5/1, 7.5YR 5/8, 7.5YR 3/4, 7.5YR 7/1), weathered schist rock, friable, easily identifiable micasous minerals (~10-15%), weakly foliated, iron staining prevalent (~30%), very angular where broken apart, weathered material with gravel sized angular rocks in shoe		Photo represents recovered sample between 123'-125' interval. N=81 Much harder drilling from 125' to 128', drilling 10 min/ft in this material with 3 7/8" tricone	675
125			SPT	1.6	35 43 38 47					
			SPT		50/2					
							(128.2') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-6**
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Drilling Start Date:	**5/2/2017**	Boring Depth (ft):	**123.1**
Drilling End Date:	**5/3/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**R. Odom and H. Lewis**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1243653.5, 2027079.7**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			800
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-6**

Drilling Start Date:	**5/2/2017**	Boring Depth (ft):	**123.1**
Drilling End Date:	**5/3/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**R. Odom and H. Lewis**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1243653.5, 2027079.7**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			780
25										775
30										770
35										765
40							(39') Top of Ash, very soft, saturated		Top of ash determined using weighted tag line.	760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-6**
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Drilling Start Date:	**5/2/2017**	Boring Depth (ft):	**123.1**
Drilling End Date:	**5/3/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**R. Odom and H. Lewis**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1243653.5, 2027079.7**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(39') Top of Ash, very soft, saturated *(continued)*			760
			SPT	0	WOR WOR WOR WOR				Set casing initially at 43', N=0	
45										755
			SPT	2	WOR WOR WOR WOR		(48') SILTY SAND with clay (SM); loose, saturated, dark gray, very fine to fine grained, rapid dilatancy, uniform, ASH		N=0, Photo represents recovered sample between 48'-50' interval.	
50										750
			SPT	0.7	WOR WOR WOR WOR				N=0	
55										745
			SPT	0	WOR WOR WOR WOR				No Recovery, N=0	
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**5/2/2017**	Boring Depth (ft):	**123.1**
Drilling End Date:	**5/3/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**R. Odom and H. Lewis**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1243653.5, 2027079.7**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(48') SILTY SAND with clay (SM); loose, saturated, dark gray, very fine to fine grained, rapid dilatancy, uniform, ASH *(continued)*			740
			SPT	1.3	WOR WOR WOR WOR		(63') SILT with sand (SM); very soft, saturated, dark gray, very fine to fine grained, rapid dilatancy, uniform, ASH		N=0	
65										735
			ST	1			(67') SILTY SAND with clay (SM); loose, saturated, dark gray, very fine to medium grained, rapid dilatancy, uniform, clay becomes a part of the ash unit, ASH	M-6 (68-70)	During sample movement bottom 12" slid/fell out, only 12" remain in tube, other samble material in grab bags	
70										730
			SPT	2	3 6 9 13		(73') SILT with sand and clay (ML); non plastic, medium dense, moist, reddish yellow with black and strong brown mottling (7.5YR 6/6, 7.5YR 4/6), very fine to fine grained sand, friable, relic rock structure, NATIVE		Top of Native Soil at 73', N=15, Photo represents recovered sample between 73'-75' interval.	
75										725
			SPT	1.1	6 17 13 15		(77') SILTY SAND with gravel (SM); non plastic, medium dense, very coarse grained, friable, 0.5' lens of angular feldspar gravels/pebbles, very coarse grained sand and silt from 78.3' to 78.7'		N=30	
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
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4. Borings were backfilled with grout using tremie method.

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BORING LOG
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Drilling Start Date:	**5/2/2017**	Boring Depth (ft):	**123.1**
Drilling End Date:	**5/3/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**R. Odom and H. Lewis**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1243653.5, 2027079.7**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(77') SILTY SAND with gravel (SM); non plastic, medium dense, very coarse grained, friable, 0.5' lens of angular feldspar gravels/pebbles, very coarse grained sand and silt from 78.3' to 78.7' *(continued)*			720
			SPT	1.8	7 4 7 11		(83.5') SILTY SAND (SM); soft, moist, light brown and reddish yellow (7.5YR 6/4, 7.5YR 4/4), fine to medium grained sand, friable, uniform		N=11	
85			ST	1.5				M-6 (86-88)	Left sample overnight 5/2/2017 Hard drill from 88'-89'; R.O.P.=3.5 min/ft.	715
90			SPT	1.7	8 8 12 15		(90') SILTY SAND (SM); moist to dry, dark yellowish brown with brownish yellow (10YR 4/4, 10YR 6/6), fine to medium grained sand (~5% mica grains), friable, lens of angular very coarse grained sand (plagioclase feldspar)		N=20 92'-94'; R.O.P.=3.5 to 4 min/ft.	710
95			SPT	1.5	10 12 12 22		(94') SILTY SAND with silt (SM); non plastic, medium dense, moist to dry, fine to medium grained, friable, >5% micaceous grains, relic foliation of micaceous grains, veining etc., COMPLETELY WEATHERED SCHISTOSE ROCK		N=24	705
			SPT	1.4	12 15 25 31		(98') As above, becomes brown (10YR 4/3)		N=43	
100										700

NOTE:
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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Drilling Start Date:	**5/2/2017**	Boring Depth (ft):	**123.1**
Drilling End Date:	**5/3/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**R. Odom and H. Lewis**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1243653.5, 2027079.7**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(98') As above, becomes brown (10YR 4/3) *(continued)*			700
			SPT	1.7	20 16 18 28		(102') SILTY SAND (SM); (same as above) base rock slightly less weathered with depth		N=34, Photo represents recovered sample between 102'-104' interval.	
105										695
			SPT	1.7	14 25 28 50/3.5		(106') MUSCOVITE SCHIST, very stiff to hard, moist to dry, minerals present: mica, biotite, mica foliated with parent rock structure, friable, PARTIALLY WEATHERED ROCK		N=53 Photo represents recovered sample between 106'-108' interval.	
			SPT	1.6	18 21 32 48		(108') SILTY SAND with angular gravel (SM); very stiff to hard, muscovite schist becoming less weathered with depth, very coarse grained sand, pebbles, angular, friable, HIGHLY WEATHERED ROCK		N=53	
110									110'-113'; R.O.P.=~6 to 8 min/ft	690
			SPT	0.5	50/5		(113') SCHIST, non plastic, hard, brown (10YR 4/3), angular (broken) gravel with fine to coarse grained sands, friable, strong relic rock structure present, shistose foliation-micaceous grains aligned, breaks along foliation plane, PARTIALLY WEATHERED ROCK		Over drill, 115'-116'; R.O.P.=4.5 to 5 min/ft.	
115									Photo represents recovered sample between 108'-110' interval. drilling very hard between 116'-117'; R.O.P.=6.25 min/ft	685
			SPT	0.3	50/3.5					
120										680

NOTE:
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2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
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Drilling Start Date:	**5/2/2017**	Boring Depth (ft):	**123.1**
Drilling End Date:	**5/3/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**R. Odom and H. Lewis**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1243653.5, 2027079.7**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120			SPT		50/1		(113') SCHIST, non plastic, hard, brown (10YR 4/3), angular (broken) gravel with fine to coarse grained sands, friable, strong relic rock structure present, shistose foliation-micaceous grains aligned, breaks along foliation plane, PARTIALLY WEATHERED ROCK *(continued)*			680

(123.1') Boring Terminated

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-7**
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Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-7**
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Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			775
25										770
30										765
35										760
40							(39') Top of Ash		Top of ash determined using weighted tag line.	

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-7**
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Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(39') Top of Ash *(continued)*			
			SPT	0.2	WOR WOR WOR WOR		(43') SILTY SAND with clay (SM); loose, ASH		N=0	755
45										
			SPT	2	WOR WOR WOR WOR		(48') SILTY SAND with clay (SM); non plastic, loose, saturated, dark gray, very fine to coarse grained, rapid dilatancy, uniform, lower portion of run increasing grain size with increasing clay, ASH		Photo represents recovered sample between 48'-50' interval. N=0	750
50										
			SPT	1.9	WOR WOR WOR WOR		(53') CLAYEY SAND with silt (SC); very soft, saturated, dark gray, very fine to coarse grained, rapid dilatancy, ASH		N=0	745
55										
			ST	1.8				M-7 (58-60)		740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-7**
Page: **4 of 8**

Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(53') CLAYEY SAND with silt (SC); very soft, saturated, dark gray, very fine to coarse grained, rapid dilatancy, ASH *(continued)*			
			SPT	1.4	WOR WOR WOR WOR		(64') As above, angular gravel <5% in bottom 0.5' appears to be reddish black slag, ASH		N=0	735
65										
			SPT	1.8	1 1 1 2		(68') SILTY SAND with silt and clay (SM); non plastic, loose, dry, olive brown to greenish gray, friable, color variation throughout run (68.6') Becomes brown (69') Becomes white red mottled (69.6') Becomes red		Top of native soil at 68', N=2, Photo represents recovered sample between 68'-70' interval.	730
70										
			SPT	1.6	4 3 3 2		(72') SILTY SAND (SM); non plastic, dry to moist, very fine to very coarse grained, large pink and white plagioclase rocks ~2mm+ accross, HIGHLY WEATHERED ROCk (73') SILTY SAND with clay (SM-SC); low plasticity, soft, moist, brown (10YR 5/6), fine to medium grained, friable. some relic foliation of mica grains, black veins/interbeds cross cutting brown unit, COMPLETELY WEATHERED ROCK		N=6	725
75										
			SPT	2	1 1 1 3		(76') Becomes red with strong brown and specs of black (2.5YR 5/8, 7.5YR 5/6)		N=2	720
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-7**
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Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80			SPT	1.6	1 2 3 5		(80.3') White sand loose (80.3'-80.5') (81.6') As above; very angular, blocky, very coarse grained (1-3mm diameter) sand lens, non plastic		N=5 No recovery below, loose	
										715
85			ST					M-7 (84-86)		
			SPT	1.8	1 3 7 6		(88') As above; low plasticity, soft, moist, red with strong brown and specs of black (2.5YR 5/8, 7.5YR 5/6), lenses of white/pink angular plagioclase feldspar (2-3mm accross) with quartz		N=10	710
90							(91') CLAYEY SAND with silt (SC); low plasticity, soft, moist, strong brown (7.5YR 5/6), fine to medium grained sand			
			SPT	1.6	6 9 13 19				N=22	705
95										
			SPT	2	9 14 11 14		(96') LEAN CLAY (CL); very high plasticity, soft, moist (96.2') SILTY SAND (SM); non plastic, soft, dry, dark yellowish brown (10YR 4/4), medium to fine grained, friable (96.8') Pink/white blocky rock fragments, loose plagioclase, very coarse grained sand to gravel size (97') SILTY SAND with clay (SM); yellowish brown (97.2') Very pale brown to green to black, fine to medium grained, mm scale interbeds (97.7') SILTY SAND with clay (SM); yellowish brown		N=25, Photo represents recovered sample between 96'-98' interval.	
100										700

NOTE:
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2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-7**
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Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100			ST	0.8			(97.7') SILTY SAND with clay (SM); yellowish brown *(continued)*	M-7 (100-100.8)	Only pushed 10" on undistubred sample at 100', above the 10" material fell back down hole prior to push	
			SPT	1.6	10 9 12 18		(101') SILTY SAND with clay (SM); low to medium plasticity, loose, moist, fine to very coarse grained, friable, very coarse sand to gravel, mica grains show relic rock structure, lenses at 101.3-101.5' and 102.3-102.4' with high amounts of very angular white plagioclase grains.		N=21	
										695
105			SPT	2	10 13 17 21		(105') CLAYEY SAND with silt (SC); medium to high plasticity, soft, greenish gray dark yellowish brown (GLEY15/2, 10YR 4/4), green updates chlorite predominant in grains (105.6') Low plasticity, brown (106.3') Very angular white/pink blocky plagioclase rocks, loose, friable (106.6') CLAYEY SAND with silt (SC); soft, moist, dark yellowish brown (10YR 4/4), fine to medium grained		N=30	
			SPT	1.9	13 14 19 22		(109') SILTY SAND with clay (SM); with gravel size pink plagioclase rocks, stiff to very stiff, grayish green (GLEY 14/2), medium to coarse grained, amphibolite, plagioclase, epidote, chlorite, mica grains, completely weathered		N=33	690
110										
			SPT	1.5	12 25 22 22		(113') Becomes fine to medium grained, yellowish brown mottled with yellow (10YR 5/8, 10YR 7/6), some small lenses of angular broken plagioclase rocks (those lenses are loose, <0.5" fewer than four over 2' run), relic native rock structure, foliaiton of grains present, COMPLETELY WEATHERED ROCK		N=42	685
115			SPT	1.6	12 24 25 33				N=49, Photo represents recovered sample between 115'-117' interval.	
							(119') Becomes very stiff, dry, yellowish brown with yellow (10YR 5/8, 10YR 7/6), friable, fine to medium grained sand			680
120					15 25					

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-7**
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Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120			SPT	1.8	26 34		(119') Becomes very stiff, dry, yellowish brown with yellow (10YR 5/8, 10YR 7/6), friable, fine to medium grained sand *(continued)*		N=51	
			SPT	1.5	25 21 21 22		(123') Same as above (SM) Silty Sand with clay, low plasticity, ~10% mica grains - shows signs of foliation (relic rock structure), COMPLETELY WEATHERED ROCK		N=42	675
125									Photo represents recovered sample between 127'-129' interval.	
			SPT	1.1	25 50/5.5		(127.5') Becomes very stiff to hard			
										670
130			SPT	0.4	50/5		(131') SILTY SAND (SM); non plastic, hard, dry, yellowish brown with yellow (10YR 5/8, 10YR 7/6), fine to medium grained, friable, amphibolite, mica, schistose foliation evident			
										665
135			SPT	1.3	19 32 50/6		(135') SILTY SAND with clay (SM); with angular/blocky very coarse grained gravel plag. rocks, low to non plasticity plasticity, stiff to hard, moist to dry, medium to coarse grained, friable, increase in black material in this run, up to 30-35% (biotite/amphibolite), COMPLETELY WEATHERED ROCK		Photo represents recovered sample between 135'-137' interval.	
			SPT	0.9	27 50/5					660
140										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-7**
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Drilling Start Date:	**4/26/2017**	Boring Depth (ft):	**153.1**
Drilling End Date:	**5/2/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**H. Lutz**	Location (Y, X):	**1243915.6, 2027155.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140							(135') SILTY SAND with clay (SM); with angular/blocky very coarse grained gravel plag. rocks, low to non plasticity plasticity, stiff to hard, moist to dry, medium to coarse grained, friable, increase in black material in this run, up to 30-35% (biotite/amphibolite), COMPLETELY WEATHERED ROCK *(continued)*			
			SPT	0.3	50/4		(143') Becomes fine to coarse grained, dark brown mottled with black and reddish brown (7.5YR 3/3), angular, 2-3mm diameter blocky pink plagioclase feldspar			655
145									145'-148'; R.O.P.=7 min/ft	
			SPT	0.5	50/4		(148') (SM) Same as above, amphibolite schist rock, weathered with brown interbeds (~2" thick) strong defined foliation relic rock structure			650
150										
			SPT		50/1					

(153.1') Boring Terminated

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-8**
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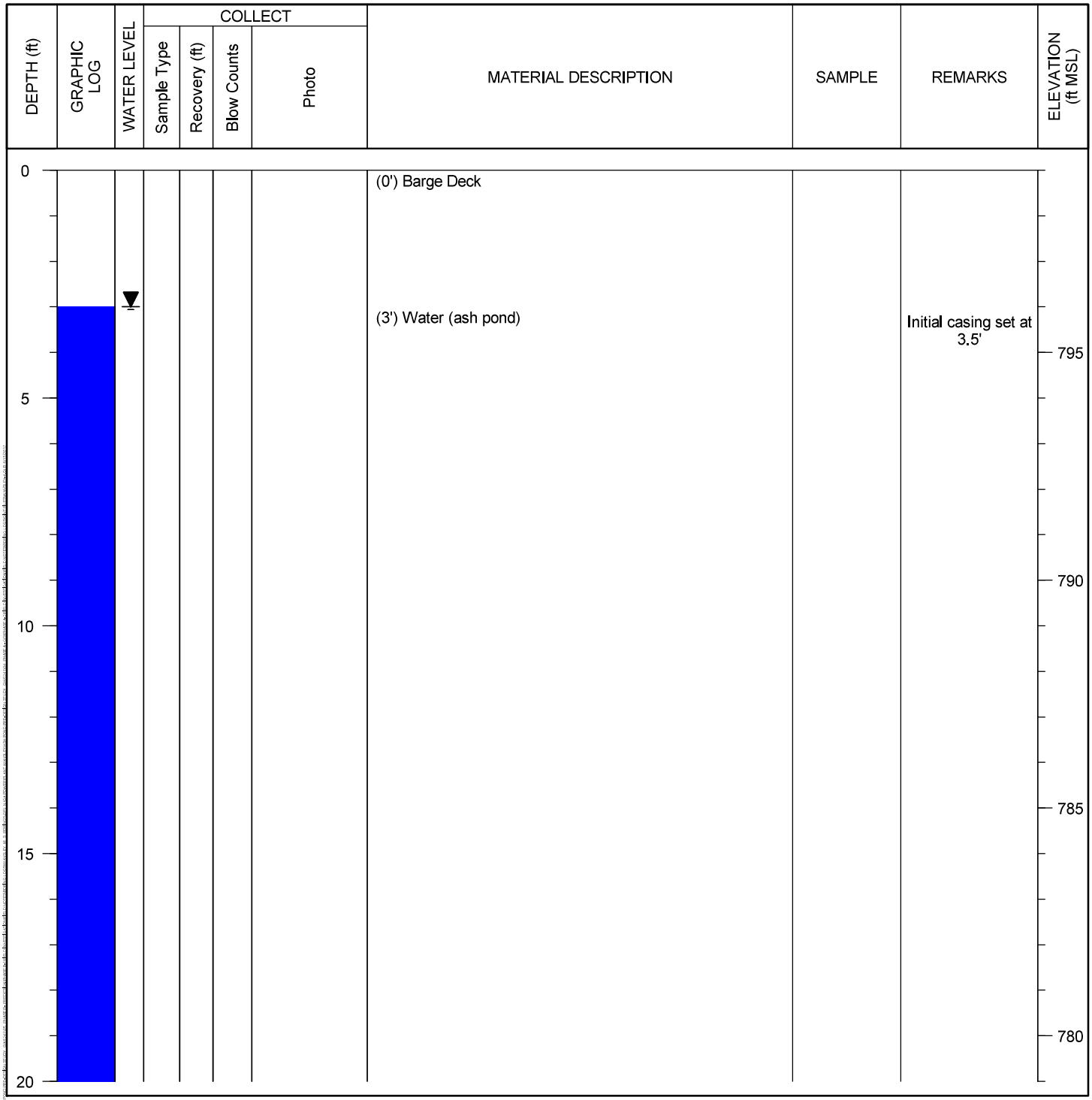
Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**



NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-8**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			
										775
25										
										770
30										
							(32') Top of Ash, very soft, "fluffy"		Top of ash determined using weighted tag line.	
										765
35										
							(38') SAND with silt, saturated, very fine grained, ASH			
40			SPT	0.1	WOR WOR WOR WOR				N=0	760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-8**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(38') SAND with silt, saturated, very fine grained, ASH *(continued)*			
							(42') SAND with silt (SM); very soft, saturated, dark gray, very fine grained, ASH			
			SPT	1	WOR WOR WOR WOR				N=0	755
45										
			SPT	1.6	WOR WOR WOR WOR		(48') SILTY SAND with clay, soft, saturated, dark gray, very fine to coarse grained sand, low plasticity where higher clay content/coarser grained ash found at bottom of run (coarseness and clay content increase with depth), ASH		N=0, Photo represents recovered sample between 48'-50' interval.	750
50										
			SPT	2	WOR WOR WOR WOR				N=0	745
55										
			UD	2				M-8 (58-60)	Run GUS Piston Sampler, full 24" recovery	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-8**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(59.5') Bottom of shelby tube has dark gray ash w/ brown clay compnent (top of native soil possibly at ~60') *(continued)*			
							(60') SILTY SAND with clay (SM); non plastic, very loose to loose, moist, mottled, very fine to fine grained, friable, NATIVE			
			SPT	2	1 1 2 2				N=3, Photo represents recovered sample between 63'-65' interval.	735
65							(64.4') SILTY SAND (SM); non plastic, white, fine grained, uniform from 64.4 to 64.6' (no clay)			
			SPT	2	2 3 4 2		(66') SILTY SAND with clay (SM); non plastic to low plasticity, very loose to loose, moist, very fine to fine grained, subrounded to subangular, mottled red (10R 4/8) with reddish yellow (7.5YR 6/8) with black (7.5YR 2.5/1) veining surrounded by reddish yellow (7.5YR 6/8) "halos" and intermittant layers, <1' thickness white (7.5YR 3/1) sand with silt zones, uniform, no clay		N=7	
										730
70			SPT	2	1 1 1 3				N=2	
										725
75			ST	2				M-8 (74-76)		
			SPT	2	1 3 3 4				N=6	720
80							(79.5') <0.1' zone with angular gravel (quartz)			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-8**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80							(79.5') <0.1' zone with angular gravel (quartz) *(continued)*			
			SPT	2	2 3 3 5		(82') Angular quartz gravel zone to 82.3' (82.3') SILTY SAND with clay (SM); slight coarsening of sand to very fine to medium grainind sands with silt, moist non plastic		N=6, Photo represents recovered sample between 82'-84' interval.	
85										715
			ST	2			(86') SILTY SAND with clay (SM); non plastic, loose, moist, fine to medium grained, yellowish red (5YR 4/6) with reddish yellow (5YR 6/6) with black (5YR 2.5/1) interbedded/veins, PARTIALLY WEATHERED ROCK	M-8 (86-88)		
									Photo represents recovered sample between 92'-94' interval.	710
90			SPT	2	2 16 16 10				N=32	
							(91.3') SILTY SAND (SM); dense, very coarse grained angular sands (2 mm diameter), gray (5YR 6/1) mica/white (5YR 8/1) quartz/pink (5YR 8/4) plagioclase, friable, COMPLETELY WEATHERED ROCK		N=7, Photo represents recovered sample between 94'-96' interval.	
										705
95			SPT	2	2 3 4 7		(94') SILTY SAND (SM); non plastic, loose, moist (94.6') SAND with silt, white, fine to medium grained, lens from 94.6' to 94.7' (95.1') SAND with silt, white, fine to medium grained, lens from 95.1' to 95.2' (95.9') GRAVEL, angular (mm scale), mica/plagioclase lens from 95.9' to 96'			
			SPT	2	2 5 7 11		(98') SILTY SAND with clay (SM); non plastic, loose, moist, yellowish red with reddish yellow mottling and black interbeds, fine to medium grained		N=12	700
100										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-8**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100							(98') SILTY SAND with clay (SM); non plastic, loose, moist, yellowish red with reddish yellow mottling and black interbeds, fine to medium grained *(continued)*			
			ST	2				M-8 (102-104)		695
105										
			SPT	1.7	9 8 7 10		(106') SILTY SAND with clay (SM); non plastic, medium dense, moist, strong brown with black veining (7.5YR 5/6) (106.7') Angular gravel pink plagiocase/grey to white mica/quartz zone (very little silt/clay) (107.5') SILTY SAND with clay (SM); medium dense, as above		N=15, Photo represents recovered sample between 106'-108' interval.	
										690
110			SPT	2	4 5 8 15		(110') SILTY SAND with clay (SM); non plastic, dense to soft, moist, strong brown (7.5YR 5/6), fine to medium grained sand		N=13	
										685
115			SPT	2	6 9 12 18		(115') Becomes light olive brown (2.5Y 5/3)		N=21, Photo represents recovered sample between 114'-116' interval.	
			SPT	2	6 9 16 21		(118') Becomes medium grained, dry to moist, friable, relic rock structure, foliation of grains, mica sands and cross beds, VERY WEATHERED ROCK		N=25	680
120										

NOTE:
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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Boring No. **M-8**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120							(118') Becomes medium grained, dry to moist, friable, relic rock structure, foliation of grains, mica sands and cross beds, VERY WEATHERED ROCK *(continued)*			
			SPT	1.9	10 20 30 32		(122') SILTY SAND (SM); non plastic, very hard, dry, yellowish brown to brownish yellow (10YR 5/4 to 10YR 6/6), friable, predminatly coarse grained material (5-10% mica grains), foliated		N=50, Photo represents recovered sample between 122'-124' interval.	675
125			SPT	1.4	5 13 20 26				N=33	
										670
130			SPT	1.7	7 15 15 25		(130') SILTY SAND (SM); very stiff, dry to moist, yellowish brown (10YR 5/8), medium to coarse grained sand with some very coarse grained sands, friable, strong foliation seen in mica grains, HIGHLY WEATHERED ROCK		N=30	
										665
135			SPT	1.9	12 26 49 50/6		(134') Same as above with less weathered rock fragments at 134.9-135' and 135.4-135.5', angular pink feldspar (K-feldspar) ~2-3mm diameter		N=75	
			SPT	0.9	44 50/6		(138') Hard, medium to coarse grained sand, coarse grains of plag. (white/pink) mica, biotite, relic structure, mica foliation, lenses of angular pink/white plag with mica (dry, friable, hard) at 138-138.1, COMPLETELY WEATHERED ROCK			660
140										

NOTE:
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-8**
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Drilling Start Date:	**4/21/2017**	Boring Depth (ft):	**153.2**
Drilling End Date:	**4/25/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244190.4, 2027213.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
140			SPT	1.5	33 38 44 50/5.5		(143.3') White plagioclase/mica vein ~1" thick		N=82, Photo represents recovered sample between 142'-144' interval.	655
145			SPT	0.3	50/4		(147') Becomes medium to very coarse grained, yellowish brown (10YR 5/4), subangular to angular, non plastic, friable, mica biotite grains evident, foliation of mica grains evident, relic rock structures, COMPLETELY WEATHERED ROCK			650
150			SPT		50/1.5		(153.2') Boring Terminated		147'-153'; R.O.P. increased from 2.5 min/ft to 5 min/ft	

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-9**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**132.1**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1244471, 2027280.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			799.25
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-9**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**132.1**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1244471, 2027280.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)*			
										775
25							(25') Top of Ash		Top of ash determined using weighted tag line.	
			SPT	2	WOR WOR WOR WOR		(28') SAND with silt, non plastic, very loose, saturated, dark gray (2.5Y 5/1), very fine to fine grained, bottom of run shows hightened clay content-"sticky sand" composition, FLY ASH		N=0, Photo represents recovered sample between 28'-30' interval.	770
30										
			SPT	2	WOR WOR WOR WOR		(33') Becomes very fine to fine grained, grading to medium to coarse grained ash with depth, ASH (34') SAND with silt and clay, non plastic, very loose, saturated, dark gray (2.5Y 5/1), medium to coarse grained, clay content higher in coarser grained material, low plasiticity, some coarse grained ash particles are light gray (2.5Y 7/1), ASH		N=0	765
35										
			SPT	2	WOR WOR WOR WOR		(38') SAND with clay, low plasticity, very loose, wet to saturated, dark gray (2.5Y 3/1), medium to coarse grained, unifrom, ASH		N=0	760
40										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
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BORING LOG
Boring No. **M-9**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**132.1**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1244471, 2027280.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(38') SAND with clay, low plasticity, very loose, wet to saturated, dark gray (2.5Y 3/1), medium to coarse grained, unifrom, ASH *(continued)*			
			UD	1.7				M-9 (43-45)	Push GUS Piston Sampler, when piston sampler seal was released the sample fell out of tube. The sample was recovered as distrubed sample.	755
45										
			UD	2				M-9 (48-50)	Run GUS Piston Sampler, full 24" recovery	750
50										
			ST	2			(53') SILT with clay (ML); trace fine sand, non plastic, moist, orange, noncohesive	M-9 (53-55)	Set Shelby Tube overnight from 53' to 55'	745
55			SPT	1.9	1 2 3 5		(55') LEAN CLAY (CL); medium plasticity, firm, moist, red orange, cohesive		N=5	
			SPT	1.5	2 4 4 7		(57') LEAN CLAY with few uniform medium sand (CL); few silt, medium plasticity, firm, moist, red orange, cohesive		N=8	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-9**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**132.1**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1244471, 2027280.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(57') LEAN CLAY with few uniform medium sand (CL); few silt, medium plasticity, firm, moist, red orange, cohesive *(continued)*			
			SPT		1 1 3 3		(61') LEAN CLAY (CL); little silt, medium plasticity, moist, orange to red with some white and black		N=4	
										735
65			SPT	1.8	1 1 2 5		(65') LEAN CLAY (CL); little silt, medium plasticity, moist, orange to red with some white and black		N=3	
			ST	2.2				M-9 (68-70)		730
70										
			SPT	2	1 3 3 3		(72') LEAN CLAY (CL); trace fine sand, medium plasticity, firm, moist, orange to red with streaks of black, cohesive		N=6	
										725
75										
			SPT	1.8	2 3 6 6		(76') LEAN CLAY (CL); and silt, medium plasticity, firm, moist, orange with streaks of black and white, cohesive, 1" seam of white clay and gravel		N=9	
										720
80										

NOTE:
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-9**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**132.1**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1244471, 2027280.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80			SPT	2	4 3 5 8		(80') LEAN CLAY (CL); medium plasticity, firm, moist, orange with black streaks, cohesive, 1-2" seam white silty sand		N=8	
							(84') LEAN CLAY with sand (CL); little silt, medium plasticity, firm, moist, orange to red marbled with black, cohesive		N=10	715
85			SPT	1.8	3 5 5 7					
							(88') CLAYEY SAND (SC); low plasticity, stiff, moist, orange to red marbled with black, cohesive, sand non-uniform		N=15	710
90			SPT	1.9	5 8 7 10					
			ST	2.3				M-9 (92-94)		705
95							(96') SILTY SAND (SM); non plastic, very stiff, moist, orange with red black, white streaks, non cohesive		N=18	
			SPT		5 7 11 12					700
100										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
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3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-9**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**132.1**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1244471, 2027280.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100			SPT	2	5 10 11 14		(100.5') SILTY SAND with clay (SM); non plastic, medium dense, dry to moist, strong brown (7.5YR 5/8), medium grained, friable, relic rock structure black veining, two light gray (7.5YR 7/1) 0.5" layers at 101.5' and 102.4' (still part of overall composition-layer medium to coarse grains), zone from 101.1 to 101.3' increase in large grained mica flakes 1.3 mm diameter		N=21 Photo represents recovered sample between 100.5'-102.5' interval.	
105			SPT	2	8 11 14 20		(105.5') Becomes medium dense, very strong relic structure, white veins, black grains		N=25	695
110			SPT	2	7 10 18 20		(108.5') Becomes predominantly reddish brown (5YR 6/4), sandy grains, medium to coarse grained angular micaceous flat grains (completely weathered rock), predominanty strong veining and native structure evident		Photo represents recovered sample between 108.5'-110.5' interval. N=28	690
115			SPT	2	8 9 12 17				N=21 Photo represents recovered sample between 112.5'-114.5' interval.	685
120			SPT	1.8	14 23 26 32		(117') Hard, medium dense, angular, moderately cemented, predominately biotite/hornblende grains (mm scale) ~5% mica grains, relic foliation structure evident, black veining, white layers ~2-3" thinkness (very coarse grained sand), completely weathered relic quartzite		N=49	680

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-9**
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Drilling Start Date:	**4/12/2017**	Boring Depth (ft):	**132.1**
Drilling End Date:	**4/18/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.25**
Logged By:	**J. Gasser and H. Lutz**	Location (Y, X):	**1244471, 2027280.3**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
120			SPT	1.5	12 25 35 34		(117') Hard, medium dense, angular, moderately cemented, predominately biotite/hornblende grains (mm scale) ~5% mica grains, relic foliation structure evident, black veining, white layers ~2-3" thinkness (very coarse grained sand), completely weathered relic quartzite *(continued)*		N=60	
							(120') SILTY SAND with gravel (SM); very hard, light brown to gray (7.5YR 6/4), gravel to very coarse grained sands angular/blocky 2-3 mm diameter scale, pink feldspars, white quartz, minerals evident, friable, HIGHLY TO MODERATELY WEATHERED ROCK			675
125			SPT	1.4	21 35 28 23				N=63, Photo represents recovered sample between 124.5'-126.6' interval.	
			SPT		50/4		(128.5') SILTY SAND (SM); stiff, dry, fine grained, friable (PARTIALLY WEATHERED ROCK)			670
130							(131') Estimated top of rock			
			SPT		50/1					

(132.1') Boring Terminated

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.25 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-10**
Page: **1 of 6**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**106.6**
Drilling End Date:	**4/21/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244699.9, 2027366.8**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			795
		▼					(3') Water (ash pond)			
5										790
10										785
15							(17') Top of Ash, very fine grained, "fluffy"		Top of ash determined using weighted tag line, run 3 7/8" tricone with mud and 4" casing into top of ash	780
20										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-10**
Page: **2 of 6**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**106.6**
Drilling End Date:	**4/21/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244699.9, 2027366.8**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(17') Top of Ash, very fine grained, "fluffy" *(continued)*			
			SPT	0.1	WOR WOR WOR WOR		(23') SILTY SAND (SM); non plastic, very loose, saturated, very dark gray (2.5Y 3/1), very fine to fine grained, rapid dilatancy, ASH		N=0	775
25										
			SPT	1.6	WOR WOR WOR WOR		(28') As above, slight increase in clay content slightly more cohesive with depth, ASH		N=0, Photo represents recovered sample between 28'-30' interval.	770
30										
			SPT	1.7	WOR WOR WOR WOR		(33') Increasing clay content with depth, still less than 5-10%, saturated material "sticky" to touch, ASH		N=0	765
35										
			ST	2			(38') SILTY SAND with clay (SM); non plastic to low plasticity plasticity, very loose, saturated, very dark gray, fine grained, uniform, ASH	M-10 (38-40)		760
40										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-10**
Page: **3 of 6**

Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**106.6**
Drilling End Date:	**4/21/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244699.9, 2027366.8**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(38') SILTY SAND with clay (SM); non plastic to low plasticity plasticity, very loose, saturated, very dark gray, fine grained, uniform, ASH *(continued)*			
			SPT	1.5	WOR WOR WOR WOR		(43') CLAYEY SAND with silt (SC); very loose, fine to coarse grained, slow dilatancy, increasing grain size, increasing clay with depth, ASH		N=0, Photo represents recovered sample between 43'-45' interval.	755
45										
			SPT	2	WOR WOR WOR WOR		(48') Becomes high plasticity, coarseness of sand component is increasing with clay content-increasing with depth		N=0	750
50										
			UD	1			(54.5') Presumed top of NATIVE	M-10 (53-55)	Native at 54.5'	745
55										
			SPT	2	1 2 3 2		(58') SILTY/CLAYEY SAND (SM-SC); wet, fine grained, black white and yellow veins cross cutting red (2.5YR 5/8) mottled with light red (2.5YR 7/8) sandy matrix material, NATIVE		N=5, Photo represents recovered sample between 58'-60' interval.	740
60										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-10**
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Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**106.6**
Drilling End Date:	**4/21/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244699.9, 2027366.8**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60			UD	2			(58') SILTY/CLAYEY SAND (SM-SC); wet, fine grained, black white and yellow veins cross cutting red (2.5YR 5/8) mottled with light red (2.5YR 7/8) sandy matrix material, NATIVE *(continued)*	M-10 (60-62)		
										735
65			SPT	2	1 2 2 2		(64') CLAYEY SAND with silt (SC); very loose, wet to moist, light red (2.5YR 6/8), fine to very fine grained, white black and yellowish veins, apparent leaf on bit when came out of hole, NATIVE		N=4, Photo represents recovered sample between 64'-66' interval.	
			SPT	1.8	1 1 2 3				N=3	730
70										
			SPT	2	2 2 3 5		(72') Becomes moist, low to medium plasticity, with black specs		N=5	
										725
75			SPT	2	2 2 3 4		(77') Same as above with slight increase in sand size form		N=5, Photo represents recovered sample between 76'-78' interval.	
										720
80										

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-10**
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Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**106.6**
Drilling End Date:	**4/21/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244699.9, 2027366.8**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80			UD	2			(77') Same as above with slight increase in sand size form *(continued)*	M-10 (80-82)		
85			SPT	2	2 2 2 5		(84') CLAYEY SAND with silt (SC); medium plasticity, very loose, reddish yellow (7.5YR 6/6), very fine to fine grained, with black veining and black medium grained sands (<2%) (0.15' quartz gravel clast angular from 85.6'-85.75')		N=4	715
90			SPT	2	1 1 2 5		(88') Same as above with slight increase in sand, decrease with percent of silt and clay		Gradual decrease in clay content, N=3, Photo represents recovered sample between 88'-90' interval.	710
95			SPT	1.8	5 8 11 16		(92') CLAYEY SAND with silt and gravel (SC); firm, moist, reddish yellow (7.5YR 6/6), sand grains increasing with depth from fine to medium grain size, gravels present <2%, increasing hardness with depth, friable, NATIVE		N=19	705
			SPT	1.7	7 12 18 29				N=30, Photo represents recovered sample between 96'-98' interval.	
100										700

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-10**
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Drilling Start Date:	**4/19/2017**	Boring Depth (ft):	**106.6**
Drilling End Date:	**4/21/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799**
Logged By:	**H. Lutz**	Location (Y, X):	**1244699.9, 2027366.8**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
100			SPT	1.5	25 31 32 50/6		(100') SAND with silt (SM); trace clay, non plastic, very hard, fine to medium grained, angular, friable, increasing component of quartz sands (>50%), relic laminated/foliated structure evident		N=63	
										695
105			SPT	1.4	5 26 50/4				Photo represents recovered sample between 104'-106' interval.	
			SPT		50/1		(106.6') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-11**
Page: **1 of 5**

Drilling Start Date:	**4/10/2017**	Boring Depth (ft):	**93.2**
Drilling End Date:	**4/11/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.75**
Logged By:	**H. Lutz**	Location (Y, X):	**1244961, 2027441.4**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-11**
Page: **2 of 5**

Drilling Start Date:	**4/10/2017**	Boring Depth (ft):	**93.2**
Drilling End Date:	**4/11/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.75**
Logged By:	**H. Lutz**	Location (Y, X):	**1244961, 2027441.4**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(3') Water (ash pond) *(continued)* (21') Top of Ash, SAND with silt (SM); non plastic, very loose, saturated, very dark gray, very fine grained sand, uniform, non cohesive		Top of ash determined using weighted tag line. "fluff" in to 3-4 feet	
			SPT	1	WOR WOR WOR WOR				N=0	
25										775
			UD	0					Piston Sample Run GUS Piston Sampler, no recovery	
30										770
			SPT	1.1	WOR WOR WOR WOR		(34') As above; becomes slight clay increase to <5% at 34'		N=0	
35										765
			UD	0					Piston Sample Run GUS Piston Sampler, no recovery	
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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BORING LOG
Boring No. **M-11**
Page: **3 of 5**

Drilling Start Date:	**4/10/2017**	Boring Depth (ft):	**93.2**
Drilling End Date:	**4/11/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.75**
Logged By:	**H. Lutz**	Location (Y, X):	**1244961, 2027441.4**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(34') As above; becomes slight clay increase to <5% at 34' *(continued)*			
			SPT	1.6	WOR WOR WOR WOR		(43') ASH with silt, with clay, non plastic, very soft, saturated, dark gray (5YR 3/1), fine grained, increasing clay content still only ~3-7% in fines		N=0, Photo represents recovered sample between 43'-45' interval.	
45										755
			UD	0			(47.7') Presumed top of NATIVE		Run GUS Piston Sampler, Pushed full 24", no recovery, damaged shelby tube on end	
50			SPT	1.9	1 2 4 5		(50') INORGANIC SILT with micaceous fine sand (MH); soft, moist, yellowish red mottled with yellowish brown brown increasing with depth (5YR 4/6, 10YR 5/8), fine to coarse grained, mica pieces <2mm, angular, mica/schist structure foliation, some black veining evident (completely weathered muscovite schist)		N=6	750
			SPT	2	3 3 4 6				N=7, Photo represents recovered sample between 52'-54' interval.	
55			ST	2			(53') SILTY SAND (SM); low plasticity, medium dense, moist, yellowish brown mottled with brown (10YR 5/4, 10YR 4/3), fine to coarse grained, subrounded to angular, ~10% mica platey minerals (white), friable (~30-40% medium grained sand), obvious foliation/relic structure)	M-11 (54-56)	Run GUS Piston Sampler, full 24" recovery	745
			SPT	1.9	4 6 7 9				N=13	
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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BORING LOG
Boring No. **M-11**
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Drilling Start Date:	**4/10/2017**	Boring Depth (ft):	**93.2**
Drilling End Date:	**4/11/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.75**
Logged By:	**H. Lutz**	Location (Y, X):	**1244961, 2027441.4**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60			SPT	1.7	3 7 12 15		(53') SILTY SAND (SM); low plasticity, medium dense, moist, yellowish brown mottled with brown (10YR 5/4, 10YR 4/3), fine to coarse grained, subrounded to angular, ~10% mica platey minerals (white), friable (~30-40% medium grained sand), obvious foliation/relic structure) *(continued)*		N=19	
			SPT	1.5	6 7 6 6				N=13	
			SPT	2	2 2 4 7		(64') Becomes more dense with depth, 3-5% mica (>1mm grain size)		N=6	735
65			SPT	2	1 1 3 4		(65.5') SILTY SAND (SM); loose, moist, fine to coarse grained, color changes to uniform yellowish red (5YR 4/6) with 3-4 mm scale vein of 5YR 8/1 white sandy material		N=4, Photo represents recovered sample between 66'-68' interval.	
			SPT	2	1 2 4 6		(68') ~10% mica		N=6	
70			SPT	1.8	2 5 6 13		(70') Increase of mica grains to 15-20%, relic native rock structure and veining, foliated mica grains, hornblende and completely weathered micaceous schist		N=11	730
			SPT	1.8	10 12 13 15				N=25	
			SPT	1.9	7 12 18 25		(74') COMPLETELY WEATHERED ROCK, same as above, parent rock is muscovite schist		N=30, Photo represents recovered sample between 74'-76' interval.	
75			SPT	1.5	10 11 15 17		(75') SILTY SAND (SM); stiff to medium dense, moist, fine to coarse grained, angular to subrounded, friable, ~15% micaceous grains (biotite <2%), folliation evident, sand grains increasing size with depth		N=26	725
			SPT	1.8	10 24 50 34		(78') Becomes mottled very dark grayish brown with dark yellowish brown (10YR 3/2, 10YR 3/6), with large min. biotite extras, color variation from 78-84' BTOC (79.1') Becomes very pale brown (10YR 8/3) (79.3') Becomes very dark grayish brown (10YR 3/2)		N=74	
80										720

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-11**
Page: **5 of 5**

Drilling Start Date:	**4/10/2017**	Boring Depth (ft):	**93.2**
Drilling End Date:	**4/11/2017**	Boring Diameter (in):	**3 7/8**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**S. White and R. Odom**	Top of Deck Elev. (ft):	**799.75**
Logged By:	**H. Lutz**	Location (Y, X):	**1244961, 2027441.4**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	Recovery (ft)	Blow Counts	Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
80			SPT	1.5	2 8 15 17		(79.3') Becomes very dark grayish brown (10YR 3/2) *(continued)* (80.5') Becomes clay zone in middle of stiff silty SAND		N=23	
			SPT	2	2 3 4 5		(82') From 82'-84' color variation mm scale bedding (angular 45°) 5YR 7/2 pinkish gray, 5YR 5/8 yellowish red, 5YR 3/2 dark reddish brown, firm (stiff), moist		N=7, Photo represents recovered sample between 82'-84' interval.	
85			ST	0				M-11 (84-86)	Attempted Shelby Tube 84'-86', pushed ~2" refusal, no recovery	715
			SPT	1.1	26 50/5		(86') Non plastic, very hard, red (2.5YR 4/6), fine to coarse grained, same as above-less sand with depth, becomes uniform, friable, less sand with depth			
			SPT	0.2	50/2		(88') Angular 1-2" gravels (Schist)		Refusal in first 6", 88'-90'; R.O.P.=~2 ft/min.	
90			SPT	0.9	36 50/5		(90.5') SILT with fine to very fine sand (ML); hard, dry, yellowish red (5YR 5/8), friable, evident former rock structure including hornblende grains, biotite grains, foliation schistose structure		Photo represents recovered sample between 90'-92' interval.	710
			SPT		50/2					

(93.2') Boring Terminated

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 799.75 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-12**
Page: **1 of 4**

Drilling Start Date:	**4/6/2017**	Boring Depth (ft):	**73**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1245236.4, 2027531.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
0							(0') Barge Deck			800
		▼					(3') Water (ash pond)			
5										795
10										790
15										785
							(18') Top of Ash		Top of ash determined using weighted tag line.	
20										780

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-12**
Page: **2 of 4**

Drilling Start Date:	**4/6/2017**	Boring Depth (ft):	**73**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1245236.4, 2027531.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
20							(18') Top of Ash *(continued)*			780
			SPT	1.2	WOR WOR WOR WOR		(23') FLY ASH, non plastic, saturated, very dark gray (2.5Y 3/1), fine to very fine grained, rapid dilatancy, non cohesive, exibits liquifaction		N=0, Photo represents recovered sample between 23'-25' interval.	
25										775
			SPT	0.6	WOR WOR WOR WOR				N=0	
30										770
			ST	0				M-12 (33-35)	Shelby Tube (Piston Sampler) pushed 33'-35', no recovery	
35							(36') NATIVE-Identified from drilling only (drilling change), no sample			765
			ST	2				M-12 (38-40)		
40										760

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-12**
Page: **3 of 4**

Drilling Start Date:	**4/6/2017**	Boring Depth (ft):	**73**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1245236.4, 2027531.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
40							(36') NATIVE-Identified from drilling only (drilling change), no sample *(continued)*		Hard zone from 41' to 42'	760
			SPT	1.8	1 2 5 6		(43') SILTY SAND (SM); non plastic, firm, white with black specks (25%) (2.5Y 8/1), fine grained, laminated (mm scale) structure, white/light yellowish brown ~10% visible mica grains, appears to be completely weathered muscovite schist, original structure still present, COMPLETELY WEATHERED ROCK		N=7, Photo represents recovered sample between 43'-45' interval.	
45			SPT	1.6	2 6 4 9		(45') SILT with sand (MH); and clay, non plastic, soft, brown (10YR 5/3), relic structures/quartz veins, COMPLETELY WEATHERED ROCK		N=10	755
			SPT	1.7	3 4 6 7		(46') SILTY SAND (SM); non plastic, loose, white with black specks (25%) (2.5Y 8/1), fine to very fine grained, laminated (mm scale) structure, white/light yellowish brown ~10% visible mica grains, COMPLETELY WEATHERED ROCK		N=10 Photo represents recovered sample between 53'-55' interval.	
			SPT	2	2 3 6 8		(47') INORGANIC SILT with micaceous sand (10-15% mica) (MH); non plastic, brown (10YR 5/3), coarse to very coarse grained, angular, obvious relic structure, sand total ~30-40%, COMPLETELY WEATHERED ROCK (49.5') Harder-mica rich zone, zone of more preserved parent rock		N=9	
50			SPT	2	5 7 8 10		(51') Structure is foliated with dark and light veins		N=15	750
			SPT	2	4 4 5 10		(53') Same as above, structure still apparent, increasing clay content in fines, estimated <50% clay, still no to low plasticity, brown (10YR 5/3), COMPLETELY WEATHERED ROCK		N=9 Completely weathered rock from 43' to 53' appears to be completely weathered muscovite schist, original structures still present	
55										745
			SPT	2	2 2 4 6		(57.5') CLAYEY SAND (SC); loose, moist to wet, fine to medium grained, subrounded, increased clay content, some remaining weathered rock structure; still completely weathered rock, higher sand component in this lens		N=6, Photo represents recovered sample between 58'-60' interval.	
60										740

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

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Client: **Southern Company Services**
Project: **Plant Wansley Pre-Design Investigation**
Address: **1371 Liberty Church Rd. Carrollton, GA 30116**

BORING LOG
Boring No. **M-12**
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Drilling Start Date:	**4/6/2017**	Boring Depth (ft):	**73**
Drilling End Date:	**4/6/2017**	Boring Diameter (in):	**4**
Drilling Company:	**Thompson Engineering**	Sampling Method(s):	**SPT, ST**
Drilling Method:	**Mud Rotary**	DTW During Drilling (ft):	**--**
Drilling Equipment:	**CME-45C**	DTW After Drilling (ft):	**--**
Driller Name:	**P. Pitts and R. Odom**	Top of Deck Elev. (ft):	**800**
Logged By:	**H. Lutz**	Location (Y, X):	**1245236.4, 2027531.9**

DEPTH (ft)	GRAPHIC LOG	WATER LEVEL	COLLECT: Sample Type	COLLECT: Recovery (ft)	COLLECT: Blow Counts	COLLECT: Photo	MATERIAL DESCRIPTION	SAMPLE	REMARKS	ELEVATION (ft MSL)
60							(57.5') CLAYEY SAND (SC); loose, moist to wet, fine to medium grained, subrounded, increased clay content, some remaining weathered rock structure; still completely weathered rock, higher sand component in this lens *(continued)*		Start on 4/7/2017, new water level elevation that is ~2" higher than yesterday ~797 feet MSL	740
			SPT	2	6 7 8 12		(63') SILTY SAND (SM); and <10% angular gravel (Shist bedrock material), brown olive to gray (10YR 5/3, 5Y 4/2), schist relic structure evident, foliation, COMPLETELY WEATHERED ROCK		N=15, Photo represents recovered sample between 63'-65' interval.	
65										735
			SPT	2	25 7 6 10				N=13	
70									During mud rotary drilling from 70' to 73' drilling changed at 72.5' (top of rock), much harder, lower R.O.P.	730
							(72.5') Competent Rock (amphibolite schist?), rocks in shoe from 72.5 to 73 appear to be gravel size angular chunks of amphibolite schist, black and white, strong difference from competent weathered rock above (muscovite schist)		1st Run on SPT @ 73' 50/1" Refusal	
							(73.0') Boring Terminated			

NOTE:
1. Drilling was completed in the ash pond from the deck of a barge.
2. Depths are in feet below deck surface. Deck surface at time of drilling was 800 ft MSL.
3. Drillers used split spoons for sampling and a tricone bit for rotary drilling.
4. Borings were backfilled with grout using tremie method.

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

SOUTHERN COMPANY

LOG OF TEST BORING

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/6/2015 **COMPLETED** 1/12/2015 **SURF. ELEV.** 915.1 **COORDINATES:** N:33.418589 E:85.061826
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 63 ft. **GROUND WATER DEPTH: DURING** 19 ft. **COMP.** 17 ft. **DELAYED** 17.5 ft. after 48 hrs.
NOTES _____

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- red-brown and gray-brown, damp, very stiff, with mica	912.1	SS -1	1.0-2.5	10-8-10 (**18**)	
5		**Silty Sand (SM)** - brown with black mottling, damp, dense, with mica and residual quartz rock		SS -2	3.5-5.0	15-21-22 (**43**)	
		- no recovery, sampler blocked by rock	907.1	SS -3	6.0-7.5	10-11-13 (**24**)	
10		**Silt (ML)** - gray-brown with white mottling, damp, very stiff, with sand		SS -4	8.5-10.0	9-9-9 (**18**)	
15		- gray-brown with white mottling, damp, very stiff, with sand		SS -5	13.5-15.0	5-9-11 (**20**)	
20		- dark brown with black mottling, wet, very stiff, *saprolite schist*		SS -6	18.5-20.0	5-9-13 (**22**)	
			892.1				
25		**Silty Sand (SM)** - gray-brown with black mottling, dry, very dense, *saprolite schist*, fine grained		SS -7	23.5-25.0	15-30-39 (**69**)	
			887.1				
30		**Silt (ML)** - gray-brown with black mottling, wet, very stiff, *saprolite schist*		SS -8	28.5-30.0	6-7-14 (**21**)	
35		- gray-brown with black mottling, wet, very stiff, *saprolite schist*		SS -9	33.5-35.0	5-8-12 (**20**)	
40		- gray-brown with black mottling, damp, hard, with sand		SS -10	38.5-40.0	6-14-29 (**43**)	

(Continued Next Page)

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY GEOTECH 2014\BORING LOGS\WANSLEY GEOTECH.GPJ

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

SOUTHERN COMPANY

LOG OF TEST BORING

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
45		**Silt (ML)***(Con't)*					
		- gray-brown with black mottling, damp, very hard, with sand	868.1	SS -11	43.5-43.8	50/3" (**100+**)	
50		**Gneiss**					
		- dark gray to brown, fine to coarse grain, soft to hard, not to highly weathered, inclined, interlayered schist, intensely fractured		RC -12	47.0-53.0	**63** (30)	
55		- dark gray with light gray banding, fine grain, hard, not to slightly weathered, inclined, few fractures, interlayered biotite schist, moderately to slightly fractured		RC -13	53.0-56.0	**100** (87)	
60		- dark gray with light gray banding, fine grain, hard to very hard, not weathered, inclined, numerous light red garnets (1-2 mm), interlayered biotite schist, slightly fractured	852.1	RC -14	56.0-63.0	**97** (97)	

Bottom of borehole at 63.0 feet.

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

SOUTHERN COMPANY

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/13/2015 **COMPLETED** 1/14/2015 **SURF. ELEV.** 890.8 **COORDINATES:** N:33.423324 E:85.057460
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 53 ft. **GROUND WATER DEPTH: DURING** Dry **COMP.** Dry **DELAYED** Dry after 48 hrs.
NOTES _____

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
5		- boulders and partially weathered rock	885.3				Soil stripped in borrow area.
		Silt (ML) - gray-brown, dry, very stiff, with coarse-grained mica		SS -1	6.0-7.5	7-10-15 (**25**)	
10		- gray-brown to gray, dry, hard, with fine to coarse-grained mica		SS -2	8.5-10.0	11-15-17 (**32**)	
15		- gray and brown-gray, dry, very hard, *saprolite*, with fine-grained mica	871.8	SS -3	13.5-14.4	42-50/5" (**100+**)	
20		**Gneiss** - gray to dark gray with interbedded light brown felsic-quartz veins, fine to medium grain, soft to hard, slightly to highly weathered, inclined, banded, biotite, quartz, feldspar, intensely fractured, iron stained fractures		RC -4	19.0-23.0	**38** (0)	
25		- dark gray to black, white seams, medium to coarse grain, soft to hard, moderately weathered, inclined, banded, biotite, feldspathic-quartz seams 1-2 inches thick, moderately to intensely fractured		RC -5	23.0-28.0	**78** (28)	
30		- dark gray to black, white seams, medium to coarse grain, soft to hard, moderately to highly weathered, inclined, banded, biotite, feldspathic-quartz seams 1-2 inches thick, iron staining, intensely fractured		RC -6	28.0-33.0	**62** (0)	
35		- dark gray to black, white seams, medium to coarse grain, soft to medium hard, highly to completely weathered, inclined, banded, biotite, feldspathic-quartz seams 1-2 inches thick, intensely fractured	852.8	RC -7	33.0-38.0	**8** (0)	

(Continued Next Page)

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

SOUTHERN COMPANY

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
40		**Gneiss** - gray and dark gray with white seams, fine to coarse grain, medium hard to hard, not to moderately weathered, inclined, banded, interlayered schist, biotite, garnet (1-2 mm), feldspathic-quartz seams 1-2 inches thick, intensely fractured		RC -8	38.0-43.0	**56** (8)	
45		- gray and dark gray, fine to coarse grain, hard, not to slightly weathered, inclined, banded, interlayered with coarse-grained schist, biotite, numerous garnets last 2 ft., not to slightly fractured		RC -9	43.0-48.0	**102** (102)	
50		- gray and dark gray with light gray banding, fine to medium grain, hard, not weathered, inclined, banded, interlayered schist, biotite, feldspar, quartz, not to slightly fractured	837.8	RC -10	48.0-53.0	**100** (100)	

Bottom of borehole at 53.0 feet.

2012 GEOTECH ENGINEERING LOGS - ESEE2012DATABASE.GDT - 3/11/15 11:50 - S:\WORKGROUPS\APC GENERAL SERVICE COMPLEX\CIVIL TECH SUPPORT\DRILLING\PROJECTS\WANSLEY GEOTECH 2014\BORING LOGS\WANSLEY GEOTECH.GPJ

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

SOUTHERN COMPANY

LOG OF TEST BORING

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 12/15/2015 **COMPLETED** 12/16/2015 **SURF. ELEV.** 923.8 **COORDINATES:** N:33.414990 E:85.061273
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 57 ft. **GROUND WATER DEPTH: DURING** 24 ft. **COMP.** 33 ft. **DELAYED** 33.5 ft. after 48 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- red-brown, dry, stiff, *residuum*	920.8	SS -1	1.0-2.5	4-6-6 (**12**)	
5		**Silt (ML)**					
		- pale red-brown with black and yellow mottling, dry, very stiff, *saprolite*, with clay		SS -2	3.5-5.0	6-11-13 (**24**)	
		- pale yellow- and red-brown, dry, very stiff, schist, with clay		SS -3	6.0-7.5	12-13-15 (**28**)	
10		- pale red-brown, damp, very stiff, with mica and clay		SS -4	8.5-10.0	7-14-16 (**30**)	
			910.8				
15		**Clayey Sand (SC)**					
		- pale red-brown with black mottles, wet, medium dense, fine to coarse grain, *saprolite*, laminated, with mica and silt		SS -5	13.5-15.0	10-12-13 (**25**)	
20		- pale red-brown and pale brown, wet, medium dense, with residual quartz rock		SS -6	18.5-20.0	5-7-11 (**18**)	
25		- gray and brown-gray, wet, very dense, partially weathered rock	898.8	SS -7	23.5-23.8	50/4" (**100+**)	
		Gneiss					
30		- gray and gray-brown, medium to coarse grain, medium hard, moderately to highly weathered, interlayered schist, intensely fractured		RC -1	25.0-32.0	**93** (7)	
		- massive quartzite					
35		- gray and gray-brown, medium grain, medium hard, not to moderately weathered, interlayered biotite schist, intensely to moderately fractured	886.8	RC -2	32.0-37.0	**36** (16)	

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
40		- gray with brown-yellow stained fractures, medium to coarse grain, medium hard to hard, not to moderately weathered, interlayered biotite schist, intensely fractured, near vertical fractures		RC -3	37.0-42.0	**92** (14)	
45		- gray to dark gray, with dark gray-brown staining, medium to coarse grain, medium hard to hard, not to moderately weathered, interlayered biotite schist, moderately fractured		RC -4	42.0-47.0	**78** (52)	
50		- gray to dark gray, medium grain, hard to very hard, not to moderately weathered, inclined, banded, interlayered biotite schist, slightly fractured		RC -5	47.0-52.0	**100** (90)	
55		- gray to dark gray, fine to coarse grain, very hard, not to slightly weathered, inclined, banded, interlayered schist, biotite, slightly fractured	866.8	RC -6	52.0-57.0	**90** (82)	

Bottom of borehole at 57.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/12/2015 **COMPLETED** 1/13/2015 **SURF. ELEV.** 916.2 **COORDINATES:** N:33.418438 E:85.057485
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 48 ft. **GROUND WATER DEPTH: DURING** Dry **COMP.** 25 ft. **DELAYED** 25.5 ft. after 72 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
5		**Silt (ML)**					
		- red, dry, stiff		SS -1	1.0-2.5	4-6-8 (**14**)	
		- brown-gray with light red laminations, dry, very hard		SS -2	3.5-5.0	6-10-46 (**56**)	
			910.2				
		- no sample (fall-in material only)		SS -3	6.0-7.5	4-3-2 (**5**)	
10		- no recovery		SS -4	8.5-8.6	50/1" (**100+**)	
			905.2				
15		**Gneiss**					
		- dark brown-gray, fine to coarse grain, soft to medium hard, moderately to highly weathered, inclined, quartz veins, feldspar, interbedded biotite schist, intensely fractured		RC -5	11.0-18.0	**63** (14)	
20		- dark brown-gray, fine to coarse grain, soft to medium hard, highly weathered, inclined, quartz veins, feldspar, interbedded biotite schist, intensely fractured		RC -6	18.0-23.0	**38** (0)	
25		- gray to dark gray, fine to coarse grain, soft to hard, slightly to highly weathered, inclined, banded, quartz veins, feldspar, interlayered biotite schist, moderately to intensely fractured		RC -7	23.0-28.0	**80** (28)	
30		- dark brown-gray, fine to coarse grain, medium hard, moderately to highly weathered, inclined		RC -8	28.0-33.0	**66** (12)	
35		- dark gray to black, medium to coarse grain, soft to hard, not to highly weathered, inclined, micro-folds, thin quartz veins, garnets up to 3 mm, slightly to moderately fractured	878.2	RC -9	33.0-38.0	**42** (42)	

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
40		- gray to dark gray with light gray banding, medium to coarse grain, hard, not weathered, inclined, with micro-folds, interlayered schist, not to slightly fractured		RC -10	38.0-43.0	**106** (106)	
45		- gray to dark gray with light gray banding, medium to coarse grain, hard, not weathered, inclined, with micro-folds, interlayered schist, not fractured	868.2	RC -11	43.0-48.0	**84** (84)	

Bottom of borehole at 48.0 feet.

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EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 12/17/2015 **COMPLETED** 12/18/2015 **SURF. ELEV.** 892.1 **COORDINATES:** N:33.422671 E:85.055294
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 78 ft. **GROUND WATER DEPTH: DURING** Dry **COMP.** 41 ft. **DELAYED** 41 ft. after 72 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silt (ML)					
		- brown, damp, very stiff, with residual quartz rock		SS -1	1.0-2.5	4-8-9 (**17**)	
5		- yellow-brown with black mottles, damp, stiff, with clay		SS -2	3.5-5.0	3-5-5 (**10**)	
		- brown with black and white banding, damp, very stiff, *saprolite*, with clay		SS -3	6.0-7.5	6-8-10 (**18**)	
10		- gray-brown, very damp, very hard, *saprolite*, with sand		SS -4	8.5-9.5	40-50 (**100+**)	
			879.1				
15		**Partially Weathered Rock (PWR)** - gray-brown, dry, very hard, with silt and clay, mica		SS -5	13.5-15.0	7-15-37 (**52**)	
20		- gray-brown, dry, very hard, with silt and clay, mica		SS -6	18.5-18.8	50/4" (**100+**)	
			870.1				
25		**Gneiss** - gray and gray-brown, fine to coarse grain, soft to medium hard, moderately to highly weathered, inclined, interbedded with feldspathic quartz veins, intensely fractured		RC -1	22.0-28.0	**92** (17)	
30		- gray and gray-brown, fine to medium grain, soft to medium hard, not to highly weathered, inclined, interlayered schist, coarse-grained feldspathic quartz seams, moderately fractured		RC -2	28.0-33.0	**92** (40)	
35		- gray to dark gray, brown-yellow where weathered, fine to medium grain, medium hard to hard, slightly to moderately weathered, inclined, interlayered schist, intensely fractured		RC -3	33.0-38.0	**64** (0)	
			854.1				

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
40		- gray to dark gray, brown-yellow where weathered, fine to medium grain, medium hard to hard, slightly to moderately weathered, inclined, coarse grained feldspathic quartz seams, biotite, slightly to moderately fractured		RC -4	38.0-43.0	**98** (56)	
45		- gray and dark brown-gray, coarse grain, soft to hard, not to moderately weathered, inclined, massive quartz vein, interlayered biotite schist, moderately to slightly fractured		RC -5	43.0-48.0	**98** (62)	
50		- dark brown-gray, soft, highly to completely weathered, mica schist, coarse-grained, feldspathic quartz seams		RC -6	48.0-53.0	**4** (0)	
55		- brown, medium to coarse grain, soft to medium hard, highly weathered, silty clay and mica schist, intensely fractured		RC -7	53.0-58.0	**38** (0)	
60		- dark brown-gray, medium to coarse grain, soft to medium hard, moderately to highly weathered, numerous fractures, feldspathic quartz seams, iron staining, moderately to intensely fractured		RC -8	58.0-63.0	**108** (32)	
65		- dark brown-gray, coarse grain, medium hard, moderately to highly weathered, numerous fractures, feldspathic quartz seams, iron staining, moderately fractured		RC -9	63.0-68.0	**112** (28)	
70		- dark gray with light gray felsic-quartz viens, fine to medium grain, hard, not to slightly weathered, not to slightly fractured		RC -10	68.0-73.0	**100** (100)	
75		- dark gray with light gray felsic-quartz viens, fine to medium grain, hard, not to slightly weathered, not to slightly fractured	814.1	RC -11	73.0-78.0	**100** (100)	

Bottom of borehole at 78.0 feet.

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EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 12/16/2015 **COMPLETED** 12/17/2015 **SURF. ELEV.** 862.0 **COORDINATES:** N:33.420183 E:85.051927
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 37 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** 21.5 ft. **DELAYED** 22 ft. after 48 hrs.
NOTES _____

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- pale red-brown and gray, dry, stiff, *residuum*, with mica		SS -1	1.0-2.5	5-6-4 (**10**)	
5		- red-brown, dry, very stiff, *residuum*, with coarse-grained mica, residual schist	856.5	SS -2	3.5-5.0	6-10-15 (**25**)	
		Silt (ML) - pale gray-brown, dry, hard		SS -3	6.0-7.5	13-25-46 (**71**)	
10		- pale brown with black mottles, wet, very stiff, mica seams throughout		SS -4	8.5-10.0	6-8-12 (**20**)	
15		- pale brown, wet, very stiff, with mica ▽		SS -5	13.5-15.0	6-9-12 (**21**)	
			843.5				
20		**Partially Weathered Rock (PWR)** - no recovery- partially weathered rock	841.0	SS -6	18.5-18.5	50/0" (**100+**)	
		Gneiss					
25		- gray to dark gray, medium to coarse grain, not to highly weathered, interlayered schist, quartz veins, fine grained garnets, moderately to intensely fractured - dark brown, highly weathered, iron staining 24.5-25 ft. - fracture zone 26-27 ft.		RC -1	21.0-28.0	**93** (46)	
30		- gray to dark gray, medium to coarse grain, not to moderately weathered, inclined, few quartz veins, iron stained, interlayered biotite schist, slightly to intensely fractured		RC -2	28.0-33.0	**104** (100)	
35		- gray to dark gray, fine to medium grain, not weathered, few thin quartz veins, fine to medium-grained garnets, interlayered biotite schist, slightly fractured	825.0	RC -3	33.0-37.0	**100** (100)	

Bottom of borehole at 37.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/22/2015 **COMPLETED** 1/28/2015 **SURF. ELEV.** 864.4 **COORDINATES:** N:33.431086 E:85.048013
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 88 ft. **GROUND WATER DEPTH: DURING** 25 ft. **COMP.** 29.5 ft. **DELAYED** 28.5 ft. after 100 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL) - red, damp, medium stiff, with sand and silt	861.4	SS -1	1.0-2.5	2-3-5 (**8**)	
5		**Silt (ML)** - red-brown and gray-brown, damp, very stiff, with coarse mica and clay		SS -2	3.5-5.0	8-9-15 (**24**)	
		- brown with black mottles, damp, very stiff, with clay	856.4	SS -3	6.0-7.5	10-14-13 (**27**)	
10		**Silty Sand (SM)** - yellow-brown with black mottles, damp, dense, fine grained	851.4	SS -4	8.5-10.0	9-13-20 (**33**)	
15		**Silt (ML)** - brown with black mottles, damp, very stiff, with sand		SS -5	13.5-15.0	8-13-17 (**30**)	
20		- gray-brown and black, damp, hard, coarse saprolite schist, with clay		SS -6	18.5-20.0	9-13-19 (**32**)	
25		▽ - yellow-brown and brown with black mottles, wet, hard, with sand		SS -7	23.5-25.0	9-14-21 (**35**)	
30		▽ - yellow-brown and brown with black mottles, wet, very stiff, with sand		SS -8	28.5-30.0	6-11-16 (**27**)	
35		- light brown with black and pale yellow laminations, wet, very stiff, with clay		SS -9	33.5-35.0	7-10-16 (**26**)	
40		- gray and dark gray with white mottling, wet, very hard, with sand and residual quartz rock		SS -10	38.5-40.0	9-27-29 (**56**)	

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
45		**Silt (ML)***(Con't)* - gray-brown with black mottles, damp, very hard, saprolite schist, with sand		SS -11	43.5-45.0	15-21-36 (**57**)	
50		- brown-gray with red mottles, damp, very hard, *saprolite*, coarse mica		SS -12	48.5-49.5	43-50 (**100+**)	
55		- gray-brown, damp, hard, *saprolite*, fine to medium grained mica, with clay		SS -13	53.5-55.0	17-21-25 (**46**)	
60		- gray-brown with white laminations, damp, very hard, *saprolite*, garnets, with clay		SS -14	58.5-60.0	18-26-40 (**66**)	
65		- brown-gray, wet, very hard, with sand and weathered schist	796.4	SS -15	63.5-63.8	50/3" (**100+**)	
70		**Gneiss** - brown and gray, fine to coarse grain, medium hard, slightly to highly weathered, intensely fractured		RC -16	68.0-73.0	**90** (10)	
75		- gray and dark gray with light gray banding, fine to coarse grain, medium hard, slightly to moderately weathered, interlayered schist, moderately to intensely fractured, iron stained fractures		RC -17	73.0-78.0	**100** (36)	
80		- gray and dark gray with light gray banding, fine to coarse grain, medium hard, slightly to moderately weathered, interlayered schist, slightly fractured, iron stained fractures		RC -18	78.0-83.0	**102** (98)	
85		- dark gray to black, fine to coarse grain, hard to very hard, not weathered, micro-folds, garnets, pyrite on foliation planes, interlayered schist, moderately fractured	776.4	RC -19	83.0-88.0	**100** (76)	

Bottom of borehole at 88.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/16/2015 **COMPLETED** 1/16/2015 **SURF. ELEV.** 930.8 **COORDINATES:** N:33.432606 E:85.044206
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 63 ft. **GROUND WATER DEPTH: DURING** 25 ft. **COMP.** 48 ft. **DELAYED** 48 ft. after 100 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION (ELEV.)	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silt (ML)				
		- brown-gray with white mottles, damp, very stiff, saprolite schist, with clay	SS -1	1.0-2.5	6-12-17 (**29**)	
5		- brown-gray with white mottles, damp, very hard, saprolite schist, with clay	SS -2	3.5-5.0	17-23-29 (**52**)	
		- brown-gray and red-brown, dry, very hard, saprolite schist, with clay	SS -3	6.0-7.5	19-37-46 (**83**)	
10		- brown-gray and red-brown, dry, hard, saprolite schist, with clay	SS -4	8.5-10.0	10-15-18 (**33**)	
15		- pink-gray, dry, very hard, saprolite, with clay and sand	SS -5	13.5-15.0	12-23-40 (**63**)	
20		- dark brown-gray and yellow-red, dry, very hard, saprolite schist, with clay	SS -6	18.5-20.0	21-35-44 (**79**)	
25		▽ - gray-brown and red-brown with black mottles, wet, very hard, saprolite schist, with clay	SS -7	23.5-24.5	27-50 (**100+**)	
30		- gray-brown and red-brown with black mottles, wet, very hard, saprolite schist, with clay	SS -8	28.5-30.0	16-20-30 (**50**)	
35		- red-brown and black, wet, hard, saprolite schist, with clay	SS -9	33.5-35.0	17-15-20 (**35**)	
40		- gray-brown with black laminations, wet, very hard, with sand and mica	SS -10	38.5-40.0	10-22-39 (**61**)	

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EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silt (ML) *(Con't)*	887.8				
45		**Partially Weathered Rock (PWR)** - very hard, no recovery	885.8	SS -11	43.5-44.1	45-50/1" (**100+**)	
		Gneiss - dark gray and white, medium grain, soft to medium hard, highly weathered, interlayered schist, intensely fractured		RC -12	45.0-48.0	**53** (0)	
50		- dark gray to black with light gray banding, fine to medium grain, medium hard to hard, not to highly weathered, inclined, banded, interlayered schist, slightly to intensely fractured, fresh last 2 feet		RC -13	48.0-53.0	**68** (40)	
55		- gray with light gray banding, fine to coarse grain, hard, not weathered, inclined, banded, interlayered schist, slightly fractured		RC -14	53.0-63.0	**98** (98)	
60			867.8				

Bottom of borehole at 63.0 feet.

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

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/14/2015 **COMPLETED** 1/15/2015 **SURF. ELEV.** 913.0 **COORDINATES:** N:33.435652 E:85.042658
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 75 ft. **GROUND WATER DEPTH: DURING** 45 ft. **COMP.** _____ **DELAYED** _____
NOTES _____

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- red, dry, stiff, *residuum*, with silt and mica	910.0	SS -1	1.0-2.5	3-4-5 (**9**)	
		Silt (ML)					
5		- red with black and red-yellow mottles, dry, very stiff, saprolite schist, with clay		SS -2	3.5-5.0	9-13-15 (**28**)	
		- red, red-brown and black, dry, very hard, saprolite schist, with clay		SS -3	6.0-7.5	14-27-33 (**60**)	
10		- red, red-brown and black, dry, hard, saprolite schist, with clay		SS -4	8.5-10.0	8-15-22 (**37**)	
15		- red, red-yellow, gray-brown with black mottling, damp, very stiff, with mica and clay		SS -5	13.5-15.0	7-12-16 (**28**)	
20		- red-yellow and gray-brown with black mottling, damp, hard, with mica and clay		SS -6	18.5-20.0	7-15-21 (**36**)	
25		- red-yellow and gray-brown with black mottling, damp, hard, with mica and clay		SS -7	23.5-25.0	9-17-26 (**43**)	
30		- gray-brown with black mottles, dry, hard, with clay and sand		SS -8	28.5-30.0	9-16-28 (**44**)	24 hr and 48 hr: caved at 32 feet.
35		- gray-brown and red-yellow layers, black mottling, damp, very hard, with clay, residual quartz rock and mica		SS -9	33.5-33.9	50/5" (**100+**)	
40		- gray-brown and dark brown, damp, very hard, saprolite schist, with clay		SS -10	38.5-39.4	38-50/5" (**100+**)	

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
45		**Silt (ML)** *(Con't)*					
		▽ - gray-brown with dark red mottles, wet, very hard, with clay and sand		SS -11	43.5-44.9	21-45-50/5" (**100+**)	
50		- gray-brown with black mottling, damp, very hard, with sand, mica and residual rock		SS -12	48.5-50.0	20-31-44 (**75**)	
55		- gray and brown-gray, damp, very hard, coarse grained saprolite schist		SS -13	53.5-54.0	50 (**100+**)	
			855.0				
60		**Gneiss**					
		- brown-gray, fine to medium grain, moderately weathered, inclined, interlayered biotite schist, massive quartzite vein, intensely fractured		RC -14	58.0-63.0	**60** (8)	
65		- dark gray with light gray quartz veins, fine to medium grain, not weathered, inclined, quartz, garnets, interlayered biotite schist, slightly to moderately fractured		RC -15	63.0-68.0	**94** (70)	
70		- dark gray with light gray quartz veins, fine to medium grain, not weathered, inclined, quartz, garnets, fractures on foliation planes, interlayered biotite schist, slightly to moderately fractured		RC -16	68.0-73.0	**100** (100)	
75		- dark gray with light gray quartz veins, fine to coarse grain, not weathered, inclined, quartz, garnets, interlayered biotite schist, fractures on foliation planes, not to slightly fractured		RC -17	73.0-75.0	**100** (100)	
			838.0				

Bottom of borehole at 75.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/21/2015 **COMPLETED** 1/22/2015 **SURF. ELEV.** 884.2 **COORDINATES:** N:33.428059 E:85.045369
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 78 ft. **GROUND WATER DEPTH: DURING** 25 ft. **COMP.** 56 ft. **DELAYED** 56 ft. after 100 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- red with red-yellow mottles, damp, medium stiff, with silt	881.2	SS -1	1.0-2.5	2-3-4 (**7**)	
5		**Silt (ML)** - red and gray-brown, damp, very stiff, saprolite schist	878.7	SS -2	3.5-5.0	5-7-13 (**20**)	
		Silty Sand (SM) - brown and gray-brown with red-yellow mottling, wet, medium dense	876.2	SS -3	6.0-7.5	7-8-11 (**19**)	
10		**Silt (ML)** - red-brown with black mottles, damp, very stiff, saprolite schist	871.2	SS -4	8.5-10.0	7-12-16 (**28**)	
15		**Lean Clay (CL)** - red, damp, stiff, with silt and sand	866.2	SS -5	13.5-15.0	4-5-9 (**14**)	
20		**Silt (ML)** - brown-gray with black mottles, damp, hard, with clay	861.2	SS -6	18.5-20.0	12-23-22 (**45**)	
25		**Silty Sand (SM)** - dark gray, wet, very hard, with coarse sand	856.2	SS -7	23.5-25.0	20-28-39 (**67**)	
30		**Silt (ML)** - brown with black mottles, wet, very hard, with clay		SS -8	28.5-30.0	18-25-43 (**68**)	
35		- gray-brown, wet, very hard, with sand and mica		SS -9	33.5-34.0	50 (**100+**)	
40		- brown with yellow and white mottling, damp, hard, *saprolite*, with clay and mica		SS -10	38.5-40.0	10-17-25 (**42**)	

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silt (ML)*(Con't)*					
45		- brown with black and red-yellow mottles, wet, very hard, with clay and sand		SS -11	43.5-44.4	23-50/5" (**100+**)	
50		- brown-gray with red-yellow mottles, wet, very hard, *saprolite*, with sand and mica	831.2	SS -12	48.5-49.4	28-50/5" (**100+**)	
55		**Partially Weathered Rock (PWR)** - gray-brown with black and red-brown mottling, damp, very dense, clayey sand, fine grained		SS -13	53.5-55.0	10-28-38 (**66**)	
60		- very dense, no recovery	822.2	SS -14	58.5-58.7	50/2" (**100+**)	
		Gneiss					
65		- gray to dark gray, medium to coarse grain, soft to hard, slightly to highly weathered, biotite, quartz, moderately fractured		RC -15	62.0-68.0	**22** (17)	
70		- gray to dark gray with light gray banding, medium to coarse grain, soft to hard, not to slightly weathered, biotite, quartz, moderately fractured		RC -16	68.0-73.0	**100** (70)	
75		- gray to dark gray with light gray banding, medium to coarse grain, soft to hard, not to slightly weathered, biotite, quartz, moderately fractured	806.2	RC -17	73.0-78.0	**100** (80)	

Bottom of borehole at 78.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/21/2015 **COMPLETED** 1/21/2015 **SURF. ELEV.** 903.5 **COORDINATES:** N:33.432904 E:85.040013
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 63 ft. **GROUND WATER DEPTH: DURING** 25 ft. **COMP.** 45.5 ft. **DELAYED** 45.5 ft. after 48 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL) - red, dry, stiff, with silt	900.5	SS -1	1.0-2.5	5-6-6 (**12**)	
5		**Silt (ML)** - red, damp, stiff, with clay	898.0	SS -2	3.5-5.0	5-5-10 (**15**)	
		Silty Sand (SM) - red-brown with black mottles, dry, medium dense	895.5	SS -3	6.0-7.5	6-10-13 (**23**)	
10		**Silt (ML)** - brown, damp, very stiff, with clay and mica		SS -4	8.5-10.0	5-6-13 (**19**)	
15		- brown-gray, dry, hard		SS -5	13.5-15.0	7-15-25 (**40**)	
20		- brown with dark brown mottles, dry, very hard, fine grained mica	880.5	SS -6	18.5-20.0	16-20-34 (**54**)	
25		**Silty Sand (SM)** - dark gray with white laminations, wet, very dense, *saprolite*		SS -7	23.5-25.0	8-38-44 (**82**)	
30		- dark gray with white laminations, wet, very dense, residual schist rock	870.5	SS -8	28.5-29.4	27-50/5" (**100+**)	
35		**Partially Weathered Rock (PWR)** - very dense, no recovery	868.5	SS -9	33.5-33.5	50/0" (**100+**)	
40		**Gneiss** - gray to dark brown-gray, medium to coarse grain, soft to medium hard, moderately to highly weathered, interlayered biotite schist, moderately fractured		RC -10	35.0-38.0	**83** (47)	
				RC -11	38.0-43.0		

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
45		**Gneiss***(Con't)* - dark brown and gray, dark gray, medium to coarse grain, medium hard to hard, slightly to highly weathered, interlayered biotite schist, slightly to moderately fractured		RC -11	38.0-43.0	**64** (26)	
		- dark brown-gray, coarse grain, soft, highly to completely weathered, intensely fractured		RC -12	43.0-48.0	**22** (0)	
50		- gray and dark gray with light gray banding, fine to coarse grain, soft to hard, not to highly weathered, interlayered coarse schist, 1-foot weathered zone (51-52 ft.), slightly to intensely fractured		RC -13	48.0-53.0	**82** (56)	
55		- gray to dark gray with light gray banding, fine to coarse grain, hard, not weathered, interlayered schist, not to slightly fractured		RC -14	53.0-58.0	**112** (112)	
60		- gray to dark gray with light gray banding, fine to coarse grain, hard, not weathered, interlayered schist, not to slightly fractured		RC -15	58.0-63.0	**100** (100)	
			840.5				

Bottom of borehole at 63.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/20/2015 **COMPLETED** 1/20/2015 **SURF. ELEV.** 833.9 **COORDINATES:** N:33.433728 E:85.035814
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 36 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** 12 ft. **DELAYED** 16 ft. after 48 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
5		**Silt (ML)** - red with red-yellow mottles, damp, medium stiff, with sand		SS -1	1.0-2.5	3-3-3 (**6**)	
		- gray-brown, red and red-brown, damp, very stiff, with clay and mica	828.4	SS -2	3.5-5.0	4-10-14 (**24**)	
10		**Silty Sand (SM)** - brown with pink and weak red mottles, damp, very dense, fine grain, with silt		SS -3	6.0-6.8	32-50/4" (**100+**)	
		- gray-brown, red with white mottles, damp, very dense, fine to coarse grain, with residual quartz rock and silt		SS -4	8.5-10.0	23-30-31 (**61**)	
15		- gray-brown with light gray mottles, wet, very dense		SS -5	13.5-14.5	25-50 (**100+**)	
			815.9				
20		**Clayey Sand (SC)** - brown, wet, very dense, with residual quartz rock	811.9	SS -6	18.5-18.5	50/0" (**100+**)	
25		**Gneiss** - gray to dark gray with light gray banding, medium to coarse grain, soft to hard, not to moderately weathered, banded, interlayered biotite schist, garnets up to 2 mm, quartz, slightly to moderately fractured		RC -1	22.0-28.0	**73** (65)	
30		- gray to dark gray with light gray banding, fine to coarse grain, hard, not weathered, banded, interlayered biotite schist, garnets up to 2 mm, slightly fractured		RC -1	28.0-36.0	**116** (116)	
35			797.9				

Bottom of borehole at 36.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 2/17/2015 **COMPLETED** 2/17/2015 **SURF. ELEV.** 819.4 **COORDINATES:** N:33.413354 E:85.047660
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 60 ft. **GROUND WATER DEPTH: DURING** 25 ft. **COMP.** _____ **DELAYED** 20 ft. after 24 hrs.
NOTES 0-25 ft. drilled with hollow stem auger

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- red, damp, stiff, *fill*, with silt and mica	816.4	SS -1	1.0-2.5	3-6-6 (**12**)	
5		**Silt (ML)** - brown, dry, very stiff, with silt and mica	813.9	SS -2	3.5-5.0	8-9-9 (**18**)	
		Silty Sand (SM) - brown and gray, dry, dense, some weathered schist rock	811.4	SS -3	6.0-7.5	15-18-18 (**36**)	
10		**Lean Clay (CL)** - brown, damp, stiff, with sand and mica		SS -4	8.5-10.0	4-5-8 (**13**)	
15		- red-brown and red, damp, stiff, with sand and mica		SS -5	13.5-15.0	7-6-8 (**14**)	
20		- red-brown and brown, damp, medium stiff, with sand and mica ▽		SS -6	18.5-20.0	3-2-3 (**5**)	
			796.4				
25		**Coal Combustion Byproduct (ASH)** - very dark gray, wet, soft, with silt and sand ▽		SS -7	23.5-25.0	2-1-2 (**3**)	
30		- black, wet, soft, fine to coarse grain, with sand		SS -8	28.5-30.0	3-2-2 (**4**)	
35		- very dark gray, wet, very soft, very fine grained		SS -9	33.5-35.0	WH-1-1 (**2**)	
40		- dark gray, wet, very soft, with clay and silt		SS -10	38.5-40.0	1-0-0 (**0**)	

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

SOUTHERN COMPANY

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Coal Combustion Byproduct (ASH)*(Con't)*					
45		- very soft, no recovery		SS -11	43.5-45.0	WR-WR-WR (**0**)	
50		- very dark gray, wet, soft, very fine grained, with sand		SS -12	48.5-50.0	3-2-1 (**3**)	
55		- dark gray, wet, very soft, with clay and silt		SS -13	53.5-55.0	1-0-0 (**0**)	
60		- very dark gray, wet, medium stiff, very fine grained, with sand	759.4	SS -14	58.5-60.0	5-3-2 (**5**)	
		Bottom of borehole at 60.0 feet.					

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 2/5/2015 **COMPLETED** 2/11/2015 **SURF. ELEV.** 819.6 **COORDINATES:** N:33.416780 E:85.045951
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 183 ft. **GROUND WATER DEPTH: DURING** 23 ft. **COMP.** 12 ft. **DELAYED** 9 ft. after 100 hrs.
NOTES _____

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION (ELEV.)	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
0		**Utility Clearance (HYDROEXCAVATION)**				
		811.6				
10		**Silt (ML)** - red-brown, damp, very stiff, with clay	SS -1	8.5-10.0	22-13-9 (**22**)	
		807.6				
		Lean Clay (CL)				
15		- red-brown, damp, stiff, with mica	SS -2	13.5-15.0	4-6-8 (**14**)	
20		- red, damp, very stiff, silty	SS -3	18.5-20.0	6-9-11 (**20**)	
		796.6				
25		**Coal Combustion Byproduct (ASH)** - black, wet, very soft, very fine grained	SS -4	23.5-25.0	1-1-1 (**2**)	
30		- soft, no recovery	SS -5	28.5-30.0	1-1-2 (**3**)	
35		- very dark gray, wet, medium stiff, very fine grained	SS -6	33.5-35.0	2-2-3 (**5**)	
40		- very dark gray, wet, very soft, very fine grained	SS -7	38.5-40.0	1-1-1 (**2**)	

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
45		**Coal Combustion Byproduct (ASH)***(Con't)* - very dark gray, wet, very loose, fine to coarse grain, bottom ash		SS -8	43.5-45.0	1-1-2 (3)	
50		- dark gray, wet, very loose, fine to medium grain, bottom ash		SS -9	48.5-50.0	WH-WH-WH (0)	
55		- dark gray, wet, very loose, fine to medium grain, bottom ash		SS -10	53.5-55.0	2-2-1 (3)	
60		- dark gray, wet, very loose, fine to medium grain, bottom ash		SS -11	58.5-60.0	WR-WR-WR (0)	
65		- dark gray, wet, very soft, very fine grained, with silt		SS -12	63.5-65.0	WH-WH-WH (0)	
70		- dark gray, wet, very soft, very fine grained, with silt		SS -13	68.5-70.0	WR-WR-WR (0)	
75		- dark gray, wet, very soft, very fine grained, with silt		SS -14	73.5-75.0	WR-WR-WR (0)	
80		- dark gray, wet, very soft, very fine grained, with silt		SS -15	78.5-80.0	WR-WR-WR (0)	
85		- dark gray, wet, very soft, very fine grained, with silt		SS -16	83.5-85.0	WR-WR-WR (0)	
90		- no recovery		SS -17	88.5-90.0	WR-WR-WR (0)	

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

SOUTHERN COMPANY

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
95		**Coal Combustion Byproduct (ASH)***(Con't)* - dark gray, wet, very soft, very fine grained, with silt and sand		SS -18	93.5-95.0	WR-WR-WR (**0**)	
100		- very dark gray, wet, very soft, with coarse sand		SS -19	98.5-100.0	WR-WR-WR (**0**)	
105		- dark gray, wet, very soft, very fine grained, with silt		SS -20	103.5-105.0	WR-WR-WR (**0**)	
110		- dark gray, wet, very soft, very fine grained, with silt		SS -21	108.5-110.0	WR-WR-WR (**0**)	
115		- very dark gray to black, wet, very loose, coarse grained bottom ash		SS -22	113.5-115.0	WR-WR-WR (**0**)	
120		- unable to advance casing, no sample	698.6				
125		**Fat Clay (CH)** - light gray, wet, very hard, *residuum*, silty		SS -23	123.5-123.9	50/5" (**100+**)	
130		- pale yellow-brown with light yellow mottles, damp, very hard	686.6	SS -24	128.5-129.9	38-40-50/5" (**100+**)	
135		**Feldspathic quartzite** - pink-gray with light gray banding, medium to coarse grain, medium hard to hard, not to slightly weathered, micro-folds, moderately to intensely fractured, iron staining in fractures, thinly foliated		RC -25	133.0-138.0	**108** (54)	
140		- pale gray-yellow to light gray, fine to medium grain, medium hard to hard, not to slightly weathered, foliated, intensely fractured, black mineralization in fractures		RC -26	138.0-143.0	**94** (38)	

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

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
145		**Feldspathic quartzite** *(Con't)*					
		- pale gray-yellow, medium to coarse grain, medium hard to hard, not to slightly weathered, foliated, elongated feldspar crystals (2-3 mm), intensely fractured		RC -26	143.0-148.0	**100** (24)	
150		- pale gray-yellow, medium to coarse grain, medium hard to hard, slightly weathered, foliated, intensely fractured		RC -28	148.0-153.0	**90** (18)	
155		- pale gray-yellow, medium to coarse grain, medium hard to hard, slightly weathered, foliated, moderately to intensely fractured		RC -29	153.0-158.0	**114** (32)	
160		- light gray and pale yellow, medium to coarse grain, medium hard to hard, slightly to moderately weathered, quartz veins, moderately to intensely fractured		RC -30	158.0-163.0	**88** (54)	
165		- pale gray-yellow, medium to coarse grain, medium hard to hard, slightly to moderately weathered, moderately to intensely fractured, interbedded with phyllite last 2 feet	651.6	RC -31	163.0-168.0	**78** (20)	
170		**Phyllite**					
		- interlayered gray and gray-brown, fine to medium grain, medium hard to hard, slightly to moderately weathered, near horizontal, iron staining on foliation planes and fractures, interbedded with coarse-grained quartzite veins, intensely fractured		RC -32	168.0-173.0	**96** (8)	
175		- gray and dark gray, fine grain, medium hard to hard, slightly weathered, near horizontal, fractures on foliation planes, iron staining on fractures, intensely fractured		RC -33	173.0-178.0	**100** (0)	
180		- gray and dark gray, fine grain, medium hard to hard, slightly weathered, near horizontal, fractures on foliation planes, iron staining on fractures, moderately to intensely fractured	636.6	RC -34	178.0-183.0	**98** (26)	

Bottom of borehole at 183.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 2/3/2015 **COMPLETED** 2/5/2015 **SURF. ELEV.** 813.9 **COORDINATES:** N:33.415144 E:85.043837
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 133 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** 12 ft. **DELAYED** 2 ft. after 100 hrs.
NOTES _____

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Coal Combustion Byproduct (Gypsum) (GYPSUM FILL) - pale yellow-brown, damp, stiff, clayey silt		SS -1	1.0-2.5	4-5-10 (**15**)	
5		- pale yellow-brown, damp, very stiff, clayey silt		SS -2	3.5-5.0	7-11-16 (**27**)	
		- pale yellow-brown, wet, very stiff, clayey silt		SS -3	6.0-7.5	10-10-14 (**24**)	
10		- pale yellow-brown, wet, hard, clayey silt		SS -4	8.5-10.0	10-18-27 (**45**)	
			800.9				
15		**Coal Combustion Byproduct (ASH)** - dark gray to black, wet, loose, fine to coarse grain, with sand and silt, bottom ash		SS -5	13.5-15.0	1-3-3 (**6**)	
20		- dark gray, wet, very stiff, with clay, silt and sand		SS -6	18.5-20.0	1-10-14 (**24**)	
25		- dark gray, wet, soft, with clay, silt and sand		SS -7	23.5-25.0	1-1-2 (**3**)	
30		- soft, no recovery		SS -8	28.5-30.0	1-1-2 (**3**)	
35		- very soft, no recovery		SS -9	33.5-35.0	1-1-1 (**2**)	
40		- dark gray, wet, soft, with clay and silt		SS -10	38.5-40.0	2-2-1 (**3**)	

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

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EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Coal Combustion Byproduct (ASH)*(Con't)*					
45		- dark gray, wet, soft, with clay, silt and some coarse grained sand		SS -11	43.5-45.0	WR-2-2 (**4**)	
50		- dark gray, wet, medium dense, fine to coarse grain, bottom ash, with sand		SS -12	48.5-50.0	3-6-6 (**12**)	
55		- dark gray, wet, very soft, with clay and silt		SS -13	53.5-55.0	WH-WH-1 (**1**)	
60		- dark gray, wet, very soft, with clay and silt		SS -14	58.5-60.0	WH-WH-WH (**0**)	
65		- soft, no recovery		SS -15	63.5-65.0	2-2-1 (**3**)	
70		- very soft, no recovery		SS -16	68.5-70.0	WH-1-1 (**2**)	
75		- dark gray, wet, very soft, with clay and silt		SS -17	73.5-75.0	1-1-1 (**2**)	
80		- dark gray, wet, very soft, with clay and silt		SS -18	78.5-80.0	WR-WR-WR (**0**)	
85		- dark gray, wet, very soft, with clay and silt		SS -19	83.5-85.0	1-0-0 (**0**)	

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

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Coal Combustion Byproduct (ASH) *(Con't)*	725.9				
90		**Elastic Silt (MH)** - green-gray with pale yellow mottles, wet, very stiff, medium plasticity, with clay		SS -20	88.5-90.0	6-11-13 (**24**)	
95		- yellow-red, yellow, light gray, and green-gray, wet, hard, medium to low plasticity, with sand	715.9	SS -21	93.5-95.0	28-17-24 (**41**)	
100		**Silt (ML)** - yellow-brown with pale yellow mottling, wet, very hard, low plasticity, with sand		SS -22	98.5-99.8	5-20-50/4" (**100+**)	
105		- green-brown with black mottling, wet, very hard, low plasticity, with sand and residual quartz rock	705.9	SS -23	103.5-105.0	22-14-42 (**56**)	
110		**Clayey Silty Sand (SC-SM)** - gray with white mottling, wet, very dense, fine to coarse grain, with clay	700.9	SS -24	108.5-108.8	50/3" (**100+**)	
115		**Gneiss** - dark gray, fine to medium grain, soft to medium hard, highly to completely weathered, interlayered biotite schist, feldspar, iron staining, intensely fractured		RC -25	113.0-118.0	**20** (0)	
120		- gray-brown and gray with white speckles, fine to coarse grain, soft to hard, moderately to highly weathered, inclined, interlayered biotite schist, feldspar, intensely fractured		RC -26	118.0-123.0	**46** (0)	
125		- gray with light gray quartz banding, fine to medium grain, soft to hard, not to slightly weathered, inclined, banded, interlayered biotite schist, pyrite on foliation planes, near vertical fractures, moderately fractured		RC -27	123.0-128.0	**100** (26)	
130		- gray with light gray quartz banding, fine to medium grain, soft to hard, not weathered, inclined, banded, interlayered biotite schist, moderately fractured	680.9	RC -28	128.0-133.0	**100** (68)	

Bottom of borehole at 133.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/5/2015 **COMPLETED** 1/6/2015 **SURF. ELEV.** 913.4 **COORDINATES:** N:33.419783 E:85.059606
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 83 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** 11 ft. **DELAYED** 12 ft. after 48 hrs.
NOTES _____

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- red-brown and gray-brown, damp, stiff, *saprolite*, with mica		SS -1	1.0-2.5	3-4-5 (**9**)	
5		- gray-brown, damp, very stiff, saprolite schist		SS -2	3.5-5.0	5-8-12 (**20**)	
		- gray-brown, damp, very stiff, saprolite schist		SS -3	6.0-7.5	12-14-17 (**31**)	
10		- gray-brown, damp, very stiff, saprolite schist		SS -4	8.5-10.0	11-13-12 (**25**)	
			900.4				
15		**Silt (ML)** - gray-brown, wet, very stiff, with some residual quartz rock, clay and mica		SS -5	13.5-15.0	8-12-17 (**29**)	
20		- gray-brown, damp, very stiff, with some clay and mica		SS -6	18.5-20.0	8-9-10 (**19**)	
25		- gray-brown, damp, hard, with mica		SS -7	23.5-25.0	18-30-50 (**100+**)	
			885.4				
30		**Partially Weathered Rock (PWR)** - sampler blocked by rock		SS -8	28.5-30.0	6-12-20 (**32**)	
			880.4				
35		**Gneiss**					
40		- gray-brown and gray, medium to coarse grain, soft to medium hard, slightly to highly weathered, inclined, interlayered schist, intensely fractured		RC -9	33.0-43.0	**31** (0)	

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

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
45		**Gneiss***(Con't)*					
		- gray and dark gray, fine to coarse grain, medium hard to hard, not to moderately weathered, inclined, interlayered biotite schist, moderately fractured		RC -10	43.0-53.0	**93** (40)	
50							
55		- gray to dark gray, light gray banding, fine to coarse grain, hard to very hard, not to slightly weathered, inclined, coarse feldspar grains throughout, quartz veins, near vertical fractures, interlayered biotite schist, slightly to moderately fractured		RC -11	53.0-63.0	**84** (54)	
60							
65		- gray to dark gray, light gray banding, fine to coarse grain, hard to very hard, not to slightly weathered, inclined, coarse feldspar grains throughout, quartz veins, near vertical fractures, interlayered biotite schist, slightly to moderately fractured		RC -12	63.0-73.0	**91** (60)	
70							
75		- gray to dark gray, light gray banding, fine to medium grain, hard to very hard, not to slightly weathered, inclined, interlayered coarse-grained biotite schist, feldspar, not to slightly fractured		RC -13	73.0-83.0	**99** (87)	
80			830.4				

Bottom of borehole at 83.0 feet.

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DATE STARTED 1/28/2015 **COMPLETED** 1/29/2015 **SURF. ELEV.** 915.3 **COORDINATES:** N:33.430628 E:85.046102
CONTRACTOR Ranger Consulting **EQUIPMENT** CME 550 **METHOD** Mud Rotary; Casing Advance; NQ Diamond Core
DRILLED BY B. Ozment **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 73 ft. **GROUND WATER DEPTH: DURING** 35 ft. **COMP.** 37 ft. **DELAYED** 37 ft. after 100 hrs.
NOTES

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- red and dark gray, damp, very stiff, with sand, residual rock and mica	912.3	SS -1	1.0-2.5	6-8-8 (**16**)	
		Silt (ML)					
5		- pale brown, dry, very stiff, with mica and clay		SS -2	3.5-5.0	6-9-11 (**20**)	
		- brown and dark red, dry, hard, with clay		SS -3	6.0-7.5	5-12-29 (**41**)	
10		- brown, damp, very hard, with clay and some sand		SS -4	8.5-10.0	17-23-42 (**65**)	
15		- brown with black mottles, damp, very hard, with clay and some sand		SS -5	13.5-15.0	16-28-50 (**100+**)	
20		- brown with black mottles, damp, very hard, with clay, some sand and residual rock		SS -6	18.5-20.0	15-31-47 (**78**)	
25		- pale brown, damp, very hard, with clay		SS -7	23.5-25.0	13-26-44 (**70**)	
30		- brown with black mottles, damp, very stiff, with sand		SS -8	28.5-30.0	8-11-13 (**24**)	
35		- brown, wet, very stiff, with sand, residual rock and mica		SS -9	33.5-35.0	15-11-13 (**24**)	
40		- brown, wet, very stiff, with sand, residual rock and mica		SS -10	38.5-40.0	13-25-37 (**62**)	

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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Geotechnical Investigation
LOCATION Plant Wansley

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silt (ML)*(Con't)*	872.3				
45		**Clayey Sand (SC)** - gray-brown, wet, dense, fine grain		SS -11	43.5-45.0	11-14-22 (**36**)	
50		- gray, wet, very dense, fine grain		SS -12	48.5-50.0	13-24-25 (**49**)	
55		- gray, wet, very dense, fine grain	859.3	SS -13	53.5-54.2	36-50/2" (**100+**)	
60		**Gneiss** - dark brown and gray, medium grain, soft, highly weathered, inclined, white feldspathic quartz banding, moderately fractured		RC -14	56.0-58.0	**85** (40)	
		- dark brown and gray, medium grain, soft, moderately to highly weathered, inclined, white feldspathic quartz banding, intensely fractured		RC -15	58.0-63.0	**28** (8)	
65		- gray to dark gray with light gray banding, medium to coarse grain, hard, not to slightly weathered, inclined, white feldspathic quartz banding, slightly to moderately fractured		RC -16	63.0-68.0	**112** (112)	
70		- gray to dark gray with light gray banding, medium to coarse grain, hard, not to slightly weathered, banded, garnets, slightly fractured	842.3	RC -17	68.0-73.0	**102** (96)	

Bottom of borehole at 73.0 feet.

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APPENDIX B

Drillers' Performance Bonds

SURETY RIDER

To be attached to and form a part of

Bond No. 800031223

Type of Bond: Performance Bond for Water Well Contractors

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

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

and by Atlantic Specialty Insurance Company , as Surety,

in favor of State of Georgia
(OBLIGEE)

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

Coverage under the bond to include:
Michael Coleman

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

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

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

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

By: _____
(PRINCIPAL)

Atlantic Specialty Insurance Company

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

ATLANTIC SPECIALTY INSURANCE COMPANY NEW YORK CORPORATE SEAL 986

S-0443/GE 8/08

XDP

OneBeacon
INSURANCE GROUP

Power of Attorney

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

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

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

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

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

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

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

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

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

_____
Notary Public

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

Signed and sealed. Dated 21 day of December, 2017

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
October 1, 2019

_____
James G. Jordan, Assistant Secretary

CONTINUATION CERTIFICATE

SAFECO Insurance Company of America , Surety upon

a certain Bond No. 4993104

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

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

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

does hereby continue said bond in force for the further period

beginning on June 30, 2017
(MONTH-DAY-YEAR)

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

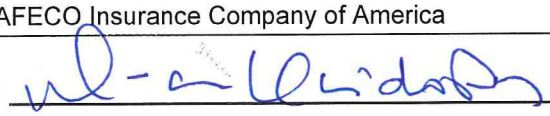
Amount of bond $10,000.00

Description of bond Water Well Contractors & Drillers

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

Signed and dated on May 04, 2017
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By 

D- Ann Kleidosty, Attorney-in-Fact

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

Certificate No. 7710213

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

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American States Insurance Company is a corporation duly organized under the laws of the State of Indiana, that First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle

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

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 4th day of April, 2017.

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

By: _____
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 4th day of April, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American States Insurance Company, First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

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

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

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

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

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

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

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 4th day of May, 2017.

By: _____
Renee C. Llewellyn, 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.

Bond Number 1001126889

Performance Bond For Drillers

Name of Driller Phillip Pitts and Stan White

Know All Men By These Presents

That we Phillip Pitts and Stan White and _____ Thompson Engineering, Inc. any and all employees, officers and partners (collectively hereinafter, **Principal**), and we American Contractors Indemnity Company, duly organized under the laws of the State of California (hereinafter, **Surety**), are held and firmly bound unto the Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia (**Director**) and his or her Successor or Successors in office, as **Obligee**, in the full sum of **FIFTEEN THOUSAND DOLLARS ($15,000.00)** for the payment of which will and truly to be made, the Principal and Surety bind ourselves, our heirs, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, the Water Well Standards Act of 1985 (O.C.G.A. §§ 12-5-120 *et seq.*) (the Act) requires that a Driller, as that term is defined by the Act, have a performance bond with the Director to ensure compliance with the Act; and WHEREAS the above bound Principal is subject to the terms and provisions of said Act.

NOW, THEREFORE, the conditions of this obligation are such that if the above bound Principal shall fully and faithfully perform the duties and in all things comply with the procedures and standards set forth in the Act as now and hereafter amended, and the rules and regulations promulgated pursuant thereto, including but not limited to the correction of any violation of such procedures and standards upon discovery, irrespective of whether such discovery is made before completion of any well subject to this bond, then this obligation shall be void; otherwise it shall remain in full force and effect.

And Surety, for value received, agrees that no amendment to existing laws, rules or regulations, or adoption of new laws, rules or regulations shall in anyway discharge its obligation on this bond, and does hereby waive notice of any such amendment, adoption or modification.

This bond shall be effective from the 1st day of November, 2018 and shall continue in effect until June 30, 2019, unless sooner terminated by mutual agreement of Principal and Surety, provided that no such termination may be made unless sixty (60) days' prior written notice is made to the Director. In the event of such termination, the rights of the Director as Obligee and beneficiaries under this bond which arose prior to such termination shall continue.

IN WITNESS THEREOF the Principal and Surety have caused these present to be duly signed and sealed, this the 26th day of February, 2019.

Principal
Thompson Engineering, Inc.

Print name: Chad R. Brown
Title: CLO + Secretary

Seal:

THOMPSON ENGINEERING, INC. CORPORATE SEAL ALABAMA

Surety
American Contractors Indemnity Company

Print name: Dewey Brashier
Title: Attorney-in-Fact

Seal:

Revised March 2017

TOKIO MARINE HCC

POWER OF ATTORNEY

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING COMPANY
UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

KNOW ALL MEN BY THESE PRESENTS: That American Contractors Indemnity Company, a California corporation, Texas Bonding Company, an assumed name of American Contractors Indemnity Company, United States Surety Company, a M aryland corporation and U.S. Specialty Insurance Company, a Texas corporation (collectively, the "Companies"), do by these presents make, constitute and appoint:

Jim E. Brashier, Troy P. Wagener, Loren Richard Howell, Jr., Dewey Brashier,
Kathleen B. Scarborough, Susan Skrmetta, John W. Nance

its true and lawful Attorney(s)-in-fact, each in their separate capacity if more than one is named above, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver **any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include riders, amendments, and consents of surety, providing the bond penalty does not exceed** ******Unlimited****** Dollars (***unlimited***). This Power of Attorney shall expire without further action on April 23rd, 2022. This Power of Attorney is granted under and by authority of the following resolutions adopted by the Boards of Directors of the Companies:

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings, including any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts, and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, The Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 1st day of June, 2018.

AMERICAN CONTRACTORS INDEMNITY COMPANY TEXAS BONDING OMPANY
UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

State of California

County of Los Angeles

By: _____
Daniel P. Aguilar, Vice President

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document

On this 1st day of June, 2018, before me, Sonia O. Carrejo, a notary public, personally appeared Daniel P. Aguilar, Vice President of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (seal)

SONIA O. CARREJO
Notary Public - California
Los Angeles County
Commission # 2239479
My Comm. Expires Apr 23, 2022

I, Kio Lo, Assistant Secretary of American Contractors Indemnity Company, Texas Bonding Company, United States Surety Company and U.S. Specialty Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Los Angeles, California this 26th day of February, 2019.

Corporate Seals
Bond No. 1001126889

Agency No. 17033

Kio Lo, Assistant Secretary

HCCSMANPOA06/2018

visit tmhcc.com/surety for more information

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

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

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

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

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

does hereby continue said bond in force for the further period

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

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

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

Description of bond Performance Bond for Water Well Contractors

Premium: $1200.00

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

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

Atlantic Specialty Insurance Company

By Andrew P. Larsen
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.
Agent

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

425-709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

Scanned with CamScanner

Power of Attorney

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

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

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

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

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

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-seventh day of April, 2020.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this twenty-seventh day of April, 2020, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

ALISON DWAN NASH-TROUT
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2025

_____
Notary Public

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

Signed and sealed. Dated 12 day of April, 2021.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
January 31, 2025

_____
Kara Barrow, Secretary

Please direct bond verifications to surety@intactinsurance.com

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

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

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

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

does hereby continue said bond in force for the further period

beginning on 06/30/2021
(MONTH-DAY-YEAR)

and ending on 06/30/2023
(MONTH-DAY-YEAR)

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

Description of bond Performance Bond for Water Well Contractors

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

Signed and dated on April 12th , 2021
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By Andrew P. Larsen
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.
Agent

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

425-709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

APPENDIX C

Geologic and Hydrogeologic Report (Golder 2018)

GEOLOGIC AND HYDROGEOLOGIC REPORT

PLANT WANSLEY

CARROLL COUNTY, GEORGIA

FOR

Georgia Power

NOVEMBER 2018

GOLDER

Ta□□□ □□C□□□□□□□

□□□ **INTROD□CTION**

□□□ **□□C□GRO□ND IN□ORM□TION**

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□□□ **SITE GEO□OGIC CONDITIONS**

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□□□ **RE□ERENCES**

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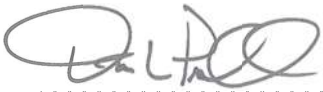

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Photograph showing exposure of Quartzite Layer at Plant Wansley

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Photograph showing the exposure of Long Island Creek Gneiss at Plant Wansley (this is the pavement-looking outcrop)

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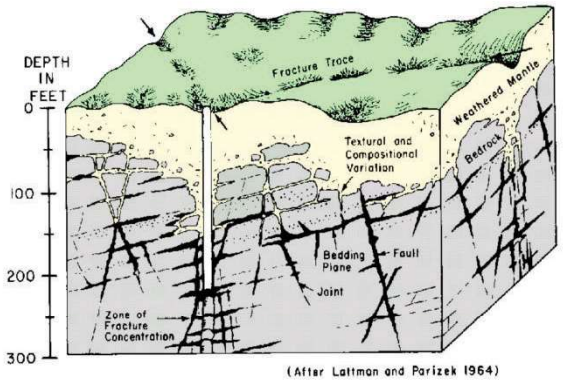

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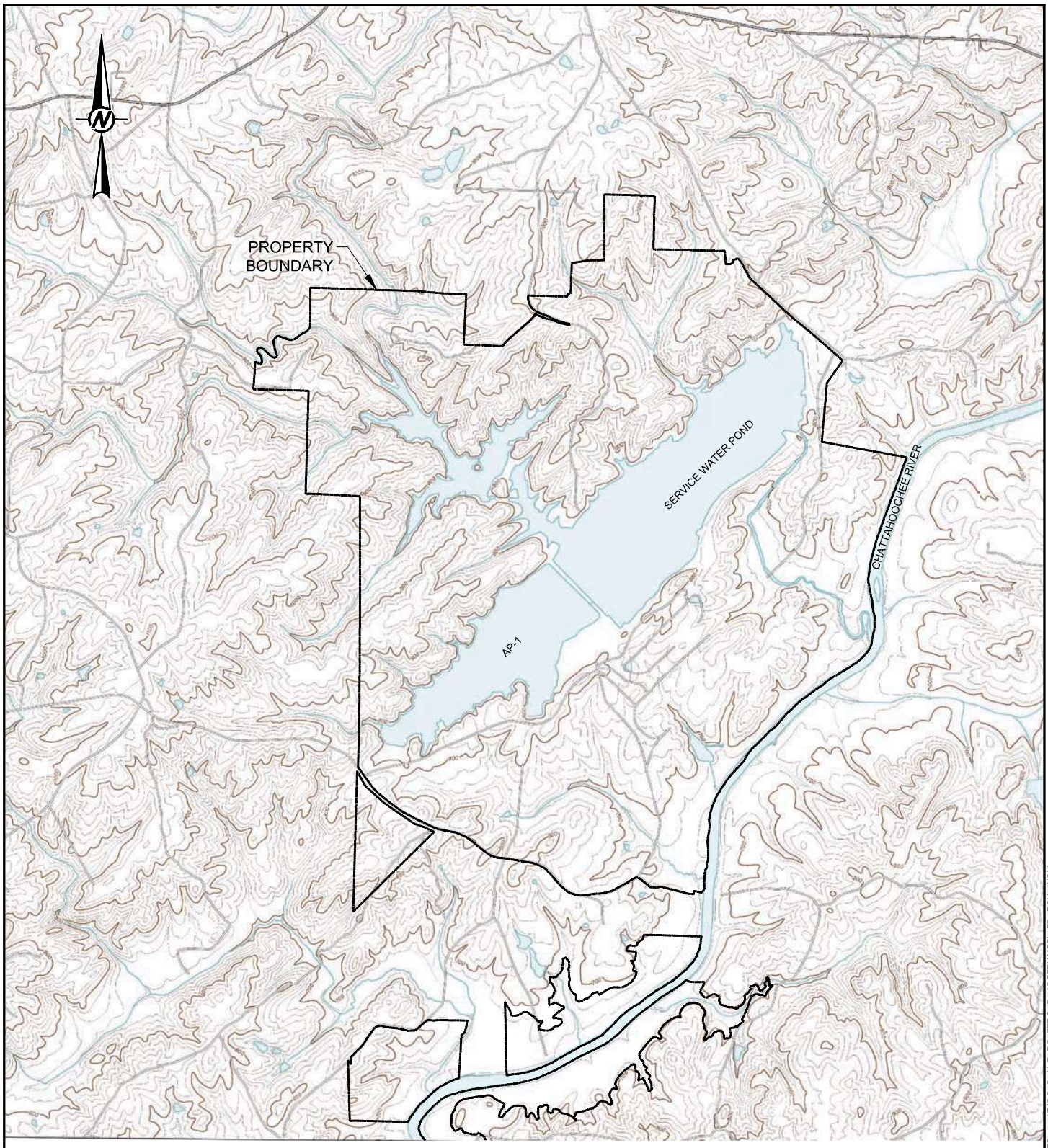
□□□□r□ □ **C□□ □□r□□□□ □□M□□□□r□d D□□□□□□□□□□□ □□d □□□□□ □□□**

□□□□r□ □ □□□r□□r□ □□□□□□□□□□ □□□□□□ □r□ S□r□□□ M□□



RE□ERENCES

USGS □.5 MINUTE □UADRANGLE, LO□ ELL, 2011.

□EGEND

PROPERTY BOUNDARY

0 2000 □000

1□□ □000□ □EET

CLIENT

G□□r□a P□□□r

CONSULTANT

GOLDER

YYYY□MM□DD	201□11□0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

PRO□ECT

GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE

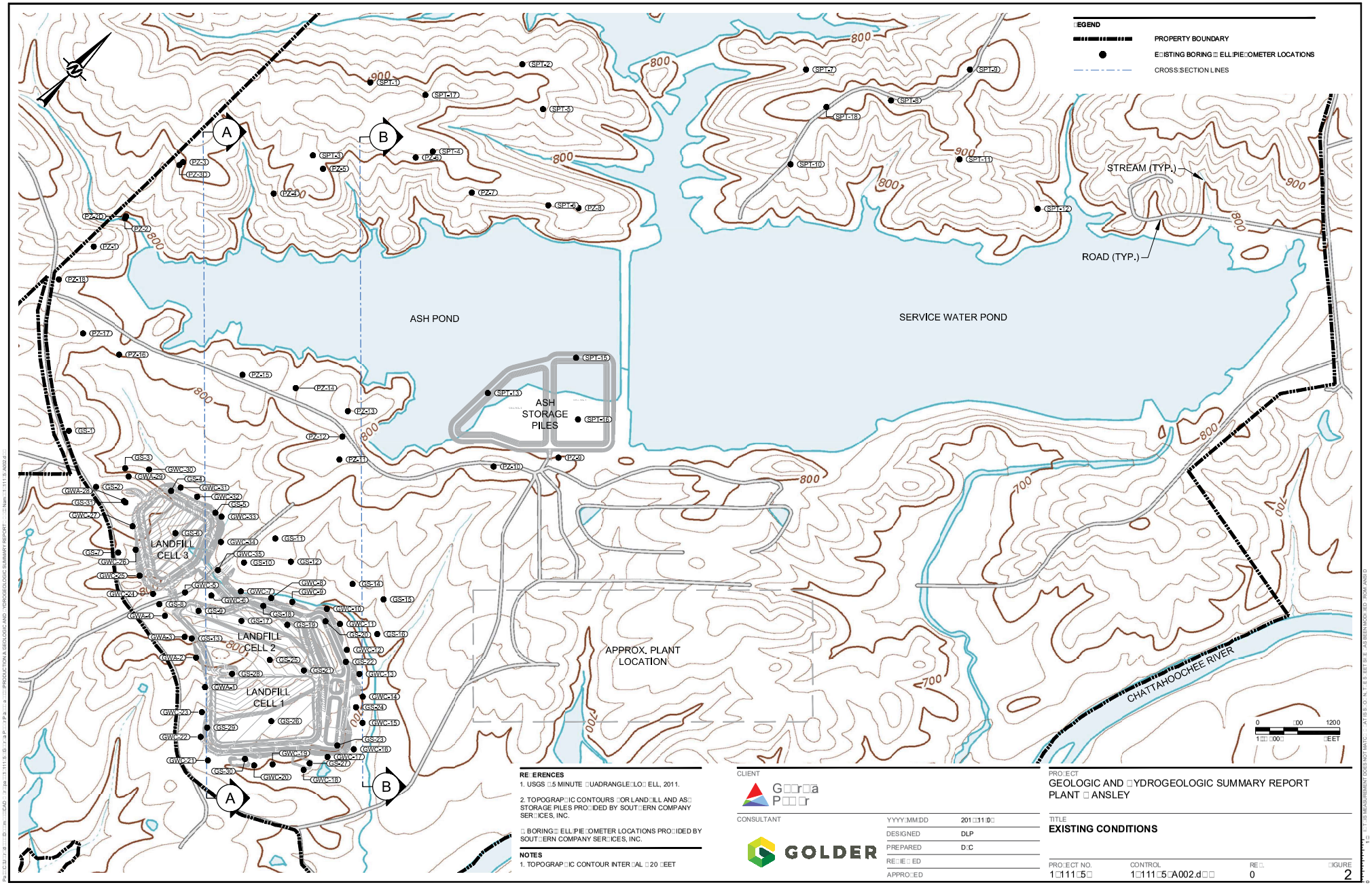
SITE □OC□TION M□□

PRO□ECT NO.	CONTROL	RE□.	□IGURE
1□111□5□	1□111□5□A001.d□□	0	1

Pa□C□U□r□d□□□D□□m□□□CAD □□r□pa□□1□111□5□G□□r□a P□□r□Pa□□ a□□□PRODUCTION□A□GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT□ □□□Nam□□1□111□5□A001.d□□

I□T□IS MEASUREMENT DOES NOT MATC□ □AT IS S□O□N, T□E S□EET SI□E □AS BEEN MODI□IED □ROM□ANSI A

1□ 0



REFERENCES

1. USGS 7.5 MINUTE QUADRANGLE LOCALE, 2011.

2. TOPOGRAPHIC CONTOURS FOR LANDFILL AND ASH STORAGE PILES PROVIDED BY SOUTHERN COMPANY SERVICES, INC.

3. BORING & PIEZOMETER LOCATIONS PROVIDED BY SOUTHERN COMPANY SERVICES, INC.

NOTES

1. TOPOGRAPHIC CONTOUR INTERVAL 20 FEET

CLIENT

Georgia Power

CONSULTANT

GOLDER

YYYY-MM-DD	2011-10-05
DESIGNED	DLP
PREPARED	DJC
REVIEWED	
APPROVED	

PROJECT

GEOLOGIC AND HYDROGEOLOGIC SUMMARY REPORT
PLANT HANSLEY

TITLE

EXISTING CONDITIONS

PROJECT NO.	CONTROL	REV.	FIGURE
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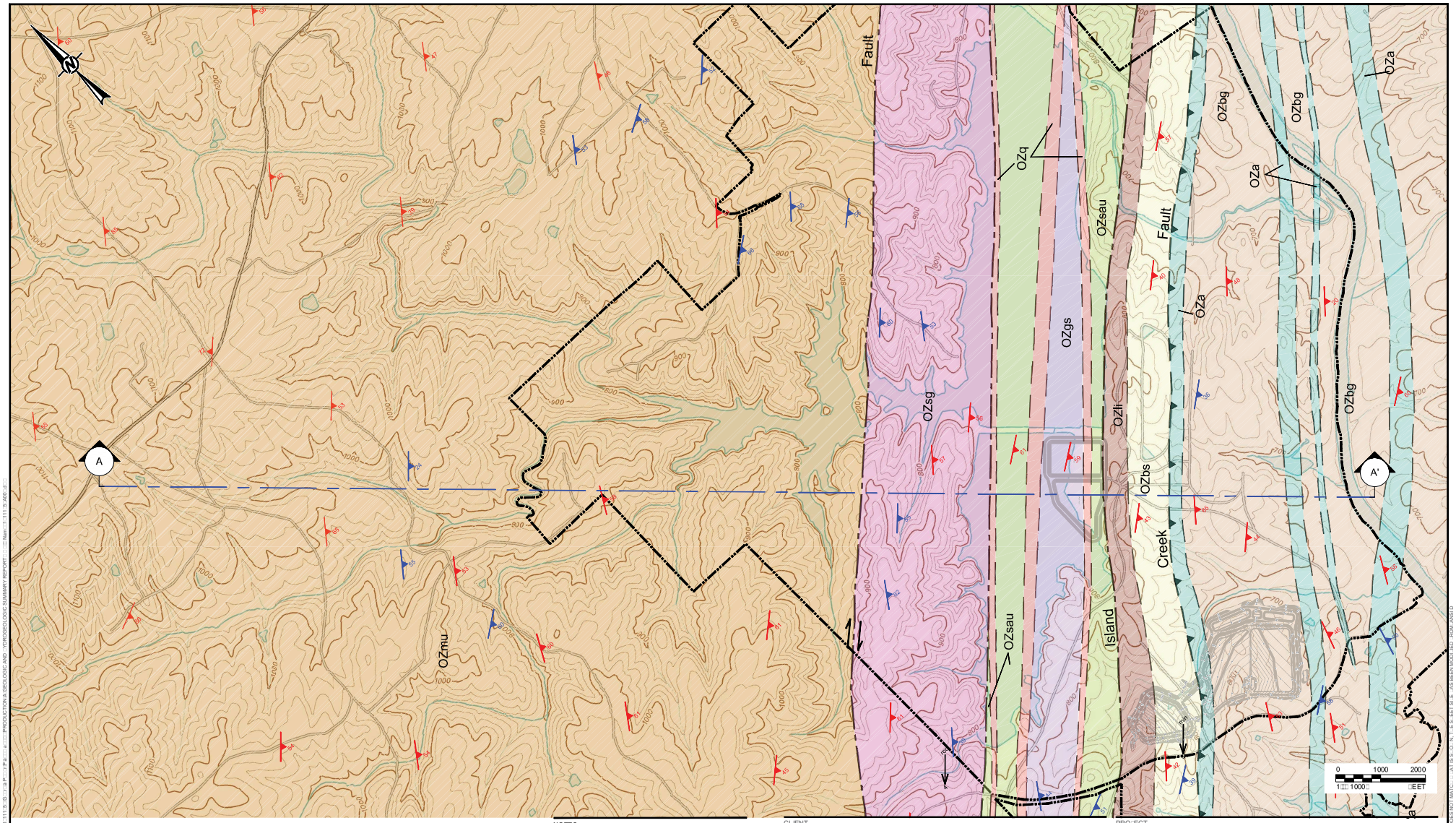


NOTES

1. GEOLOGIC MAPPING AND CROSS SECTION COMPLETED BY PETROLOGIC SOLUTIONS, INC. (2015)

CLIENT

G□□r□a P□□ □r

CONSULTANT

GOLDER

YYYY.MM.DD	201□.11.0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

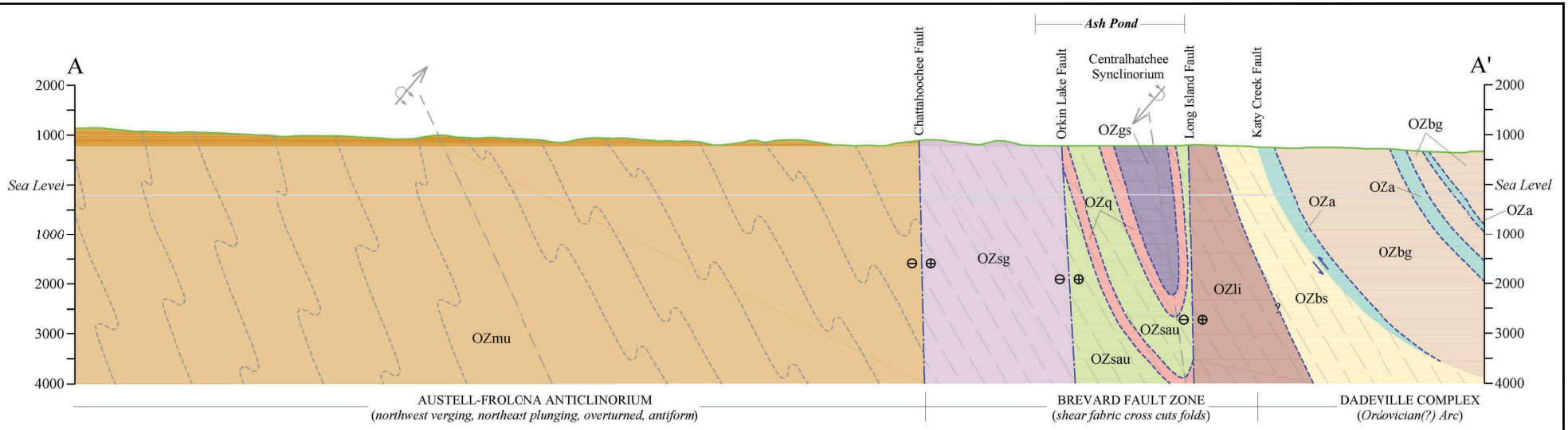
PRO□ECT

GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE

GEO□OGIC M□□ □ND SC□EM□TIC CROSS SECTION
(FIGURE 1 OF 2)

PRO□ECT NO.	CONTROL	RE□.	□IGURE
1□111□5□	1□111□5□A00□d□□	0	□1



NOT TO SCALE

NOTES

1. GEOLOGIC MAPPING AND CROSS SECTION COMPLETED BY PETROLOGIC SOLUTIONS, INC. (2015)

CLIENT

G□□r□a P□□ □r

CONSULTANT

GOLDER

YYYY□MM□DD	201□□11□0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

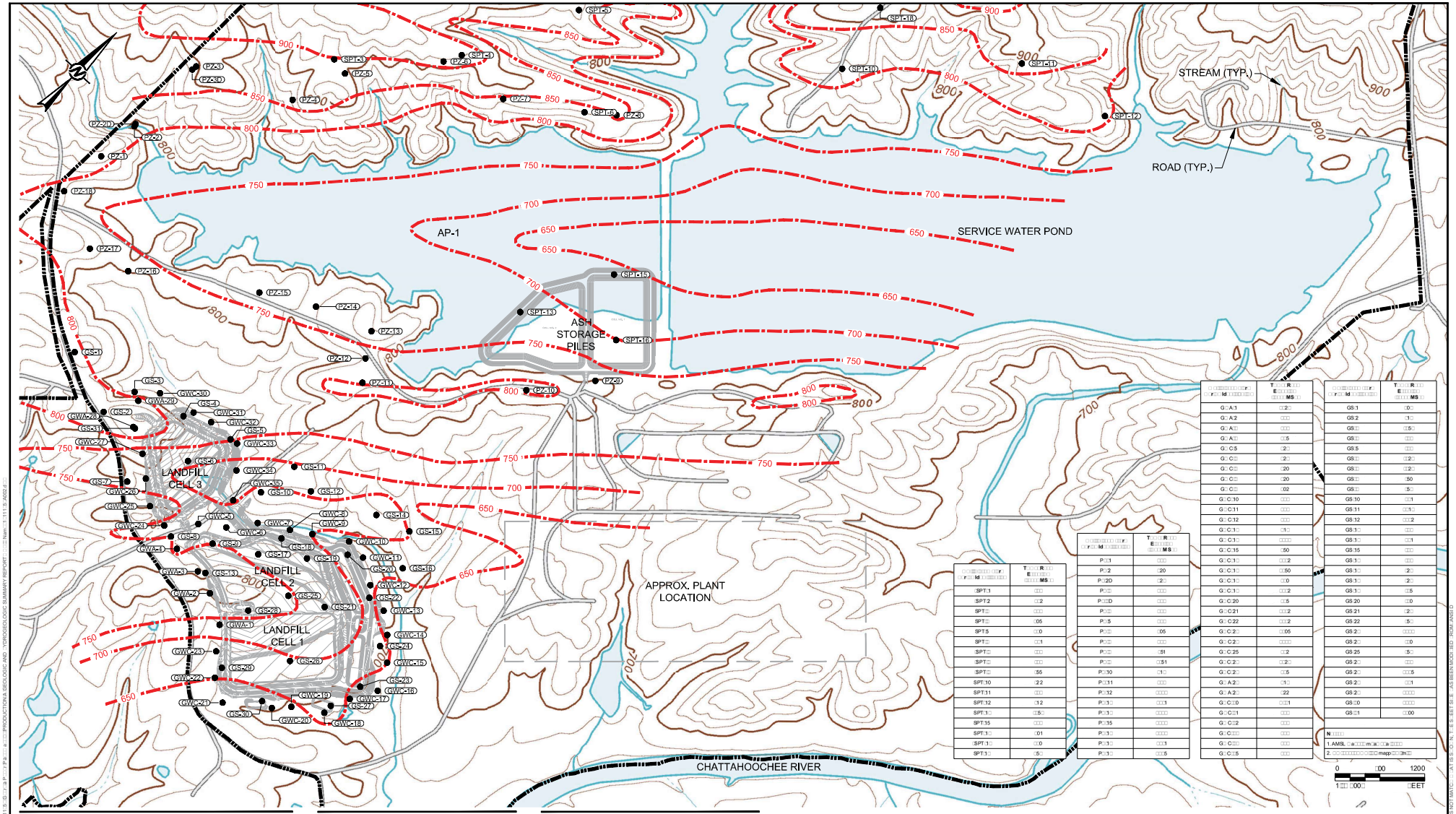
PRO□ECT

GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE

GEO□OGIC M□□ □ND SC□EM□TIC CROSS SECTION
(FIGURE 2 OF 2)

PRO□ECT NO.	CONTROL	RE□.	□IGURE
1□111□5□	1□111□5□A00□d□□	0	□2



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P[illegible]1	[illegible]
P[illegible]2	[illegible]20
P[illegible]2D	[illegible]2[illegible]
P[illegible]	[illegible]
P[illegible]D	[illegible]
P[illegible]	[illegible]
P[illegible]5	[illegible]
P[illegible]	[illegible]05
P[illegible]	[illegible]
P[illegible]	[illegible]51
P[illegible]10	[illegible]1[illegible]
P[illegible]11	[illegible]
P[illegible]12	[illegible]
P[illegible]1[illegible]	[illegible]1
P[illegible]1[illegible]	[illegible]
P[illegible]15	[illegible]
P[illegible]1[illegible]	[illegible]
P[illegible]1[illegible]	[illegible]1
P[illegible]1[illegible]	[illegible]5

[illegible]	T[illegible] E[illegible] [illegible] MS[illegible]
G[illegible]A-1	[illegible]2[illegible]
G[illegible] A-2	[illegible]
G[illegible] A[illegible]	[illegible]
G[illegible] A[illegible]	[illegible]5
G[illegible] C-5	[illegible]2[illegible]
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G[illegible] C[illegible]	[illegible]20
G[illegible] C[illegible]	[illegible]20
G[illegible] C[illegible]	[illegible]02
G[illegible] C-10	[illegible]
G[illegible] C-11	[illegible]
G[illegible] C-12	[illegible]
G[illegible] C[illegible]	[illegible]1[illegible]
G[illegible] C[illegible]	[illegible]
G[illegible] C-15	[illegible]50
G[illegible] C[illegible]	[illegible]2
G[illegible] C[illegible]	[illegible]50
G[illegible] C[illegible]	[illegible]0
G[illegible] C[illegible]	[illegible]2
G[illegible] C-20	[illegible]5
G[illegible] C-21	[illegible]2
G[illegible] C-22	[illegible]2
G[illegible] C-23	[illegible]05
G[illegible] C-24	[illegible]
G[illegible] C-25	[illegible]2
G[illegible] C-26	[illegible]2[illegible]
G[illegible] C-27	[illegible]5
G[illegible] A-28	[illegible]1[illegible]
G[illegible] A-29	[illegible]22
G[illegible] C-30	[illegible]1
G[illegible] C-31	[illegible]
G[illegible] C-32	[illegible]
G[illegible] C-33	[illegible]5

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GS-2	[illegible]1[illegible]
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GS-4[illegible]	[illegible]
GS-5	[illegible]
GS-6[illegible]	[illegible]2[illegible]
GS-7[illegible]	[illegible]2[illegible]
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GS-9[illegible]	[illegible]5[illegible]
GS-10	[illegible]1
GS-11	[illegible]1[illegible]
GS-12	[illegible]2
GS-13[illegible]	[illegible]
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GS-15[illegible]	[illegible]
GS-16[illegible]	[illegible]
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GS-18[illegible]	[illegible]2[illegible]
GS-19[illegible]	[illegible]5
GS-20	[illegible]0
GS-21	[illegible]2[illegible]
GS-22	[illegible]5[illegible]
GS-23[illegible]	[illegible]
GS-24[illegible]	[illegible]0
GS-25	[illegible]5[illegible]
GS-26[illegible]	[illegible]
GS-27[illegible]	[illegible]1
GS-28[illegible]	[illegible]
GS-29[illegible]	[illegible]
GS-30	[illegible]00

N[illegible]

1. AMSL [illegible]e[illegible]m[illegible]a[illegible]a [illegible]
2. [illegible] mapp[illegible]m[illegible]

0 [illegible]00 1200
1[illegible] [illegible]00[illegible] [illegible]EET

[illegible]EGEND

- PROPERTY BOUNDARY
- ESTIMATED TOP O[illegible] ROC[illegible] SUR[illegible]ACE CONTOUR ([illegible]MSL)
- E[illegible]ISTING BORING[illegible] ELL[illegible]PIE[illegible]OMETER LOCATIONS

NOTES

1. TOPOGRAP[illegible]IC CONTOUR INTER[illegible]AL [illegible]20 [illegible]EET
2. TOP O[illegible] ROC[illegible] SUR[illegible]ACE CONTOUR INTER[illegible]AL [illegible]50 [illegible]EET

RE[illegible]ERENCES

1. USGS [illegible]5 MINUTE [illegible]UADRANGLE[illegible]LO[illegible] ELL, 2011.
2. TOPOGRAP[illegible]IC CONTOURS [illegible]OR LAND[illegible]ILL AND AS[illegible] STORAGE PILES PRO[illegible]IDED BY SOUT[illegible]ERN COMPANY SER[illegible]ICES, INC.

[illegible] BORING[illegible] ELL[illegible]PIE[illegible]OMETER LOCATIONS PRO[illegible]IDED BY SOUT[illegible]ERN COMPANY SER[illegible]ICES, INC.

CLIENT
G[illegible]r[illegible]a P[illegible]r

CONSULTANT
GOLDER

YYYY[illegible]MM[illegible]DD	201[illegible]11[illegible]0[illegible]
DESIGNED	DLP
PREPARED	D[illegible]C
RE[illegible]IE[illegible] ED	DLP
APPRO[illegible]ED	RP[illegible]

PRO[illegible]ECT
GEOLOGIC AND [illegible]YDROGEOLOGIC SUMMARY REPORT
PLANT [illegible] ANSLEY

TITLE
ESTIM[illegible]TED TO[illegible] O[illegible] ROC[illegible] M[illegible][illegible]

PRO[illegible]ECT NO.	CONTROL	RE[illegible].	[illegible]IGURE
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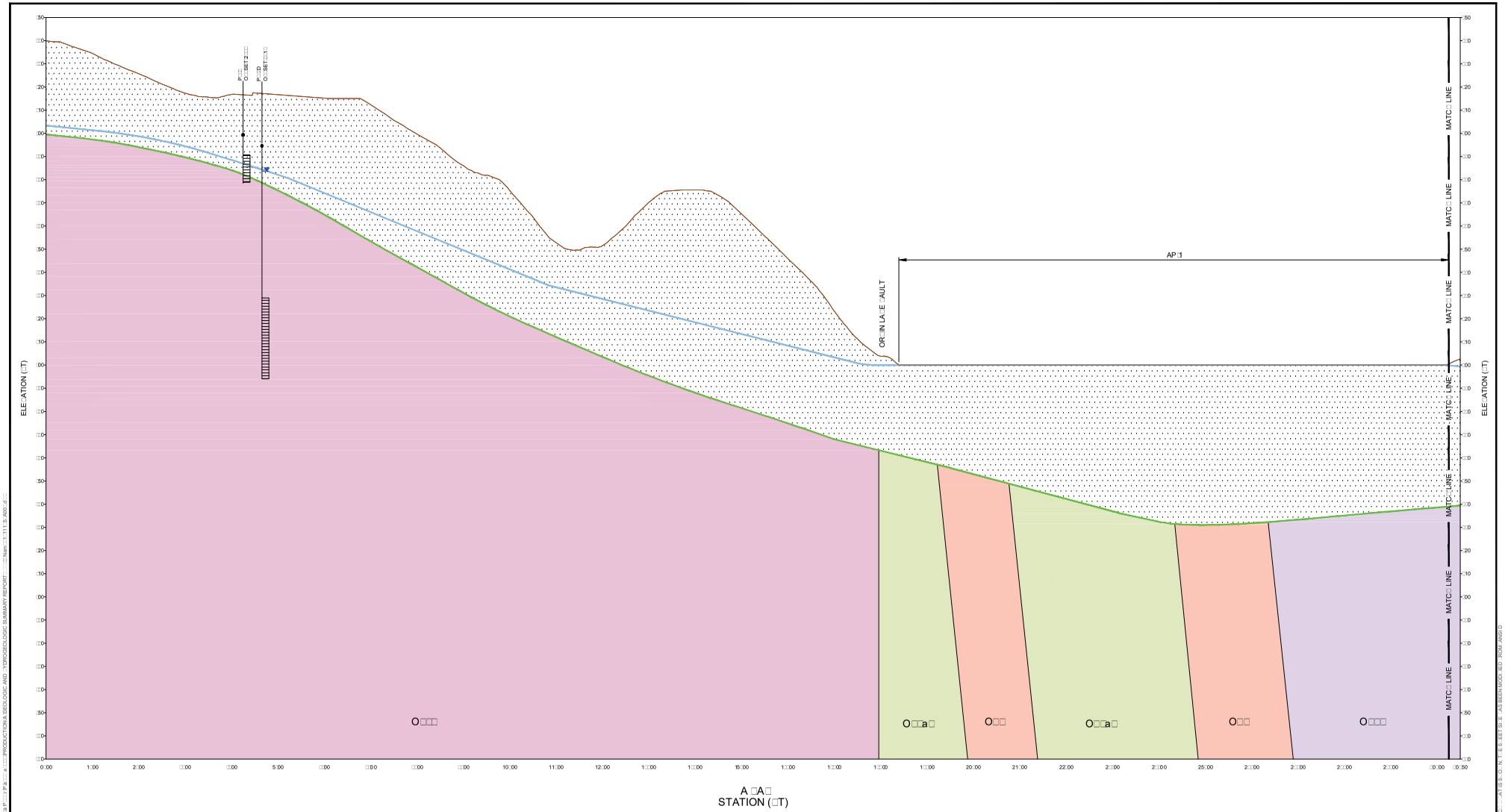

□EGEND

- E□ISTING GRADE
- ESTIMATED GROUND□ ATER SUR□ACE (2:1 □15)
- ESTIMATED TOP O□ ROC□ SUR□ACE
- O□ERBURDEN/RESIDUUM

RE□ERENCES

1. E□ISTING GRADE □ROM USGS □.5 MINUTE □ UADRANGLE□LO□ ELL, 2011.

2. BORING□ ELL□PIE□OMETER LOCATIONS AND ELE□ATIONS PRO□IDED BY SOUT□ERN COMPANY SER□ICES, INC.

□. GEOLOGIC UNITS TA□EN □ROM MAPPING COMPLETED BY PETROLOGIC SOLUTIONS, INC. IN 2015.

0 100 200
1□□ 100 □ □EET
5□ □ERTICAL E□AGGERATION

CLIENT
G□□r□a P□□ □r

CONSULTANT
GOLDER

YYYY□MM□DD	201□□11□0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

PRO□ECT
GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE
GEO□OGIC CROSS SECTIONS SC□EM□TIC
(FIGURE 1 OF 6)

PRO□ECT NO.	CONTROL	RE□	□IGURE
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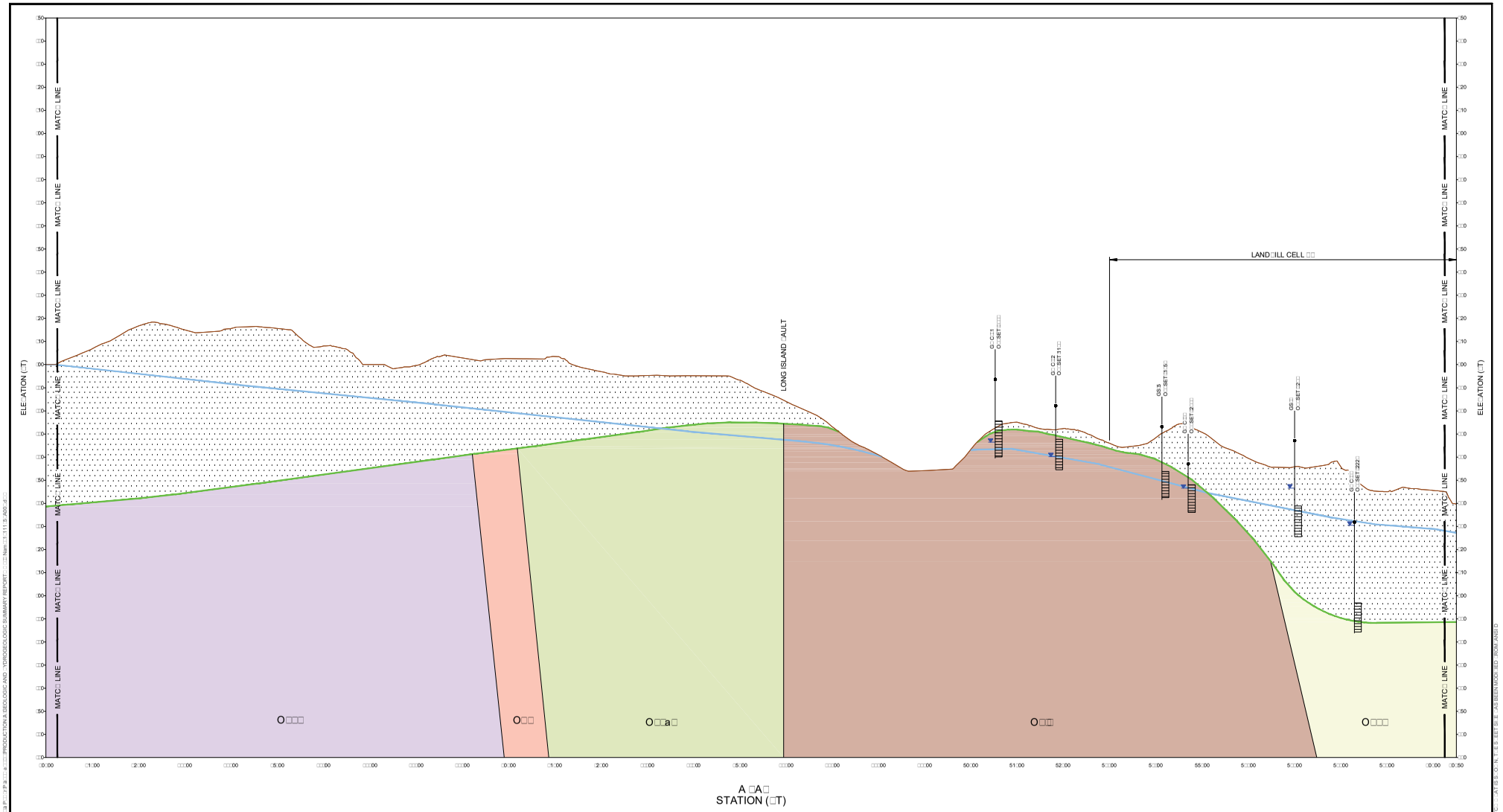


□EGEND

- E□ISTING GRADE
- ESTIMATED GROUND□ ATER SUR□ACE (2:1□15)
- ESTIMATED TOP O□ ROC□ SUR□ACE
- O□ERBURDEN/RESIDUUM

RE□ERENCES

1. E□ISTING GRADE □ROM USGS □.5 MINUTE □ UADRANGLE□LO□ ELL, 2011.

2. BORING□ ELL□PIE□OMETER LOCATIONS AND ELE□ATIONS PRO□IDED BY SOUT□ERN COMPANY SER□ICES, INC.

□. GEOLOGIC UNITS TA□EN □ROM MAPPING COMPLETED BY PETROLOGIC SOLUTIONS, INC. IN 2015.

0 100 200
1□□ 100 □EET
5□ □ERTICAL E□AGGERATION

CLIENT
G□□r□a P□□ □r

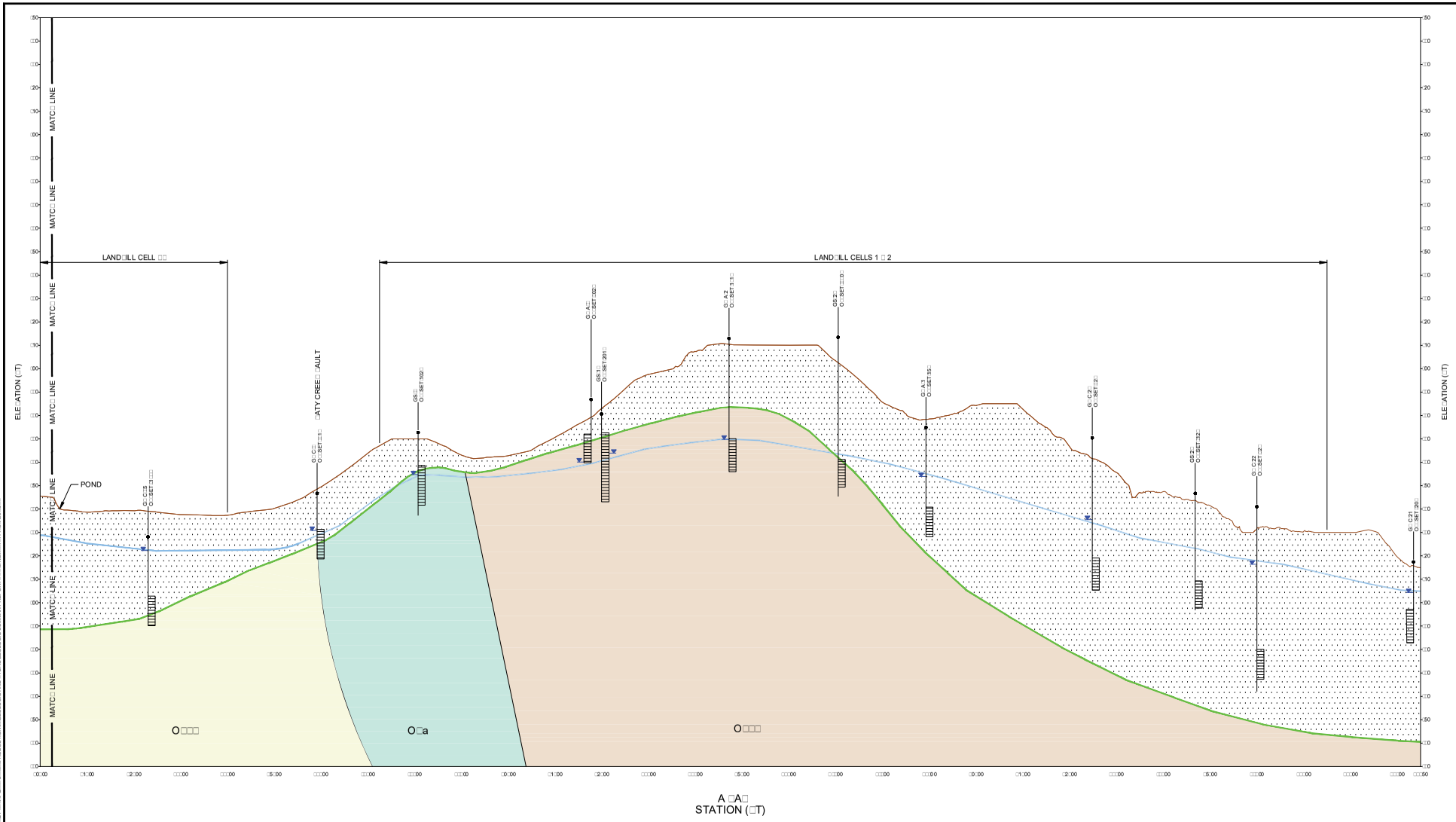
CONSULTANT
GOLDER

YYYY□MM□DD	201□□11□0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

PRO□ECT
GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE
GEO□OGIC CROSS SECTIONS SC□EM□TIC
(FIGURE 2 OF 6)

PRO□ECT NO.	CONTROL	RE□.	□IGURE
1□111□5□	1□111□5□A00□d□□	0	5□2



□EGEND

- E□ISTING GRADE
- ESTIMATED GROUND□ ATER SUR□ACE (2:1 □15)
- ESTIMATED TOP O□ ROC□ SUR□ACE
- O□ERBURDEN/RESIDUUM

RE□ERENCES

1. E□ISTING GRADE □ROM USGS □.5 MINUTE □ UADRANGLE□LO□ ELL, 2011.

2. BORING□ ELL□PIE□OMETER LOCATIONS AND ELE□ATIONS PRO□IDED BY SOUT□ERN COMPANY SER□ICES, INC.

□. GEOLOGIC UNITS TA□EN □ROM MAPPING COMPLETED BY PETROLOGIC SOLUTIONS INC. IN 2015.

0 100 200
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5□ □ERTICAL E□AGGERATION

CLIENT
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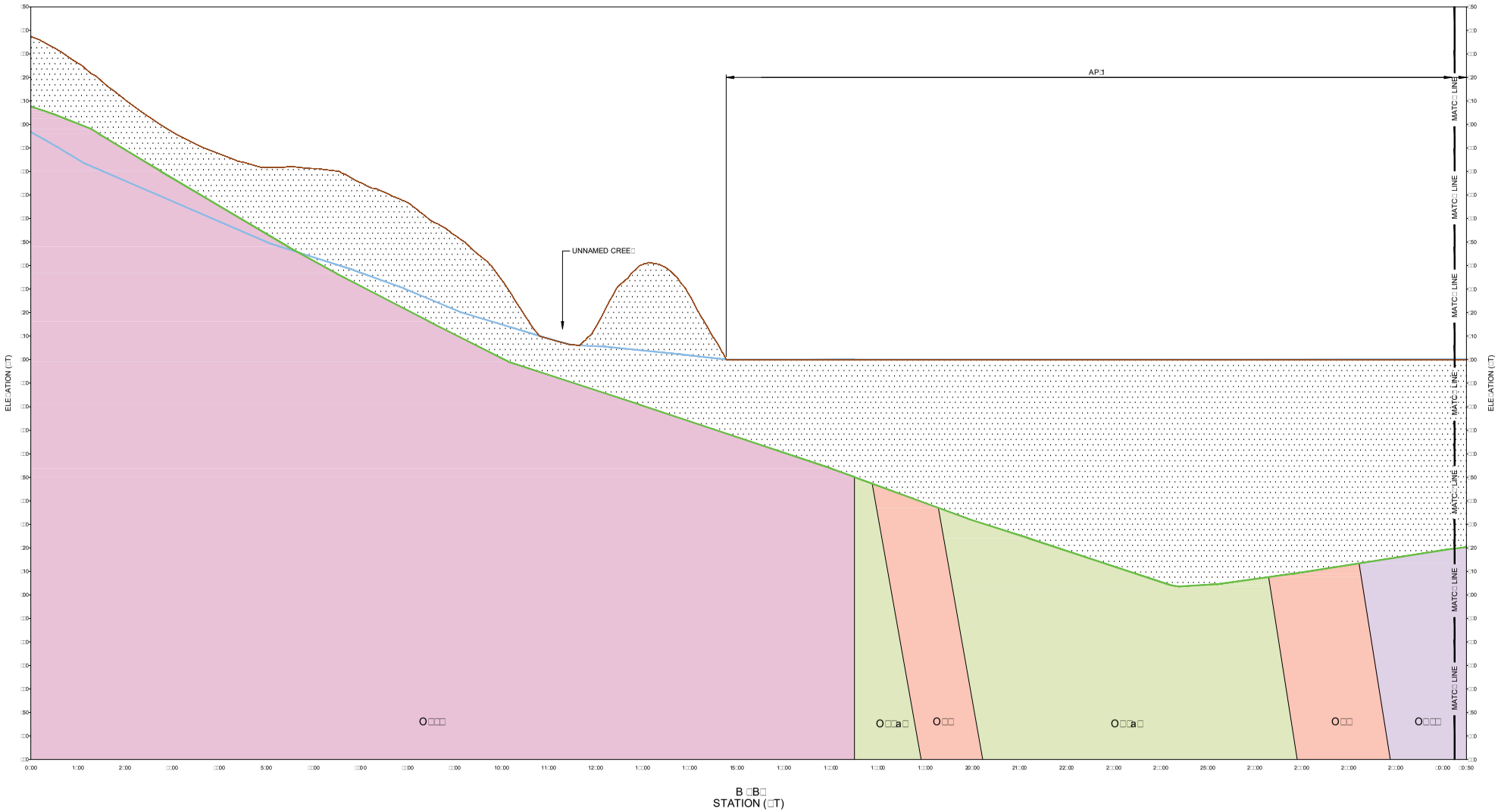
CONSULTANT
GOLDER

YYYY□MM□DD	201□11□0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

PRO□ECT
GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE
GEO□OGIC CROSS SECTIONS SC□EM□TIC
(FIGURE 3 OF 6)

PRO□ECT NO.	CONTROL	RE□	□IGURE
1□111□5□	1□111□5□A00□d□□	0	5□□



□EGEND

- E□ISTING GRADE
- ESTIMATED GROUND□ ATER SUR□ACE (2:1□15)
- ESTIMATED TOP O□ ROC□ SUR□ACE
- O□ERBURDEN/RESIDUUM

RE□ERENCES

1. E□ISTING GRADE □ROM USGS □.5 MINUTE □UADRANGLE□LO□ ELL, 2011.

2. BORING□ ELL/PIE□OMETER LOCATIONS AND ELE□ATIONS PRO□IDED BY SOUT□ERN COMPANY SER□ICES, INC.

□. GEOLOGIC UNITS TA□EN □ROM MAPPING COMPLETED BY PETROLOGIC SOLUTIONS INC. IN 2015.

0 100 200
1□□ 100□ □EET
5□ □ERTICAL E□AGGERATION

CLIENT
G□□r□a P□□□r

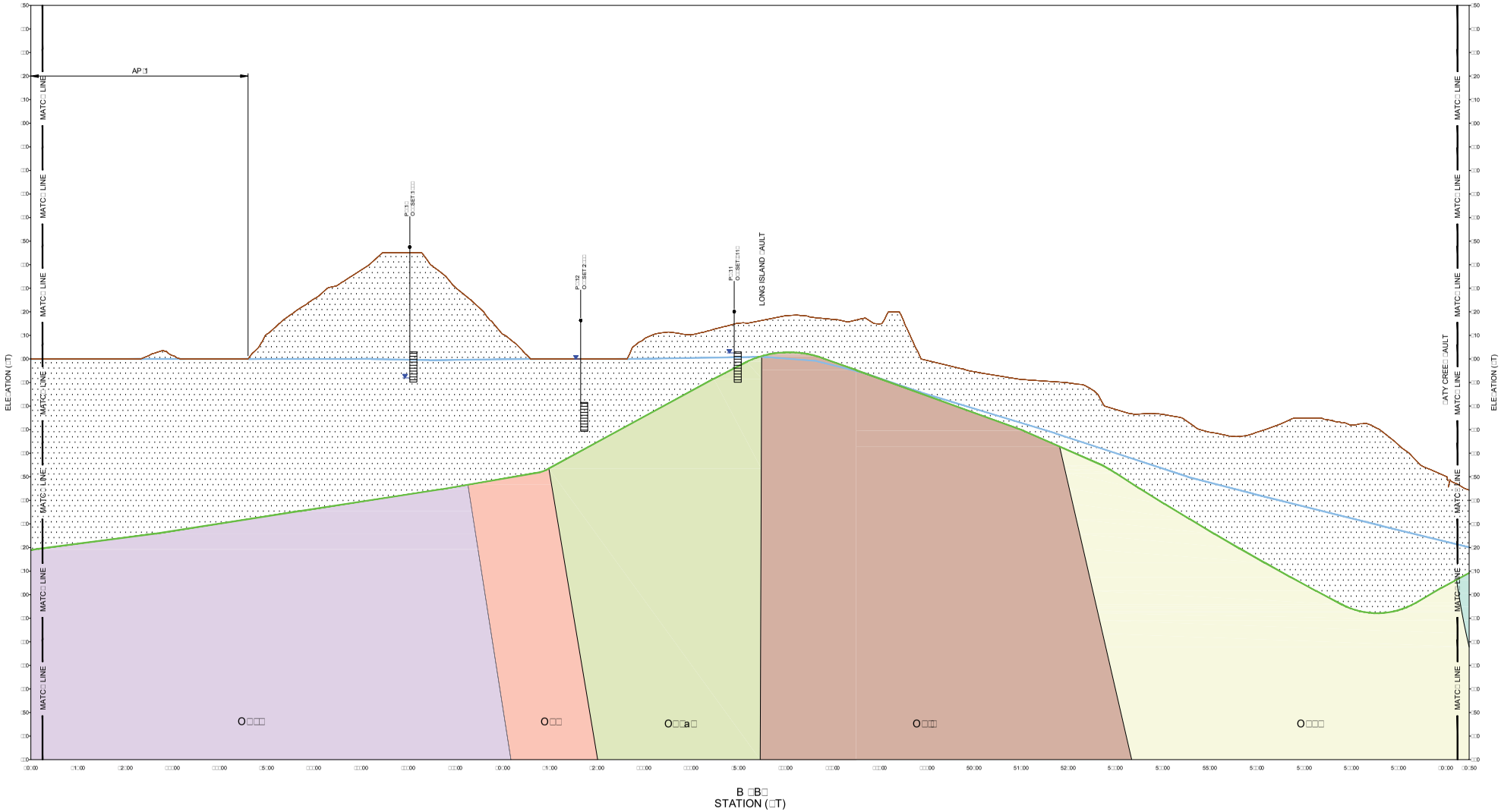
CONSULTANT
GOLDER

YYYY/MM/DD	201□/11/0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

PRO□ECT
GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE
GEO□OGIC CROSS SECTIONS SC□EM□TIC
(FIGURE 4 OF 6)

PRO□ECT NO.	CONTROL	RE□.	□IGURE
1□111□5□	1□111□5□A00□d□□	0	5□□



LEGEND

- EXISTING GRADE
- ESTIMATED GROUND WATER SURFACE (2:1 TO 15)
- ESTIMATED TOP OF ROCK SURFACE
- OVERBURDEN/RESIDUUM

REFERENCES

1. EXISTING GRADE FROM USGS 7.5 MINUTE QUADRANGLE: LOVELL, 2011.

2. BORING, WELL, PIEZOMETER LOCATIONS AND ELEVATIONS PROVIDED BY SOUTHERN COMPANY SERVICES, INC.

3. GEOLOGIC UNITS TAKEN FROM MAPPING COMPLETED BY PETROLOGIC SOLUTIONS INC. IN 2015

0 100 200
1 INCH = 100 FEET
5X VERTICAL EXAGGERATION

CLIENT
Georgia Power

CONSULTANT
GOLDER

YYYY.MM.DD	2011.10
DESIGNED	DLP
PREPARED	DJC
REVIEWED	DLP
APPROVED	RPC

PROJECT
GEOLOGIC AND HYDROGEOLOGIC SUMMARY REPORT
PLANT HANSLEY

TITLE
GEOLOGIC CROSS SECTIONS SCHEMATIC
(FIGURE 5 OF 6)

PROJECT NO.	CONTROL	REV.	FIGURE
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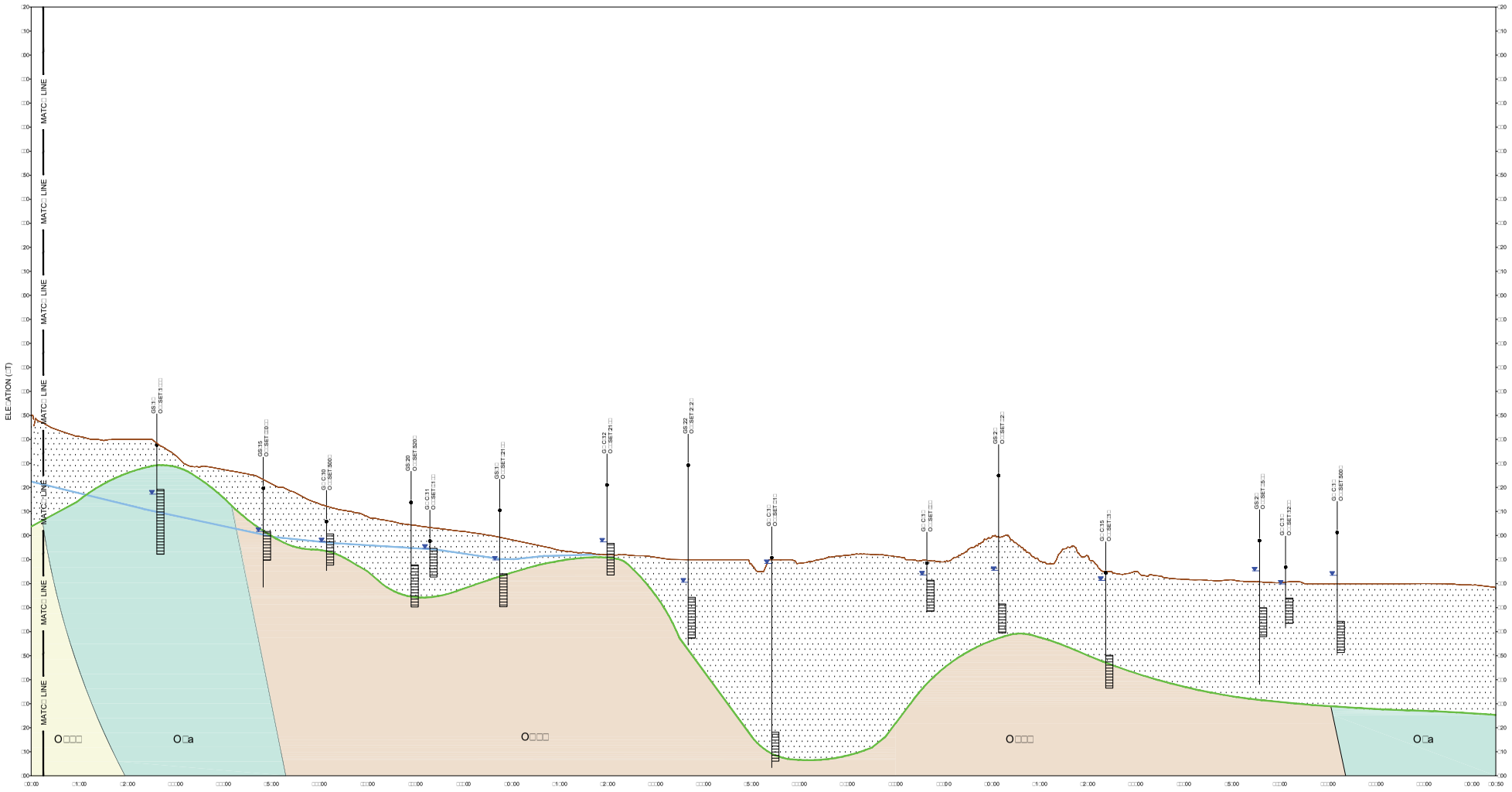

□EGEND

- E□ISTING GRADE
- ESTIMATED GROUND□ ATER SUR□ACE (2:1□15)
- ESTIMATED TOP O□ ROC□ SUR□ACE
- O□ERBURDEN/RESIDUUM

RE□ERENCES

1. E□ISTING GRADE □ROM USGS □.5 MINUTE □ UADRANGLE□LO□ ELL, 2011.

2. BORING□ ELL□PIE□OMETER LOCATIONS AND ELE□ATIONS PRO□IDED BY SOUT□ERN COMPANY SER□ICES, INC.

□. GEOLOGIC UNITS TA□EN □ROM MAPPING COMPLETED BY PETROLOGIC SOLUTIONS INC. IN 2015

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1□□ 100 □EET
5□ □ERTICAL E□AGGERATION

CLIENT
G□□r□a P□□ □r

CONSULTANT
GOLDER

YYYY□MM□DD	201□11□0□
DESIGNED	DLP
PREPARED	D□C
RE□IE□ ED	DLP
APPRO□ED	RP□

PRO□ECT
GEOLOGIC AND □YDROGEOLOGIC SUMMARY REPORT
PLANT □ ANSLEY

TITLE
GEO□OGIC CROSS SECTIONS SC□EM□TIC
(FIGURE 6 OF 6)

PRO□ECT NO.	CONTROL	RE□.	□IGURE
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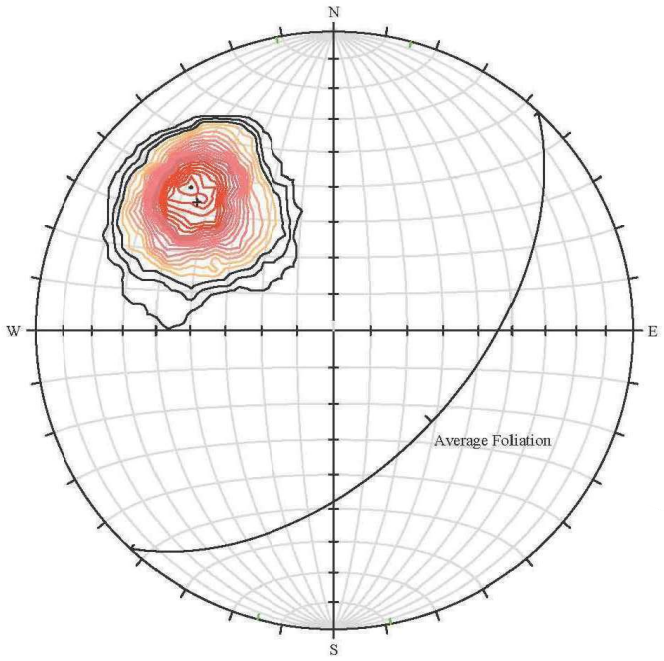

Equal-Area, Lower-Hemisphere, Stereonet of measured Foliation.

Orientations

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1m	N43E 53 SE / 043 / 53

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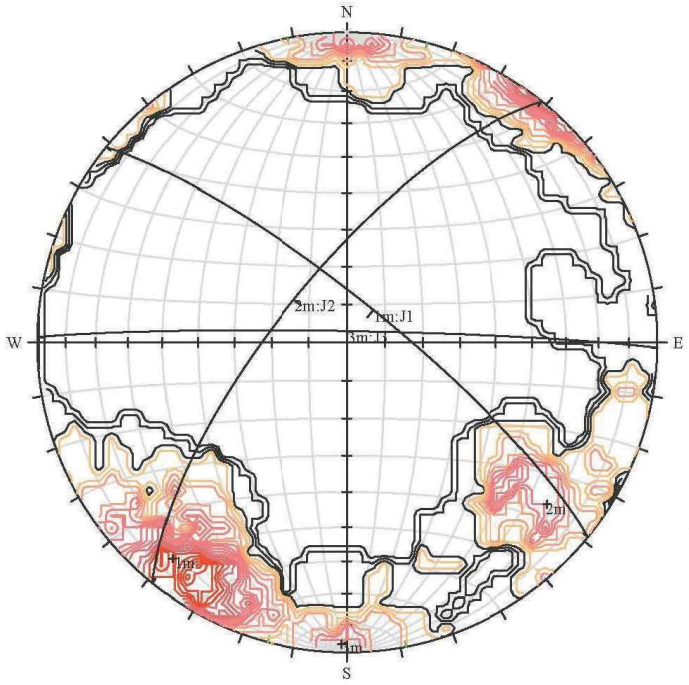
Lower Hemisphere
44 Poles
44 Entries



Equal-Area, Lower-Hemisphere, Stereonet of measured Joints.

Orientations

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1m	N51W 79 NE / 309/79
2m	N39E 72NW / 219/72
3m	N89E 87 NE / 271/87

Equal Area
Lower Hemisphere
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44 Entries

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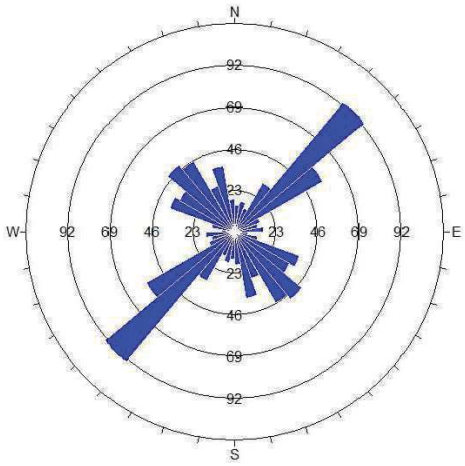

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115 max planes / arc
at outer circle

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Within 45 and 90
Degrees of Viewing
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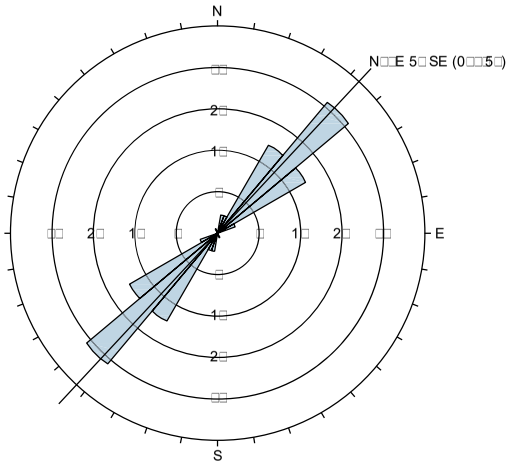
Trend / Plunge of
Face Normal = 0, 90
(directed away from viewer)

No Bias Correction



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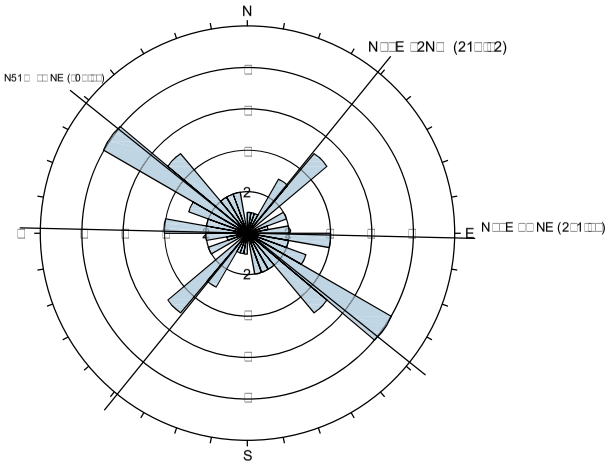
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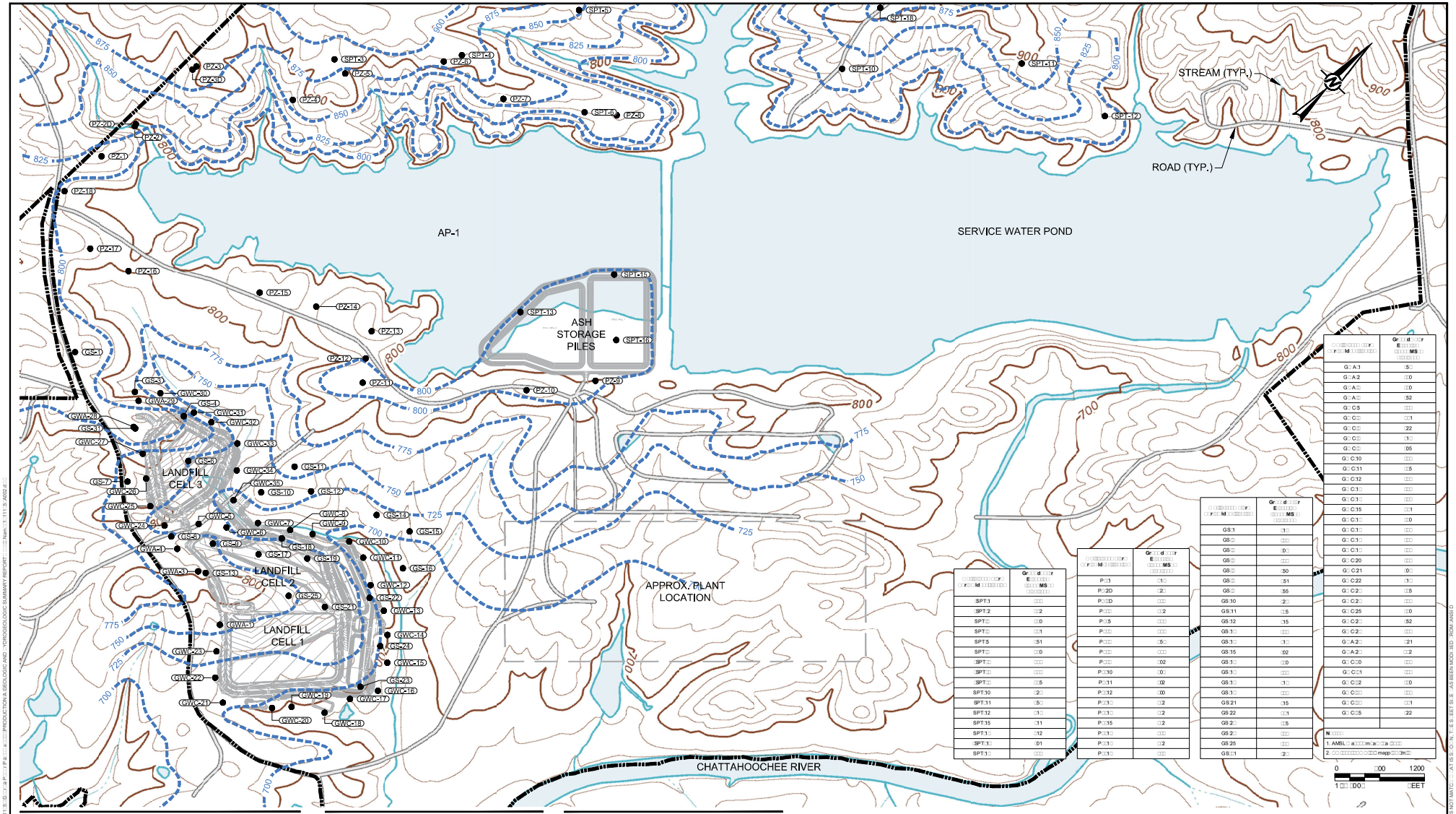

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- PROPERTY BOUNDARY
- ESTIMATED GROUND ATER SURFACE CONTOUR (MSL)
- EISTING BORING ELLPIEOMETER LOCATIONS

NOTES

1. TOPOGRAPIC CONTOUR INTERAL 20 EET
2. GROUND ATER SURACE CONTOUR INTERAL 25 EET
3. GROUND ATER ELEATIONS MEASURED ON 02120215.
4. GROUND ATER CONTOURS BASED ON LINEAR INTERPOLATION BET EEN AND ETRAPOLATION ROM NO N DATA, TOPOGRAPIC CONTOURS, AND NO N IELD CONDITIONS, TERE ORE, GROUND ATER CONTOURS MAY NOT RELECT ACTUAL CONTOURS.

REERENCES

1. USGS 5 MINUTE UADRANGLELO ELL, 2011.
2. TOPOGRAPIC CONTOURS OR LANDILL AND AS STORAGE PILES PROIDED BY SOUERN COMPANY SERICES, INC.
3. BORING ELLPIEOMETER LOCATIONS PROIDED BY SOUERN COMPANY SERICES, INC.

CLIENT: Georgia Power

CONSULTANT: GOLDER

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GOLDER

APPENDIX D

Geophysical Investigation Reports

SPOTLIGHT
GEOPHYSICAL SERVICES

Technical Report

Geophysical Survey for Ash and Rock Mapping
Plant Wansley
Heard County, Georgia

for

Southern Company Services, Inc.
Birmingham, Alabama

May 31, 2016

Southern Company Purchase Order: SCS10330541
Task Authorization: TA-105
MSA Contract No. 39741
MWO/EWO: ECS38199
SGS Project No.: 2016311

Spotlight Geophysical Services, LLC - 4618 NW 96th Avenue, Doral, FL 33178
Ph: (305) 607-2377 Email: info@spotlightgeo.com Web: www.spotlightgeo.com

CERTIFICATION

I hereby certify that this document has been prepared in accordance with generally accepted geophysical exploration and interpretation practices.

Authored by:

Ronald Kaufmann
President
Licensed Professional Geophysicist - California #1071

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BACKGROUND

Southern Company Services, Inc. (SCS) is investigating subsurface conditions at Georgia Power Plant Wansley in Heard County, Georgia. Specifically, there is a need to assess the ash thickness and top of rock depth within a large ash pond. The ash lies on variably thick clay over hard rock.

Spotlight Geophysical Services (SGS) carried out sub-bottom profiling (SBP) and seismic refraction surveys to assess the ash thickness and top of rock. SBP and seismic refraction are non-invasive geophysical methods that provide much greater spatial coverage than borings alone. The SBP data is used to map the depth and thickness of the ash, while seismic refraction data is used to map the top of rock and to assess its hardness. Fieldwork was conducted between April 26th and 29th, 2016.

TECHNICAL APPROACH

SURVEY AREAS

Sub-bottom profiling (SBP) data were acquired within water-covered areas of the ash pond, covering approximately 208 acres (Figure 1). Data were not acquired in the dry gypsum cell areas or ash delta areas, portions of which have expanded since the aerial photo was taken (Figure 1). Data were nominally acquired along survey lines spaced 50 feet apart in one direction and 400 feet apart in the perpendicular direction (Figure 1). The positions of the geophysical transect lines were recorded with the SBP data using a Trimble GeoXH differential Global Positioning System (GPS) with an external Tornado antenna.

Seismic refraction data were acquired along four profile lines that have a total length of 11,800 linear-feet (Figure 1). Stations along each of the survey lines are referenced to distance in feet from the southern end of the survey lines. A Trimble ProXT differential GPS was used to provide the geographic locations of the survey lines in Georgia State Plane (west) coordinates (NAD-83). Table 1 lists the survey line lengths and geographic control points. Note that Line 3 turns slightly at Station 2600 to avoid the dry ash delta.

Table 1. Seismic Refraction Survey Line Locations

Survey Line	Line Length (ft)	Geographic Control Point	Geographic Control Point
1	3600	Sta 0 2025789E, 1241583N	Sta 3600 2026987E, 1244978N
2	3600	Sta 0 2026091E, 1241748N	Sta 3600 2027316E, 1245133N
3	3600	Sta 0 2026447E, 1241847N	Sta 2600 2027300E, 1244303N Sta 3600 2027543E, 1245248N
4	1000	Sta 0 2027137E, 1243052N	Sta 1000 2027470E, 1243995N

SUB-BOTTOM PROFILING

Sub-bottom seismic reflection profiling (SBP) uses acoustic energy to penetrate the bottom and reflect back from geologic strata. Reflections may occur at stratigraphic interfaces (including the interface between ash and clay) as well as at structural features such as faults and fractures. The reflected signals produce a continuous cross-sectional image of subsurface conditions.

Field Procedures

SGS partnered with GeoView, Inc. to provide the SBP survey. An Edgetech 3100 system with a 216 towfish was used to acquire the SBP data. The Edgetech system is a full-spectrum CHIRP imaging system, using a frequency range of 2-16 kHz. The sensor was mounted on the side of a 17-foot Skiff at a depth of 2.5 feet (Figure 2). Data could not be collected in areas with less than 2 feet of water. Acquisition gains were optimized to adequately image the water bottom and ash bottom. Data were recorded at a high sample rate (essentially continuous profiling) along each of the survey lines.

Data Processing

The data were processed using Hypack and Edgetech sub-bottom seismic processing software. A sound velocity of 4,920 ft/sec was used to convert travel-time to depth based upon a standard velocity of sound in fresh water. The water surface elevation was 794 feet at the time of the survey as measured at the gauge located in the southwestern corner of the pond. The data were corrected for elevation and instrumentation depth. The water bottom and interpreted ash bottom layers were imported into Surfer v. 13 to produce uniform grids (5x5-ft) and contour maps. The interpreted ash thickness was calculated by subtracting the water bottom elevation from the interpreted ash bottom elevation.

Interpretation

An example of the SBP data is shown in Figure 3. The water bottom is evident as the first strong reflection in the cross-sections. A high-amplitude, low-frequency reflection was

interpreted as the interface between the ash and naturally-occurring sediments. This reflection is due to a large acoustic contrast between two stratigraphic layers. Ash is evident as horizontally stratified reflections in the SBP data, while naturally-occurring sediments produce more diffuse reflections with less penetration.

Limitations

The depth of penetration is controlled by the sub-bottom material. Up to 250 feet of penetration can be obtained in soft, fine-grained sediments, while much less penetration can occur in coarse-grained sands and gravels. Depths are measured directly below the sensor, and interpolation is used when creating plan-view contour maps. *Note that this survey is not meant to be a detailed hydrographic survey of the water bottom, and unidentified water-bottom variations can be present between survey lines. In addition, thin layers of ash (less than 1 ft thick) that were not identified during the survey may be present within other portions of the pond.*

PRECISION AND RESOLUTION

The bathymetry and interpreted ash bottom picks are reported with a precision of 0.1 feet. The vertical resolution of the EdgeTech 3100 SBP is 4-8 inches.

SEISMIC REFRACTION

Seismic refraction is a method used to determine the seismic compression-wave (P-wave) velocity structure of the subsurface (ASTM, 2006). Seismic P-waves are generated at or near the surface, propagate through subsurface materials, and are recorded by geophones or hydrophones at known distances from the source. Since P-waves are the fastest portion of the seismic wave, they represent the first arriving energy at each receiver (either direct or refracted). A seismograph is used to record the travel-times of the first arriving energy, after which subsurface seismic P-wave velocities can be derived. A tomographic inversion is used to develop a 2D P-wave velocity cross-section from the data.

Field Procedures

Seismic refraction data were recorded using a Geometrics Smartseis ST seismograph (S/N 70605) and a 24-channel hydrophone streamer (Figure 2). The hydrophone streamer consists of 24 hydrophones spaced 10 feet apart with a 180-foot source offset between the seismic source and closest hydrophone. The hydrophone streamer was towed approximately 5 feet below the water surface.

A Bolt airgun with a 20 cubic-inch chamber pressurized to 2,000 psi was used as the seismic source. Shots were positioned at 200-foot intervals along the survey lines to provide continuous coverage. Data were acquired in two directions to provide forward and reverse shot points. The data were sampled at a rate of 0.125 ms with a maximum range of 300 ms. The data were saved in SEG-2 format.

Data Processing

The seismic data were analyzed using SeisImager software (v. 2.9.2.6). Seismic data for each shot along the survey lines were optimized by adjusting the gains and applying a frequency filter to remove low-frequency noise. The first-arriving energy within each shot record (either direct or refracted) was identified (Figure 4).

An iterative, least-squares inversion routine was used to provide a tomographic model of P-wave velocity. The inversion routine traces rays between each source-receiver pair through a velocity model, adjusting the model to minimize the difference between the observed and calculated travel times. Model depths were corrected for instrument depth and referenced to the water surface elevation of 794 feet. The modes were gridded and contoured using Surfer v. 13 (Golden Software).

Interpretation

The P-wave velocity cross-sections were assessed for variations in velocity due to stratigraphy. P-wave velocities for saturated sediments and rock vary widely and are dependent on specific lithologies. Table 2 presents a range of P-wave velocities that are typically observed for saturated sediments and rock.

Table 2. P-wave Velocities for Saturated Materials (after Keary and Brooks, 1991)

Saturated Material	P-wave Velocity (ft/s)
Sand	4,900-6,600
Clay	4,900-8,200
Tertiary Sandstone	6,600-8,200
Limestone	6,600-19,700
Granite	18,000-19,700

P-wave velocity is often used to determine the rippability of a subsurface material. Table 3 presents a summary of P-wave velocity and typical rippability of rocks with variable hardness (USDA, 2002). This chart may be used as a general guide to estimate the hardness of the materials from the seismic refraction cross-sections.

Table 3. Rippability of Subsurface Materials

Material	Rippability[1]	P-wave velocity (ft/s)
Very soft to firm cohesive soil or very loose to dense cohesionless soil	Hand tools	<2,000
Stiff cohesive soil or dense cohesionless soil and very soft rock	Power tools	2,000-5,000
Saturated Sand[2]	Easy Ripping	4,000-6,000
Soft through moderately hard rock	Easy ripping	5,000-7,000
Moderately hard to hard rock	Hard ripping	7,000-8,000
Very hard rock	Very hard ripping	8,000-9,000
Extremely hard rock	Extremely hard ripping to blasting	9,000-10,000
Unrippable rock	Blasting	>10,000

[1] *Note that the excavator tooth penetration is often the key to ripping success, regardless of seismic velocity. This is particularly true in homogeneous materials. Low seismic velocities in sedimentary rocks can indicate probable rippability. However, if the fractures and joints do not allow tooth penetration then the material may not be ripped effectively.*

[2] *From ASTM D5777-00*

LAYER INTERPRETATIONS

In this study, saturated, unconsolidated materials (including ash) are interpreted as having P-wave velocities less than 7,000 ft/s. The top of weathered rock (including saprolite where present) is interpreted at the 7,000 ft/s contour interval. This interpretation is based on the tight velocity gradient starting at 7,000 ft/s in the refraction model, indicating a transition to harder materials (rock). *Note that the velocity of the un-weathered, deeper rock is significantly higher than 7,000 ft/s.*

Quality Control

The seismograph, hydrophones, and cables were set-up and operated in accordance with the manufacturer's instructions and ASTM standards (ASTM, 2006). In the field, the data were visually inspected to ensure that the geophones and hydrophones were operating correctly. The raw data were downloaded and backed up to a computer on a daily basis.

Limitations

The refraction method assumes that velocity increases with depth and that the layers must be thick enough and have enough velocity contrast to be resolved. Low-velocity layers beneath high-velocity layers will not be detected and will increase the modeled depth of deeper layers.

DEPTH OF INVESTIGATION

The maximum depth of investigation is limited by the hydrophone cable length, the shot offset distance and the P-wave velocity contrast of the geologic layers. In this study, the maximum depth of investigation is approximately 125 feet below the water surface.

MODEL PRECISION

In the upper 100 feet, the precision in picking stratigraphic boundaries (such as the top of rock) from the P-wave velocity model is estimated to be approximately 10% of the depth. For example, at a depth of 20 feet below the water surface, the top of rock interpretation is estimated to have a precision within 2 feet.

The accuracy of the model is primarily dependent on the noise in the raw data, which can affect the model root-mean-square (RMS) error in the tomographic inversion. The RMS errors are between 0.8 and 1.8 ms, indicating an excellent fit between the modeled velocity and observed data and a low level of noise in the raw data.

RESULTS

Figure 5 shows the bathymetric (pond bottom) map developed from the sub-bottom profiling data. The pond bottom has an elevation of between 732.5 and 792.9 feet within the survey area. Note that the pond bottom is shallower (up to the water surface elevation of 794 feet) in areas outside of the survey area, including areas near the ash delta in the northeast corner of the pond.

Figure 6 shows the ash bottom elevation map interpreted from the sub-bottom profiling data. Note that the ash does not cover the entire pond bottom and was detected in approximately 129 acres of the pond. The southwestern third of the pond appears to be free of ash except for two small pockets as shown in Figure 7. The ash bottom has an elevation of between 709.0 and 782.8 feet within the survey area. The deepest ash bottom is concentrated in the northeastern portion of the pond, adjacent to the ash delta area.

Figure 7 shows the ash thickness contour map interpreted from the sub-bottom profiling data. The ash thickness ranges between 0 and 78.4 feet, with the thickest zone concentrated in the northeastern portion of the pond, adjacent to the ash delta area. Within the 129 acres of the pond where ash was detected, the volume of the ash interpreted from the sub-bottom profiling data is approximately 69,978,000 ft^3 (2,591,780 yd^3). Note that this volume estimate does not include areas outside of the survey area, such as the ash delta area.

Figures 8 and 9 show the seismic refraction P-wave velocity models along Lines 1 to 4. The models contain a thick, low-velocity zone of 5,000 to 5,500 ft/s overlying a generally tight gradient towards much higher velocities. Since saturated ash and naturally-occurring sediments have similar P-wave velocities, the seismic refraction models are not able to resolve the interface between the ash and unconsolidated sediments. However, the large P-wave velocity contrast between the ash (or sediments) and the underlying

rock produces a well-defined gradient in the refraction models. The tight gradient present over much of the survey area indicates that the weathered zone at the top of rock is thin (< 20 feet), possibly due to the excavation of saprolite and loose rock during the pond construction. A thicker velocity gradient is present along the southern and northern edges of Lines 1, 2, and 3, possibly due to a thicker weathered zone at the top of rock (including possible saprolite and hard clay).

The P-wave velocity contour of 7,000 ft/s is interpreted as the top of weathered rock. The interpreted top of weathered rock elevation (based on this velocity contour) ranges between 679.6 and 780.3 feet, with a median elevation of 703.3 feet (Figure 10). The deepest rock is located along the north-central portions of Lines 1, 2, and 3.

The P-wave velocity contour of 10,000 ft/s is interpreted as the top of hard rock. The interpreted top of hard rock elevation (based on this velocity contour) ranges between 670.0 and 762.7 feet, with a median elevation of 688.5 feet (Figure 11). In the small areas where the interpreted top of hard rock is at or near an elevation of 670 feet, it is possible that the top of hard rock lies below the maximum exploration depth of the seismic refraction data. Below the interpreted top of hard rock, the P-wave velocity models have a median value of 14,000 ft/s, which indicates extremely hard rock that is characteristic of granitic or metamorphic rock (ASTM, 2006).

The interpretations of the top of weathered and hard rock are consistent with nearby boring data. Although there are no borings directly within the survey area, nearby borings encountered the top of weathered rock and hard rock near the median elevations interpreted from the seismic refraction models. For example, SPT-15, located approximately 900 feet east of the survey area, encountered the top of hard clay residuum (weathered rock) at an elevation of 698.6 feet and the top of feldspathic quartzite (hard rock) at an elevation of 686.6 feet (SCS, 2015). Additionally, Boring B-3, located approximately 800 feet northeast of the survey area, encountered the top of weathered rock at an elevation of 693.6 feet (Geosyntec, 2016). Borings located northwest of the

survey area encountered much shallower hard rock (SCS, 2015), consistent with the trend towards shallower top of rock interpreted at the northwestern ends of the seismic refraction models (Figures 10 and 11).

CONCLUSIONS

Sub-bottom profiling data and seismic refraction data successfully mapped the ash and characterized the top of rock within the ash pond at Plant Wansley. The following summarizes the primary findings from this geophysical survey.

- Sub-bottom profiling data acquired within 208 acres of the ash pond show the pond bottom elevation between 732.5 and 792.9 feet.
- Ash was detected in 129 acres of the survey area in the sub-bottom profiling data. The interpreted bottom of the ash elevation ranges between 709.0 and 782.8 feet. The majority of the ash is located within the northeastern portion of the survey area. The southwestern third of the pond appears to be free of ash except for two small pockets.
- Within the 129 acres where ash was detected, the interpreted ash thickness ranges between 0 and 78.4 feet, with a total volume of approximately 69,978,000 ft^3 (2,591,780 yd^3). Note that this volume estimate does not include areas outside of the survey area, such as the ash delta area, or thin (<1 ft) surficial layers that were not detectable.
- The interpreted top of weathered rock elevation ranges between 679.6 and 780.3 feet, with a median elevation of 703.3 feet, based on seismic refraction models.
- The interpreted top of hard rock elevation ranges in between 670.0 and 762.7 feet, with a median elevation of 688.5 feet, based on seismic refraction models.
- A tight velocity gradient is present over much of the survey area at the interpreted top of rock, indicating that the weathered zone at the top of rock is thin (< 20 feet), possibly due to the excavation of saprolite and loose rock during the pond construction. A thicker velocity gradient is evident along the edges of the pond, possibly indicating a thicker weathered zone with saprolite or hard clay at these locations.

- Below the interpreted top of hard rock, the P-wave velocity models have a median value of 14,000 ft/s, which indicates extremely hard rock that is characteristic of granitic or metamorphic rock.
- The interpretations of the top of weathered and hard rock are consistent with nearby boring data.

Interpretations from the geophysical data are based on standard practice and professional judgment by experienced geophysicists. However, interpretations from the geophysical data are not confirmed until verified by borings or observations.

REFERENCES

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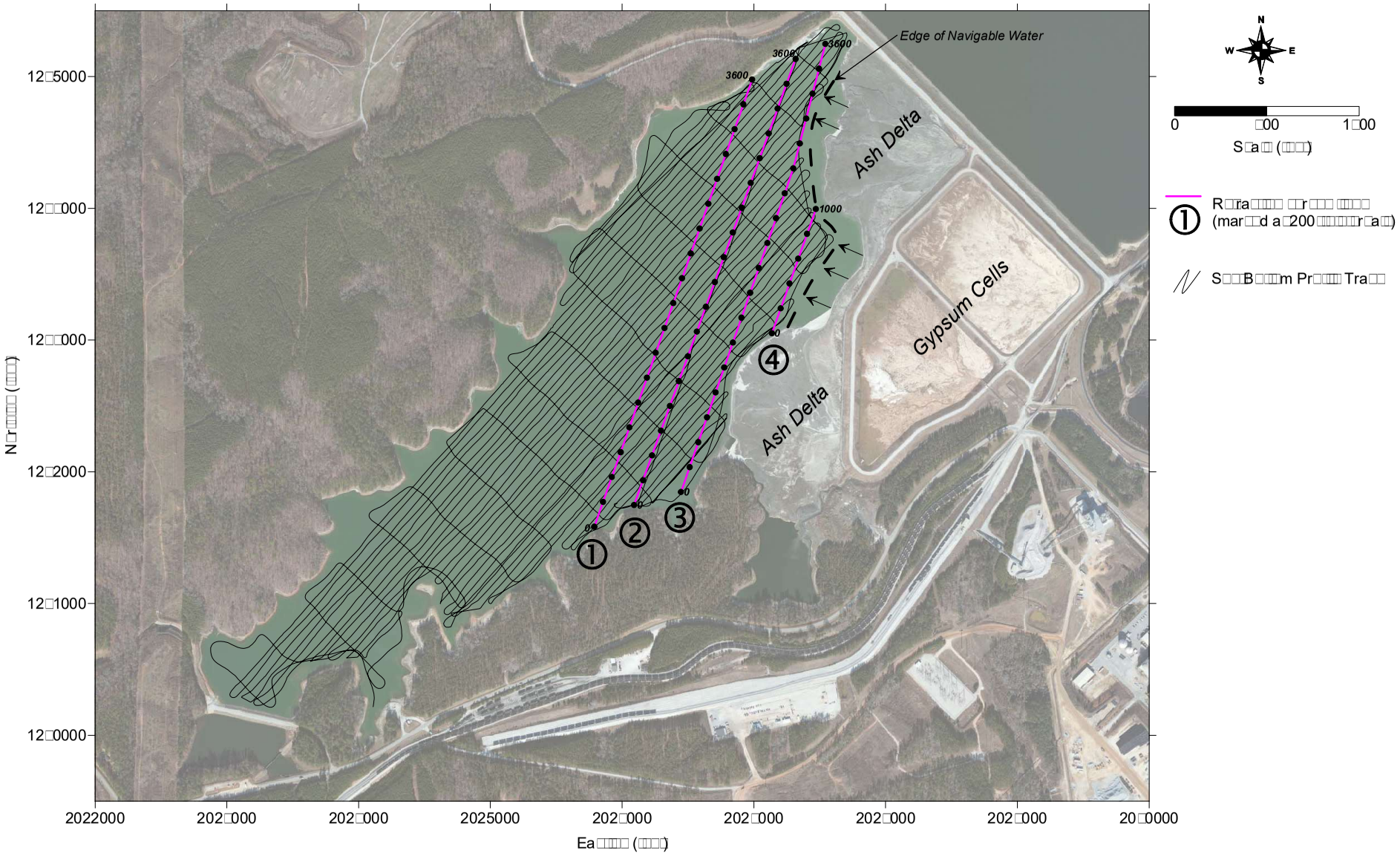

SPOTLIGHT
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Figure 1. Geophysical survey line locations

Launching work boat with crane

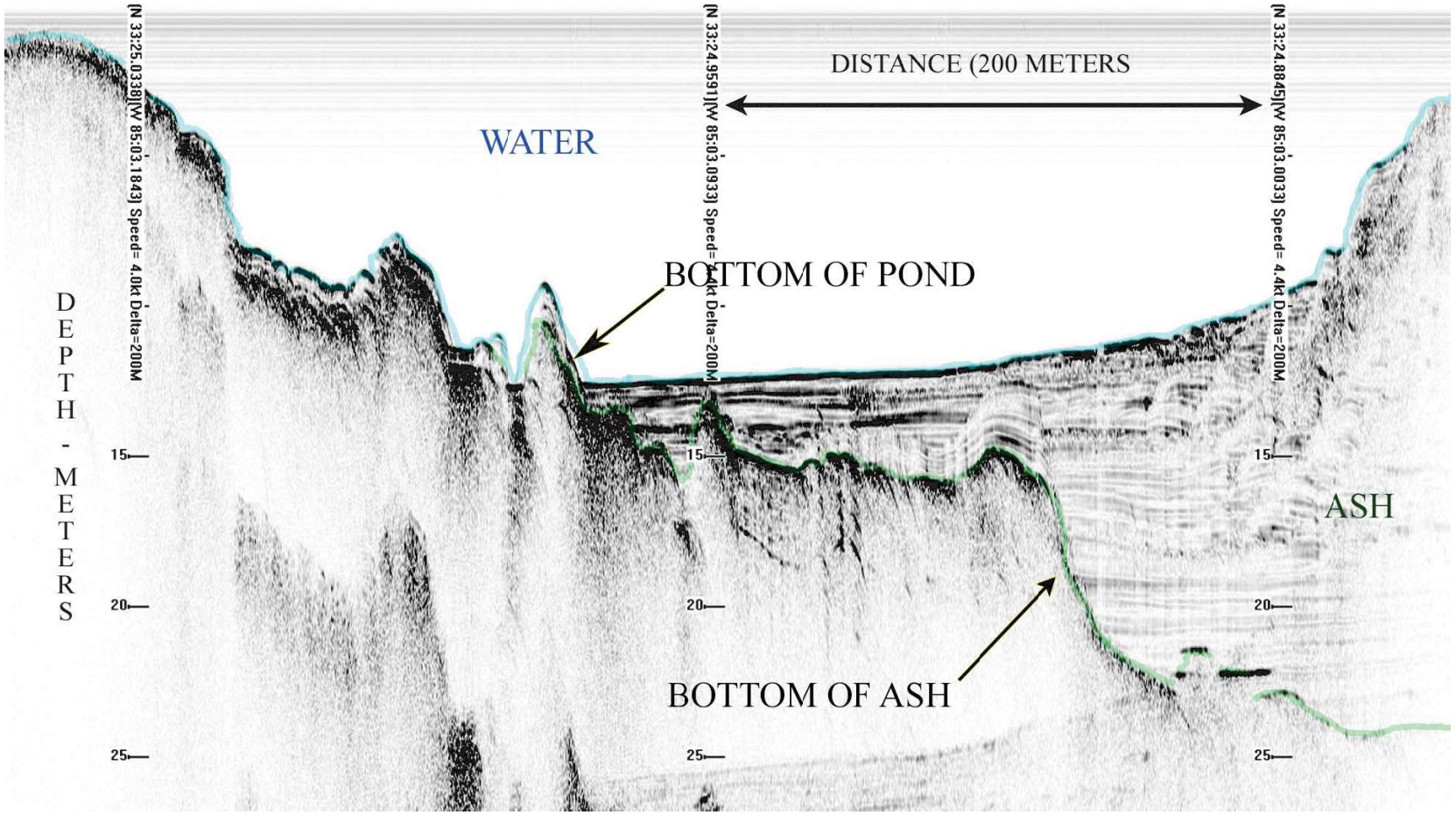
Seismic refraction equipment setup

Seismic refraction data acquisition

Sub-bottom profiling equipment setup

SPOTLIGHT
GEOPHYSICAL SERVICES

Figure 2. Data acquisition photos



SBP data acquired and processed by GeoView, Inc.

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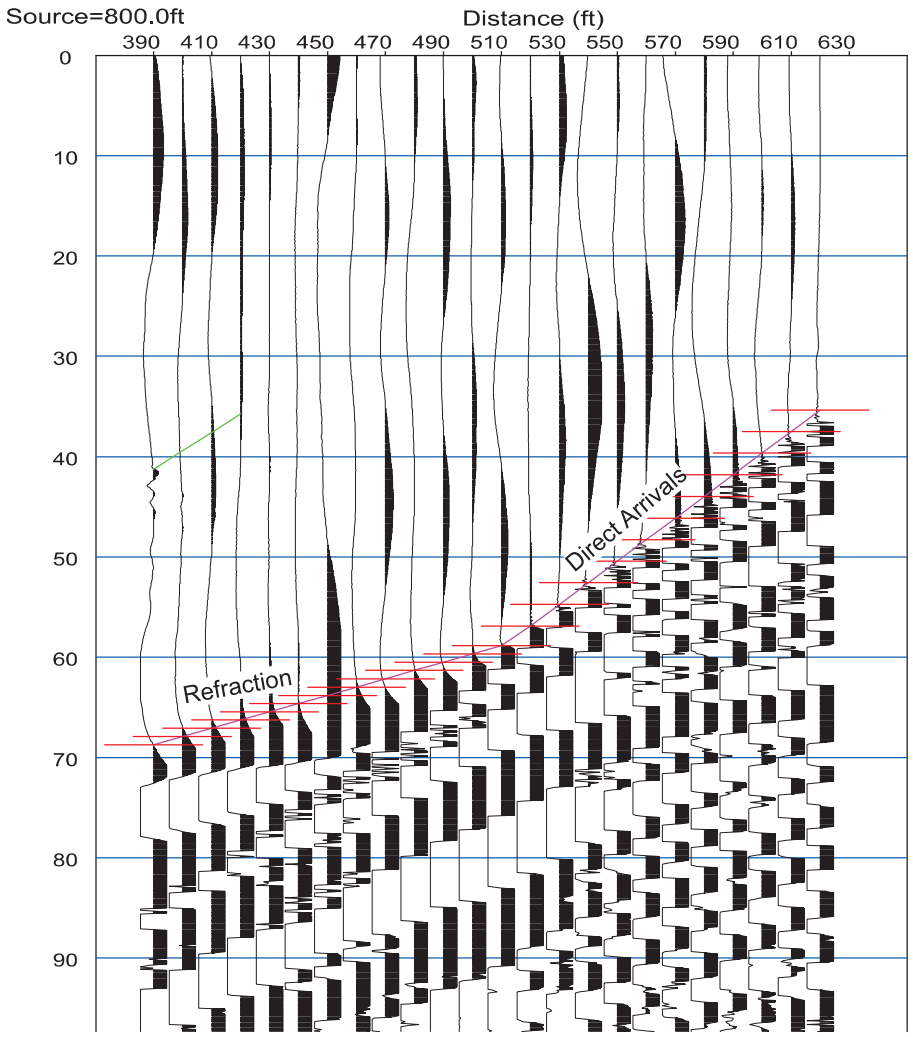
GEOPHYSICAL SERVICES

Figure 3. Example of sub-bottom profiling data acquired at Plant Wansley



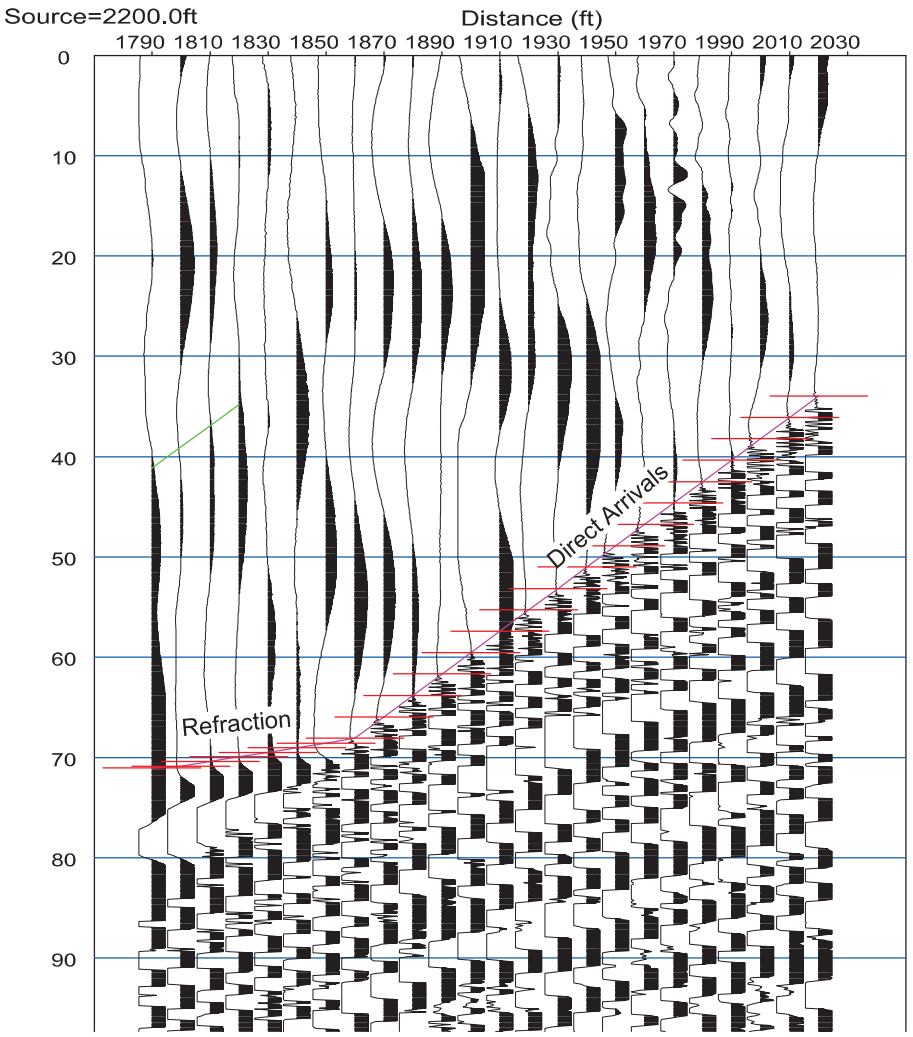


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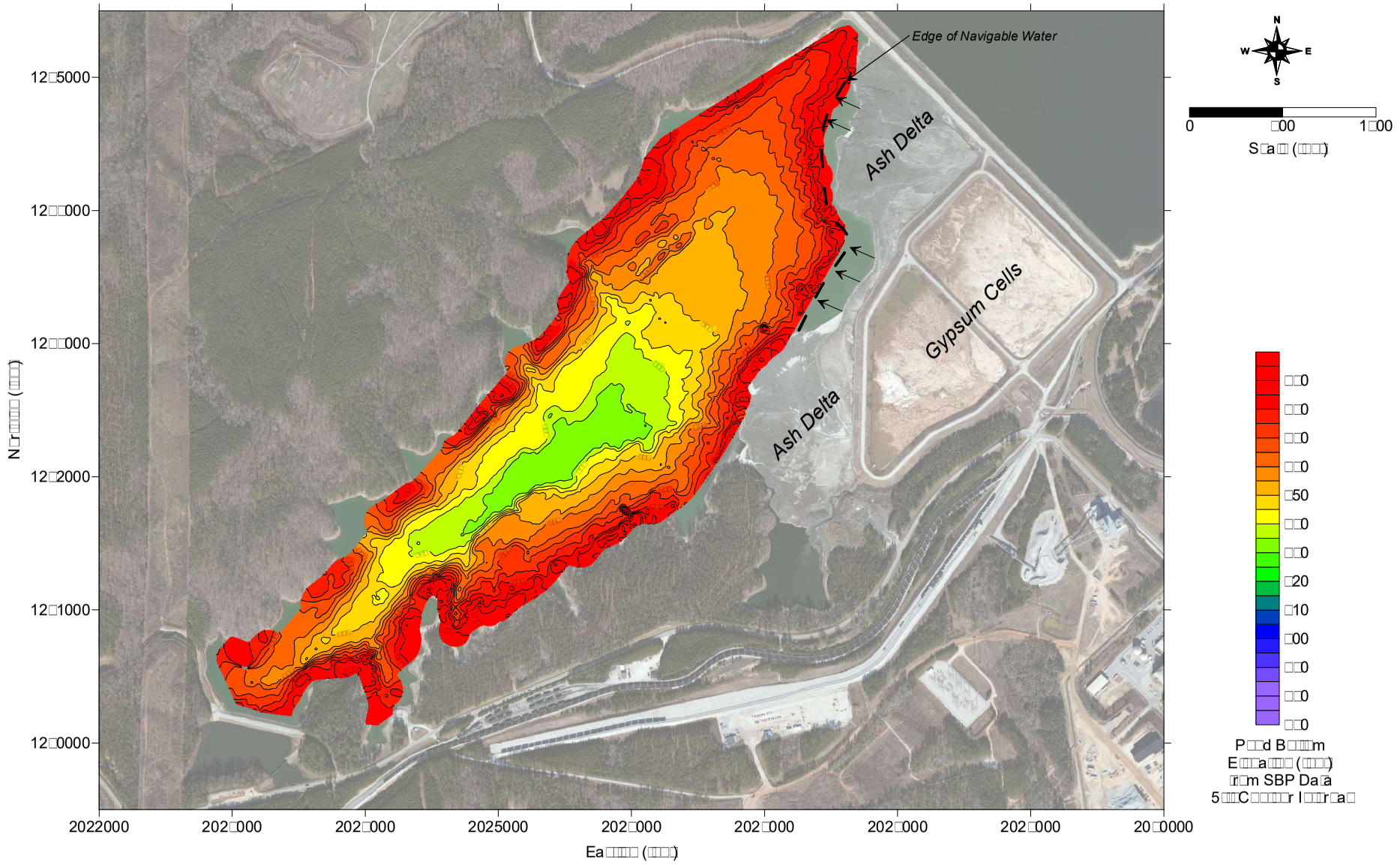
Figure 4. Examples of seismic refraction shot records acquired at Plant Wansley



SPOTLIGHT
GEOPHYSICAL SERVICES

Figure 5. Bathymetric map developed from sub-bottom profiling data

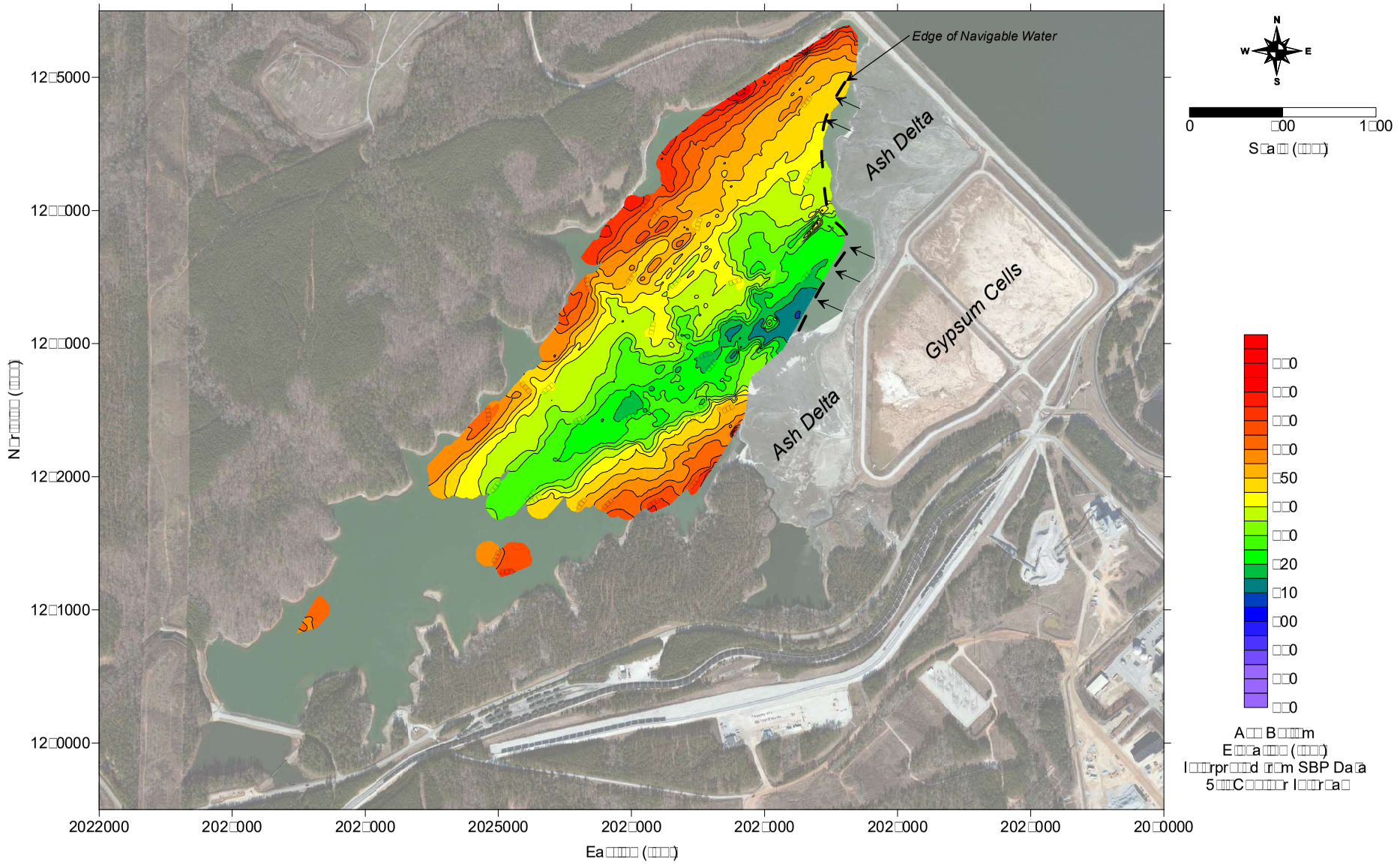


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Figure 6. Ash bottom map interpreted from sub-bottom profiling data

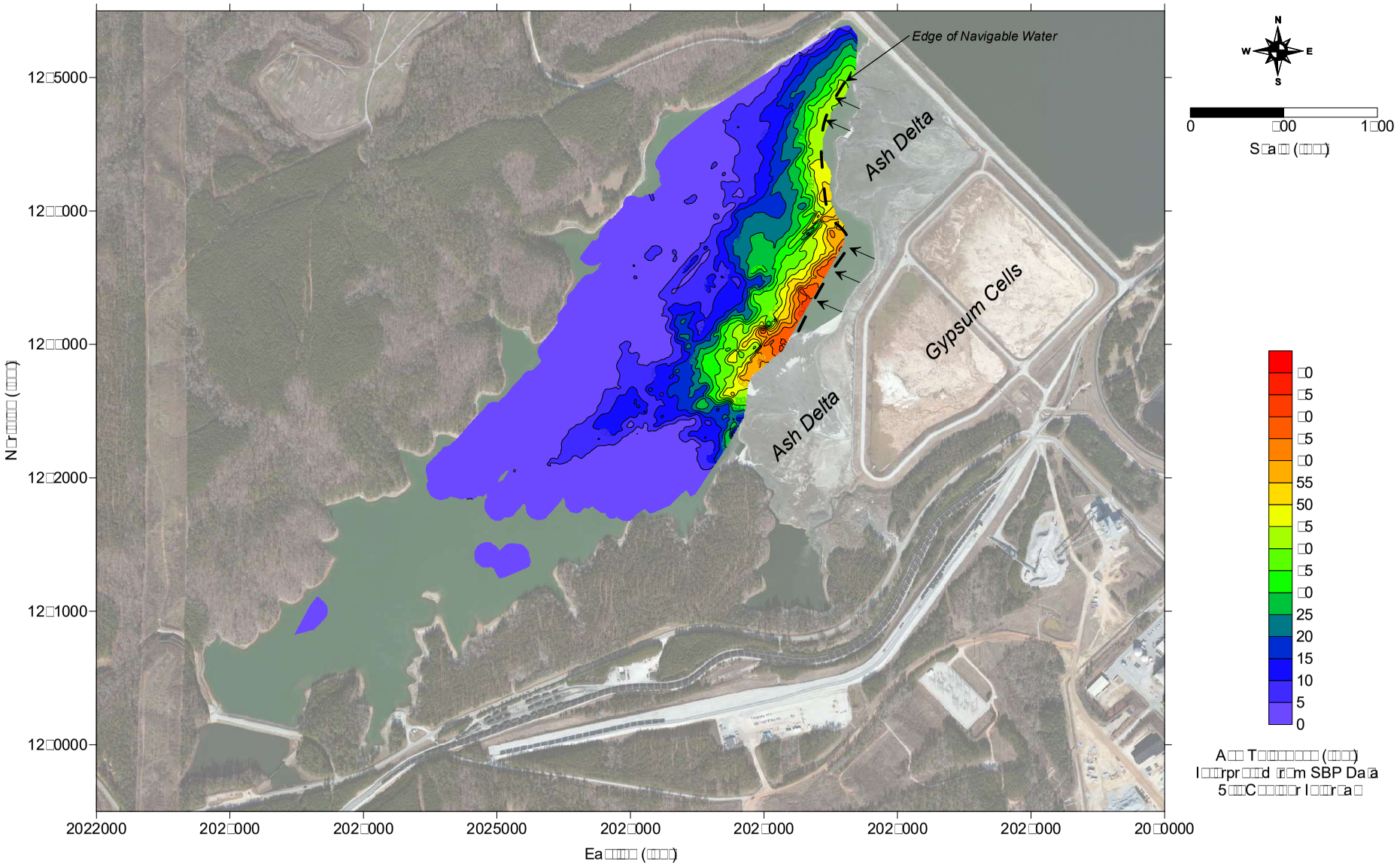

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Figure 7. Ash thickness map interpreted from sub-bottom profiling data

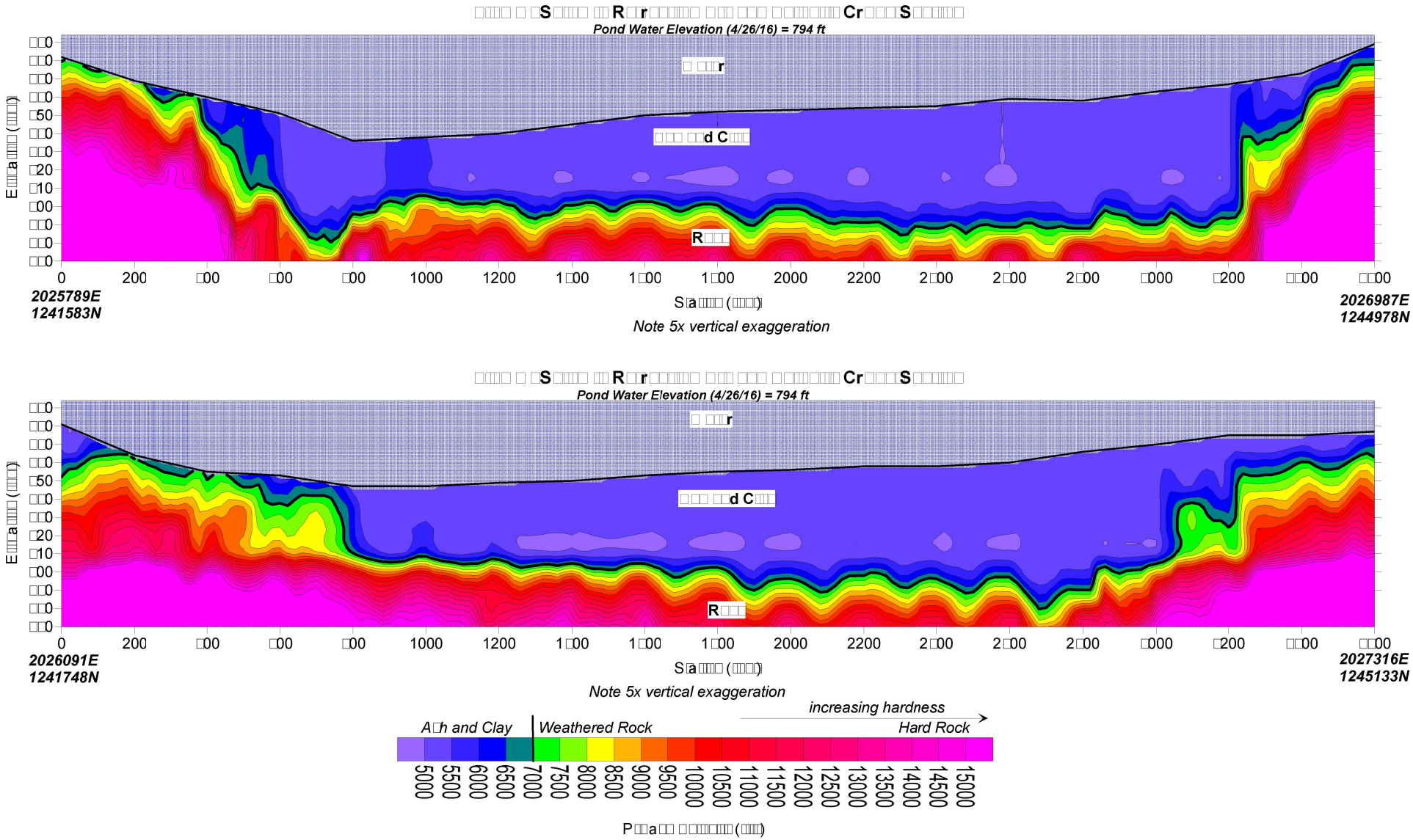

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Figure 8. Lines 1 and 2 seismic refraction P-wave velocity cross-sections

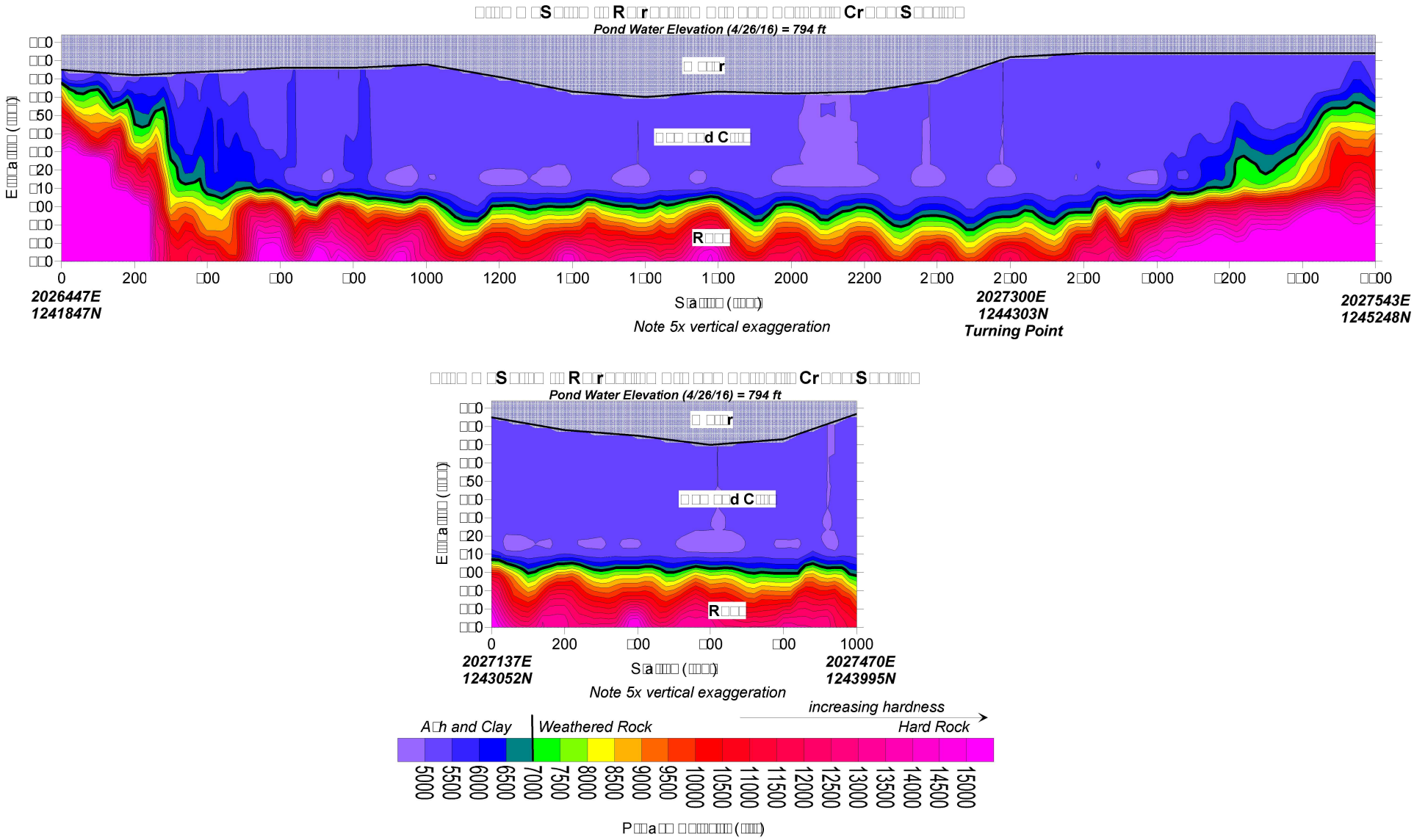

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Figure 9. Lines 3 and 4 seismic refraction P-wave velocity cross-section

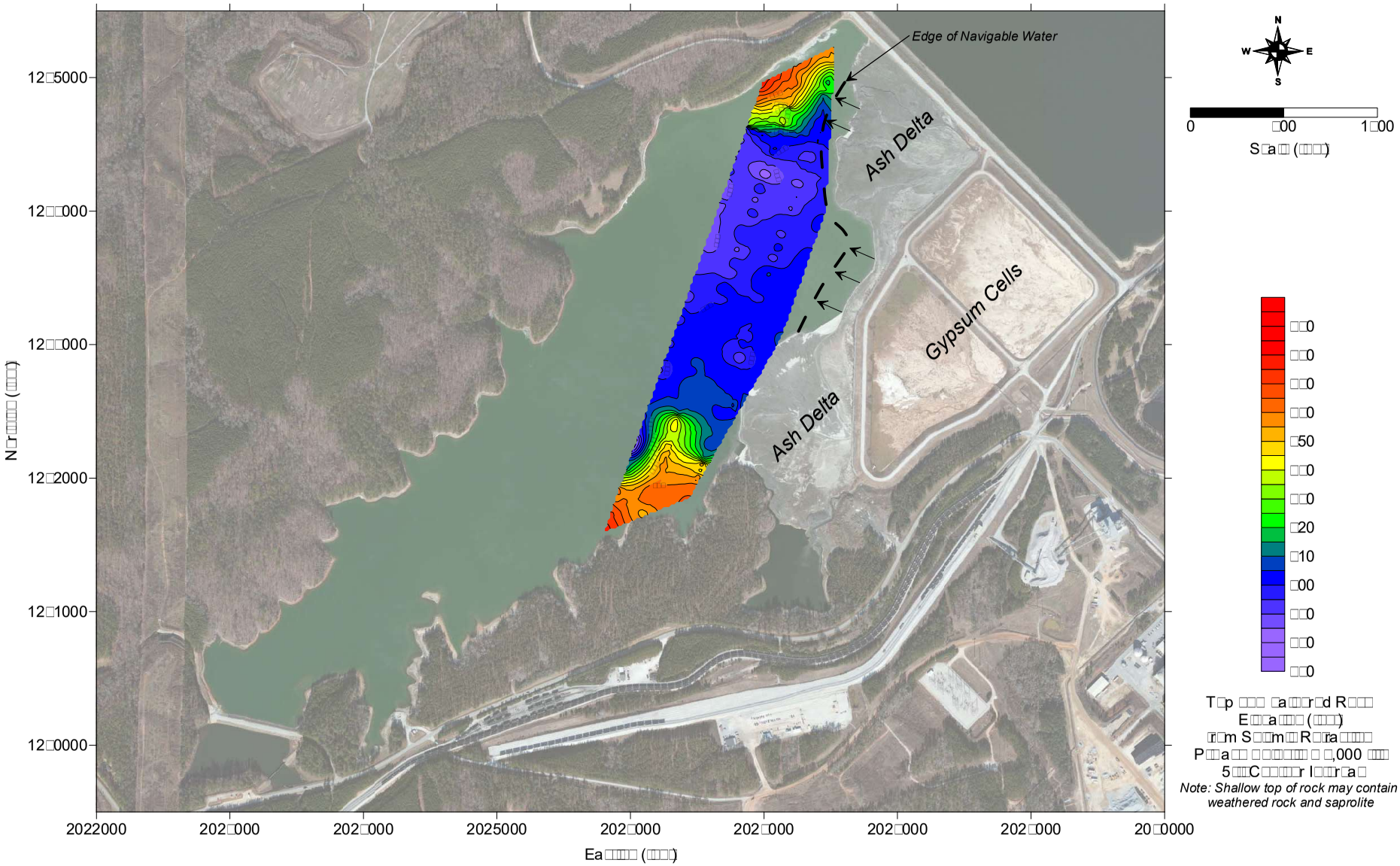

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Figure 10. Top of weathered rock map interpreted from seismic refraction data

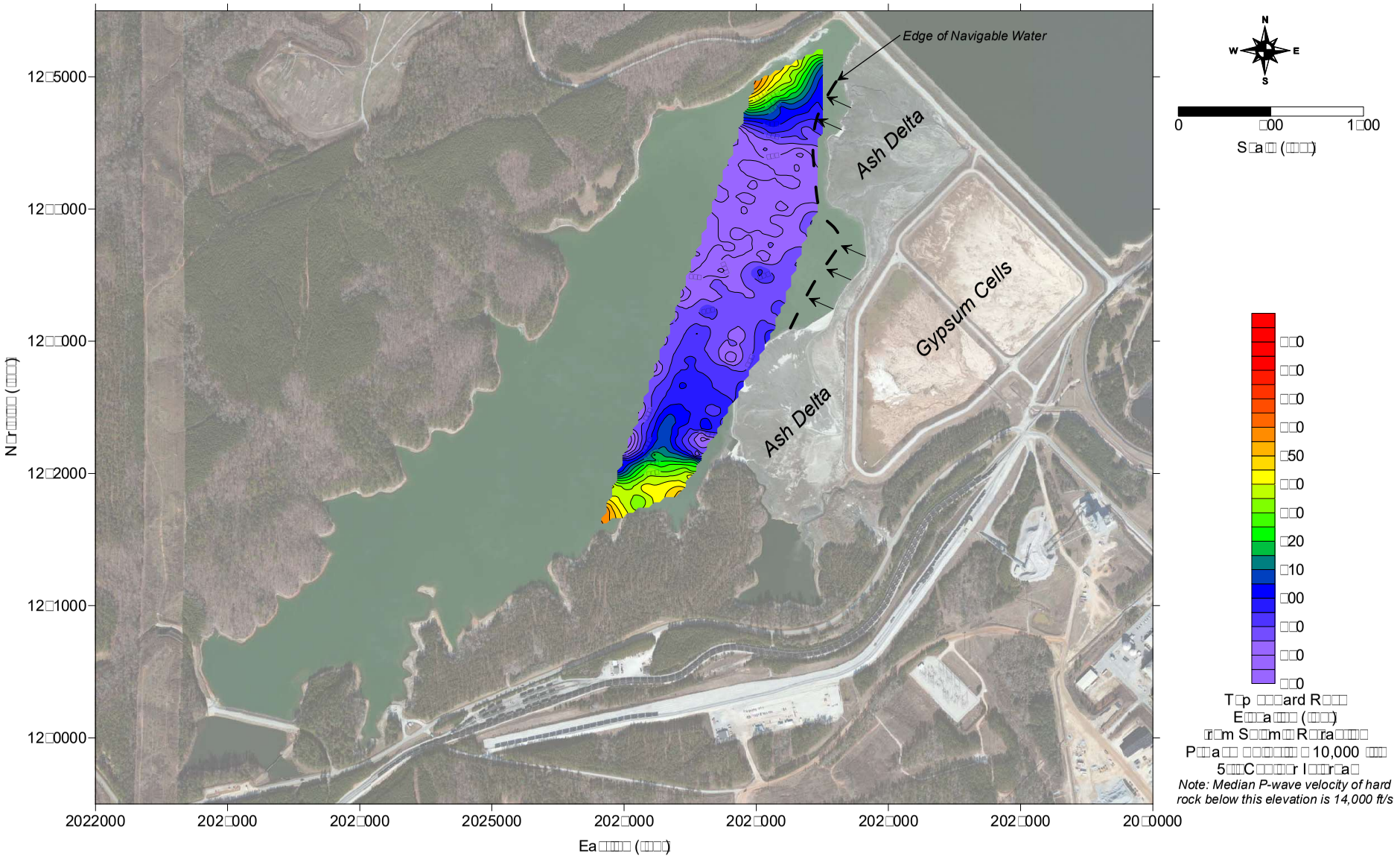

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Figure 11. Top of hard rock map interpreted from seismic refraction data

Geophysical Logging Report

Georgia Power Plant Wansley

Carrollton, Georgia

Performed for:

Geosyntec

June 21, 2017

Geophysical Logging Report
Georgia Power Plant Wansley
Carrollton, Georgia

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Appendices

Appendix 1	Fracture Data
Appendix 2	Geophysical Logs
Appendix 3	Rose Diagrams and Polar Projections

Signature Page

This report, entitled "Geophysical Logging Report, Georgia Power Plant Wansley, Carrollton, Georgia" has been prepared for Geosyntec located in Kennesaw, Georgia. It has been prepared under the supervision of Mr. Jorgen Bergstrom at the request of and the exclusive use of Geosyntec. This report has been prepared in accordance with accepted quality control practices and has been reviewed by the undersigned.

GEL Geophysics, LLC
A Member of the GEL Group, Inc.

Jorgen Bergstrom, P.Gp.
Senior Geophysicist

Jeffery Tallent
Geophysicist

June 21, 2017

Date

Geophysical Logging Report
Georgia Power Plant Wansley
Carrollton, Georgia

EXECUTIVE SUMMARY

GEL Geophysics performed geophysical borehole logging services in seven borings located at the Georgia Power Plant Wansley in Carrollton, Georgia. The field investigation was performed on various occasions between March 2, 2017 and April 25, 2017. These investigations were conducted to aid Geosyntec in evaluating potential fractures and other features in bedrock at the site. Acoustic televiewer, 3-arm caliper, and natural gamma logging were conducted in all seven borings. In boring PB-1, fluid temperature, fluid resistivity, single point resistance, and spontaneous potential logging were also conducted.

The logging data was analyzed to determine the location, orientation, and aperture of fractures; and other features. In addition to these data sets, synthetic caliper logs were calculated from the acoustic televiewer travel time data to aid in the interpretation. Dip, azimuth (dip direction), and aperture were calculated for each detected fracture based on the televiewer dataset.

Geophysical Logging Report
Georgia Power Plant Wansley
Carrollton, Georgia

1.0 INTRODUCTION

GEL Geophysics performed geophysical borehole logging services in seven borings located at the Georgia Power Plant Wansley in Carrollton, Georgia. Acoustic televiewer, 3-arm caliper and natural gamma logging were conducted in all seven borings. In boring PB-1, fluid temperature, fluid resistivity, single point resistance, and spontaneous potential logging were also conducted. The field investigation was performed on various occasions between March 2, 2017 and April 25, 2017. The logging data was analyzed to determine the location, orientation, and aperture of fractures; and other features. In addition to these data sets, synthetic caliper logs were calculated from the acoustic televiewer travel time data to aid in the interpretation.

2.0 EQUIPMENT AND METHODOLOGY

The information below is an overview of the geophysical methodologies used for this investigation. The intent of this overview is to give the reader a better understanding of each method, and background information as to what is actually measured, the resolution of the method, and the limitations imposed by site-specific subsurface conditions.

2.1 Acoustic Televiewer

Acoustic televiewer logging produces a high resolution, magnetically oriented digital image to map the location, aperture and orientation of intersecting fractures, foliations, and lithologic contacts. The Acoustic televiewer tool emits a rotating, narrow, acoustic beam that is reflected off the borehole wall. The travel time and amplitude of the reflected wave are recorded by the tool and used to create borehole images. Both datasets are useful for identifying the location, aperture and orientation of fractures. The amplitude of the reflected signal will decrease at the location of fractures and the travel time will increase. The travel time data can also be used for developing a high resolution caliper log for a more comprehensive analysis of fractures. Acoustic televiewers can only be used in fluid filled boreholes. However, the fluid does not have to be optically clear for the method to work. The acoustic televiewer has a vertical resolution of 2 millimeters.

2.2 3-Arm Caliper

Caliper logging is used to generate a profile of the borehole diameter with depth. The tool measures the borehole diameter using three spring-loaded arms. Narrow enlargements in the borehole diameter can, in most cases, be attributed to fractures. Caliper logging can be conducted above and below the water surface.

2.3 Natural Gamma

Natural gamma tools measure the gamma radiation from the formation. These logs can be used to discriminate between different formations by utilizing variations in the concentration of naturally occurring radioactive isotopes such as potassium, uranium and thorium. These logs are particularly popular for correlating logs and locating clay and shale formations since radioactive elements tend to concentrate in these materials. Natural gamma logging can be conducted in cased and uncased boreholes, water-filled and dry.

2.4 Fluid Temperature

Fluid temperature logging is used to identify where water enters or exits the borehole. In the absence of fluid flow, a gradual increase on water temperature of approximately 1°F per 100 feet of depth is expected. Rapid changes in the fluid temperature indicate water-producing or water-receiving zones. Little or no temperature gradient indicates intervals of vertical flow.

2.5 Fluid Resistivity

Fluid resistivity logging is used to measure the electrical resistivity of the fluid in the borehole. Variations in fluid resistivity can be contributed to concentration variations of dissolved solids. These differences can occur when sources of water have contrasting chemistry and have come from different transmissive zones. Fluid temperature and resistivity are measured concurrently using the same logging tool.

2.6 Single Point Resistance (SPR)

Single point resistance logging involves passing an alternate current between a surface electrode and a probe electrode and measuring the voltage difference created by the current. SPR is then calculated using Ohm's law. SPR is the sum of cable resistance, and the resistance based on the

composition of the medium, the cross sectional area and length of the path through the medium. Therefore, the single point resistance log does not provide quantitative data. In general, SPR increases with increasing grain size and decreases with increasing borehole diameter, fracture density, and the concentration of dissolved solids in the water. Single-point resistance logs are useful in the determination of lithology, water quality, and location of fracture zones.

2.7 Spontaneous Potential (SP)

SP logging is conducted to measure naturally occurring voltage differences along a borehole. The method has been found useful for delineating sandstone/shale layering and other boundaries between permeable and impermeable beds. The measurements are made with reference to an electrode at ground level. Therefore, SP logging does not provide quantitative data.

3.0 FIELD PROCEDURES

The following equipment and software was used for this investigation:

Data Acquisition System: Mount Sopris Matrix data logger

Logging Winch: MX system with 1,500 feet of cable

Acoustic Televiewer: QL40-ABI-2G

3-Arm Caliper: QL40-CAL

Natural Gamma, SP and SPR: 2PGA-1000

Fluid Temperature/Fluid Resistivity: 2PFA-1000

Logging interpretation software: WellCAD v 5.1 by Advanced Logic Technology

Acoustic televiewer, caliper, and natural gamma logging were conducted in all seven borings. In boring PB-1, fluid temperature, fluid resistivity, single point resistance, and spontaneous potential logging were also conducted. The field investigation was performed on various occasions between March 2, 2017 and April 25, 2017. A summary of the configuration of the boreholes is provided below. Depth measurements for PB-1 are referenced from ground surface. Depth measurements for S-2, S-5, S-7, S-10, S-11, and S-12 are referenced from the barge floor surface. All borings are surface cased and open hole below the casing.

Well ID:	**PB-1**	**S-2**	**S-5**	**S-7**	**S-10**	**S-11**	**S-12**
Logging date	3/2/17	4/25/17	4/18/17	4/10/17	3/17/17	3/28/17	3/30/17
Bottom of casing (ft):	146.5	69.4	129.3	149.5	134.2	109.4	89.4
Casing material:	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL
Casing diameter (in):	3.75	5.30	5.30	5.30	5.30	5.30	5.30
Total depth logged (ft):	194.9	79.4	141.9	161.2	154.7	121.9	103.9
Open hole diameter (in):	3.65	4.75	4.75	5.30	4.75	4.75	4.75

4.0 DATA PROCESSING AND RESULTS

The logs were analyzed for fractures and other features using WellCAD software, manufactured by Advanced Logic Technology. The travel time data from the acoustic televiewer log was used to develop synthetic caliper logs. Fractures were interpreted through a complete data analysis of all logs. Fracture data is presented in a tabular form on Appendix 1. The logs are presented in Appendix 2. Dip, azimuth (dip direction), and aperture were calculated for each detected fracture where available in acoustic televiewer data. The azimuth or dip direction is measured clockwise from magnetic north (Figure 1). Fracture rose diagrams and polar projections are presented on Appendix 3.

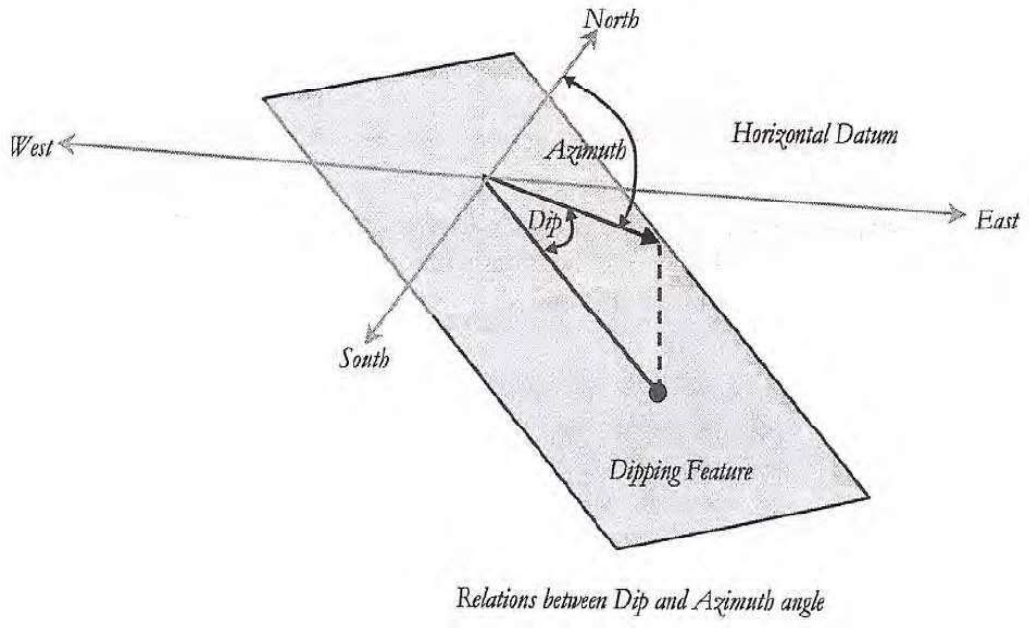


Figure 1 Explanation of azimuth and dip for fractures

APPENDIX 1

Fracture Data

PB-1 Depth ft	Azimuth deg	Dip deg	Aperture mm
147.8	3	6	28
148.4	128	53	6
149.1	118	37	6
149.4	126	42	20
149.8	120	44	22
150.5	352	7	11
150.8	147	59	4
153.9	93	48	3
154.4	143	33	3
154.7	149	45	4
155.1	159	16	5
155.3	181	9	5
155.7	***146***	***19***	***13***
156.2	176	34	3
160.6	66	9	3
160.7	14	4	2
160.9	349	52	3
161.4	3	12	11
162.6	***202***	***26***	***88***
163.7	135	8	20
163.9	172	13	15
168.8	***350***	***17***	***69***
169.0	348	24	5
170.1	165	11	23
170.2	165	26	9
170.4	180	15	14
179.9	4	14	2
179.9	356	21	3
187.8	173	43	10
191.1	2	4	4
191.2	351	8	1
194.0	142	30	4
194.1	159	31	5
194.2	156	38	6

S-2 Depth ft	Azimuth deg	Dip deg	Aperture mm
69.2	192	73	0
69.2	191	75	0
71.7	120	32	3
71.8	106	32	3
73.6	141	37	12
73.7	142	43	11
75.5	224	76	1
75.6	333	73	2
75.6	221	77	0
75.8	326	56	4
75.8	141	41	10
78.0	315	49	0
78.2	306	56	4
78.4	135	33	13
78.4	324	69	7

S-5 Depth ft	Azimuth deg	Dip deg	Aperture mm
130.2	227	53	3
130.2	***346***	***18***	***114***
130.8	121	50	7
131.1	216	63	4
131.5	154	45	5
133.3	324	38	6
133.4	7	13	1
134.4	245	66	2
135.6	248	66	2
136.9	5	20	1
138.4	***213***	***67***	***9***
141.5	280	67	1

S-7 Depth ft	Azimuth deg	Dip deg	Aperture mm
149.7	***307***	***47***	***47***
151.7	333	49	1
152.4	334	53	6
154.3	***152***	***65***	***86***
157.0	***358***	***55***	***136***

Dominating fractures based on geophysical logging are highlighted and shown in bold and italics text

Fracture Data

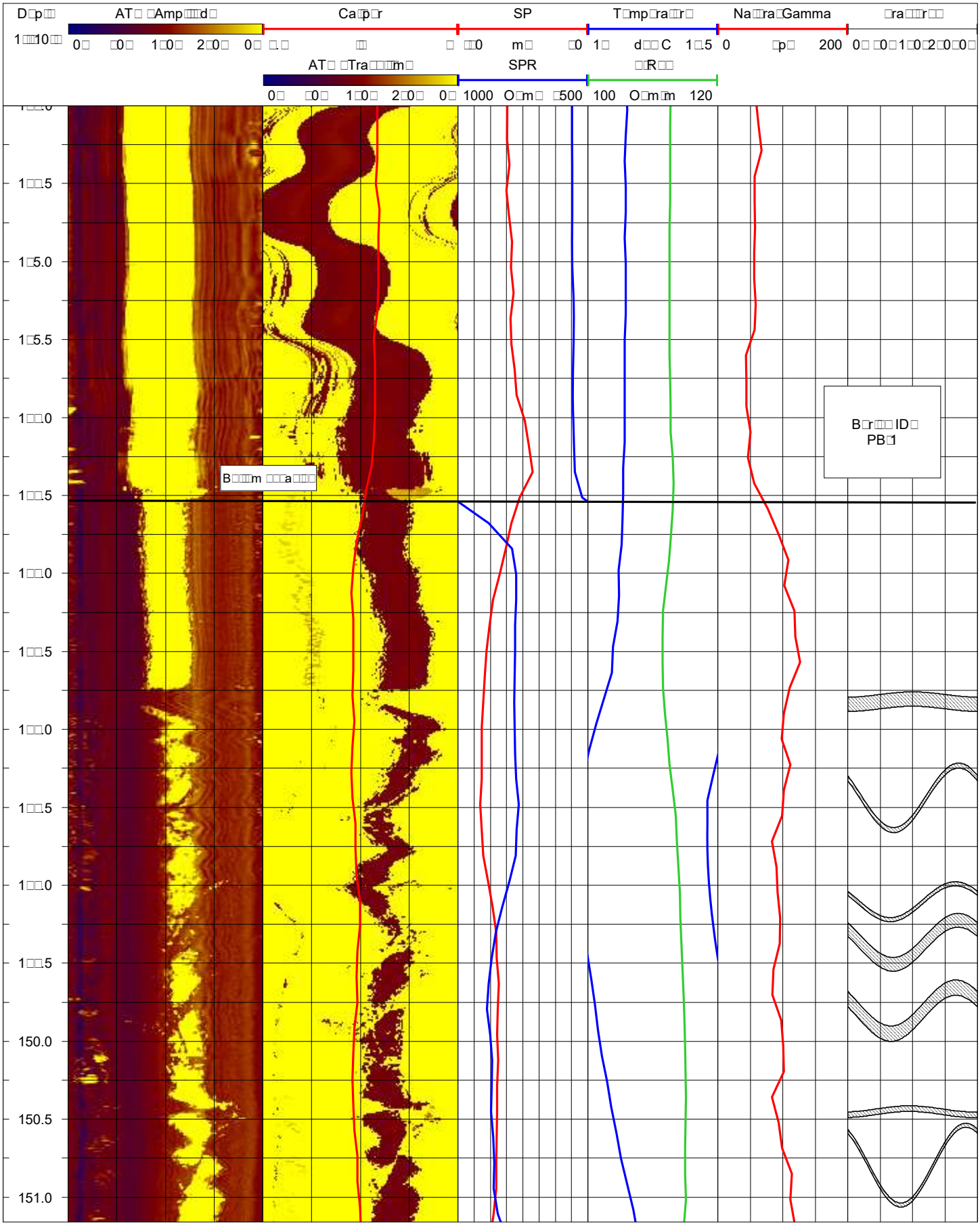
S-10 Depth ft	Azimuth deg	Dip deg	Aperture mm
135.1	***150***	***70***	***11***
135.6	***10***	***5***	***80***
136.4	***137***	***70***	***21***
137.2	170	70	6
138.0	300	63	9
138.1	329	57	2
138.3	144	53	11
138.7	160	34	9
139.6	303	71	5
139.9	147	15	13
140.7	119	62	8
141.0	327	61	10
142.1	332	59	11
143.2	122	35	9
143.6	98	41	5
144.0	128	38	12
144.9	127	50	7
145.2	***112***	***52***	***43***
145.6	139	38	14
146.0	114	52	7
147.0	322	29	13
148.7	145	55	19
149.1	**143**	**45**	**30**
151.7	142	51	7
153.0	123	41	6
153.6	133	33	10

S-11 Depth ft	Azimuth deg	Dip deg	Aperture mm
110.2	123	45	4
110.7	122	53	7
110.8	115	51	3
111.2	104	54	4
111.4	109	55	0
111.7	119	50	0
112.0	112	52	2
112.5	108	53	0
112.9	297	67	3
114.0	167	52	0
114.6	287	61	0
118.4	137	56	8
118.9	134	54	4
119.9	169	72	0
120.7	87	7	7
120.9	13	8	6

S-12 Depth ft	Azimuth deg	Dip deg	Aperture mm
90.4	***61***	***42***	***24***
90.8	271	52	2
91.8	***86***	***38***	***29***
92.6	107	37	4
93.0	353	62	2
93.1	132	34	2
93.7	352	75	2
94.7	101	59	2
96.2	122	36	3
97.3	247	83	3
99.0	128	65	4
99.9	321	23	10
100.6	127	63	2
100.9	162	19	6
101.5	178	39	3

Dominating fractures based on geophysical logging are highlighted and shown in bold and italics text

BORING PB-1



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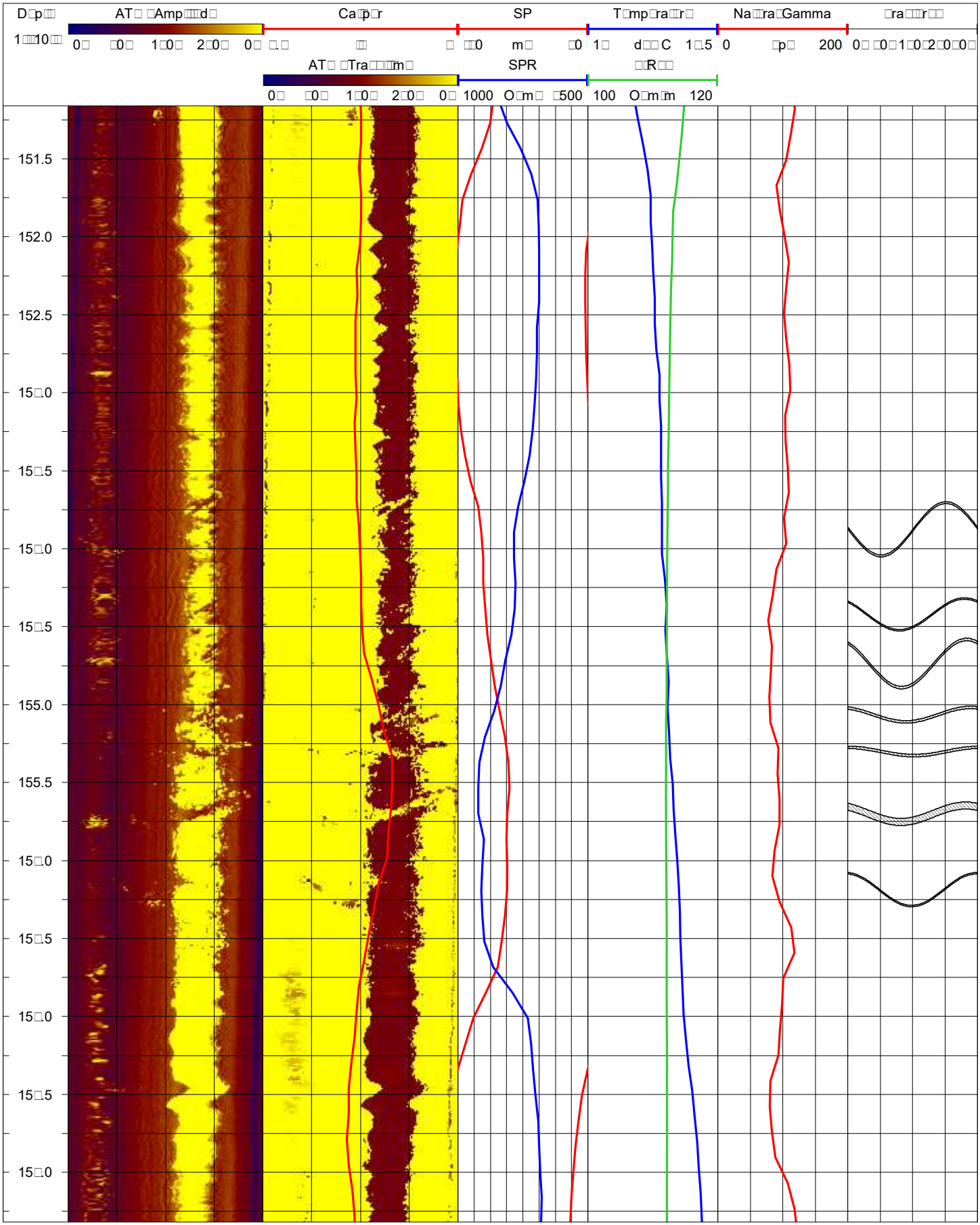
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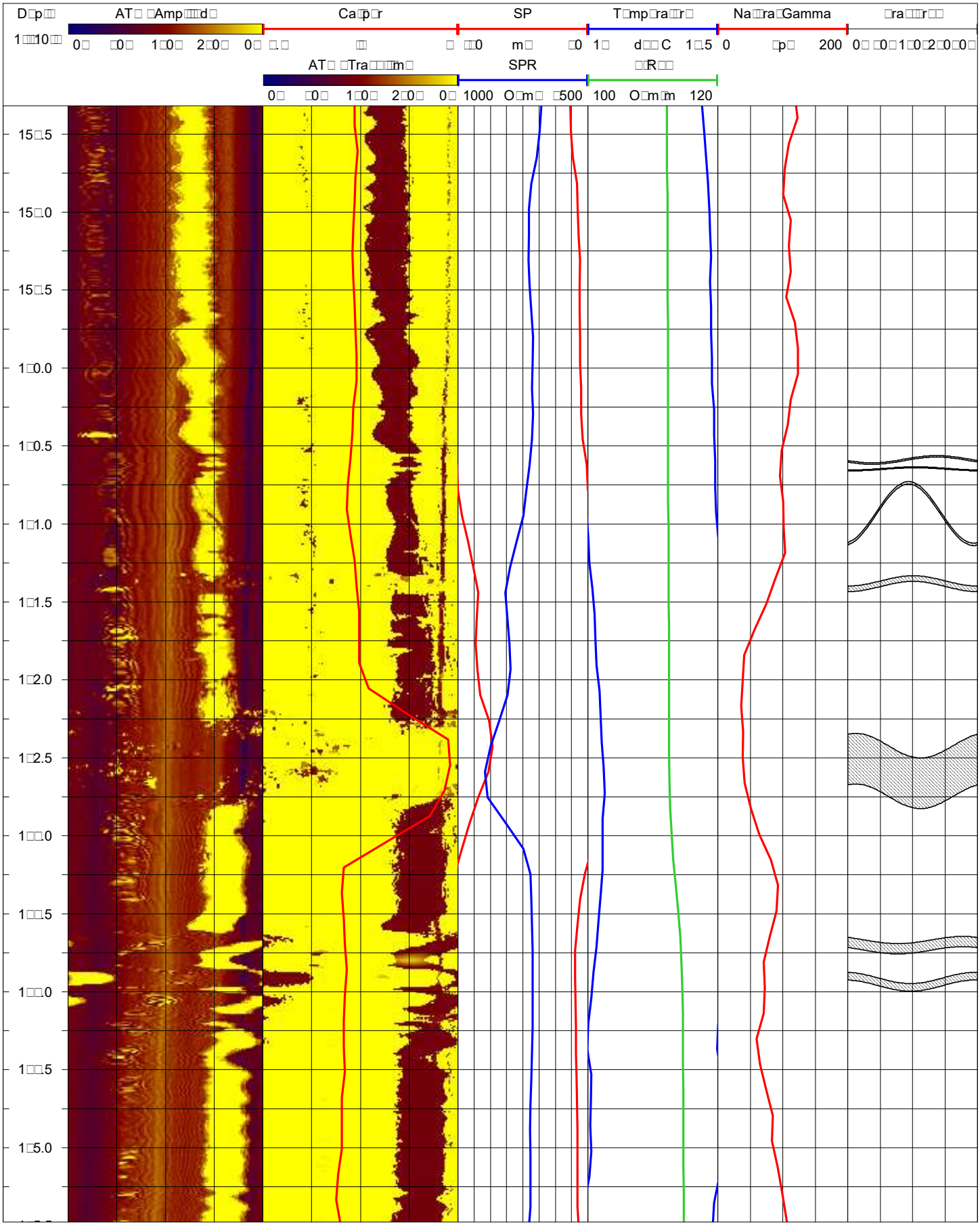
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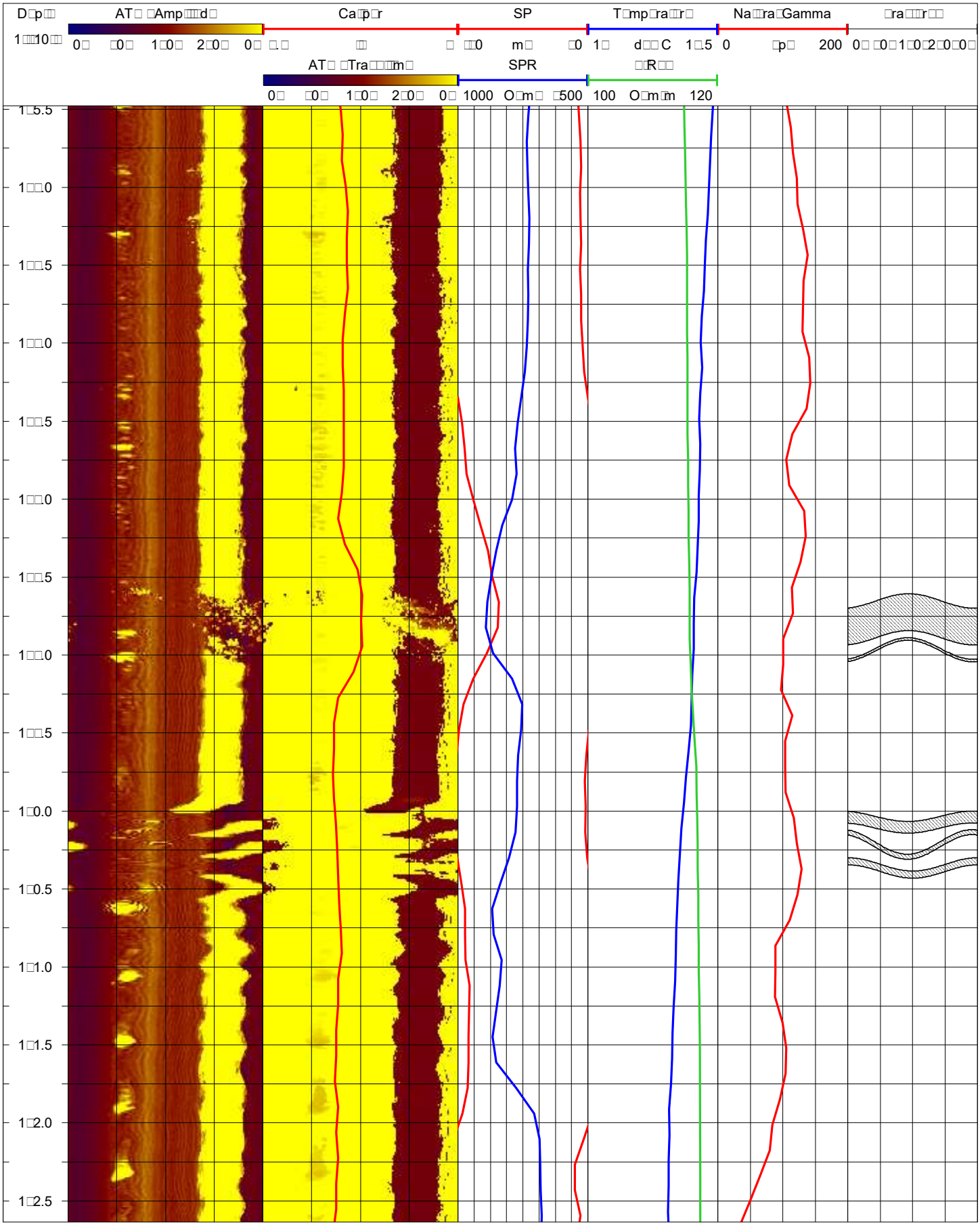
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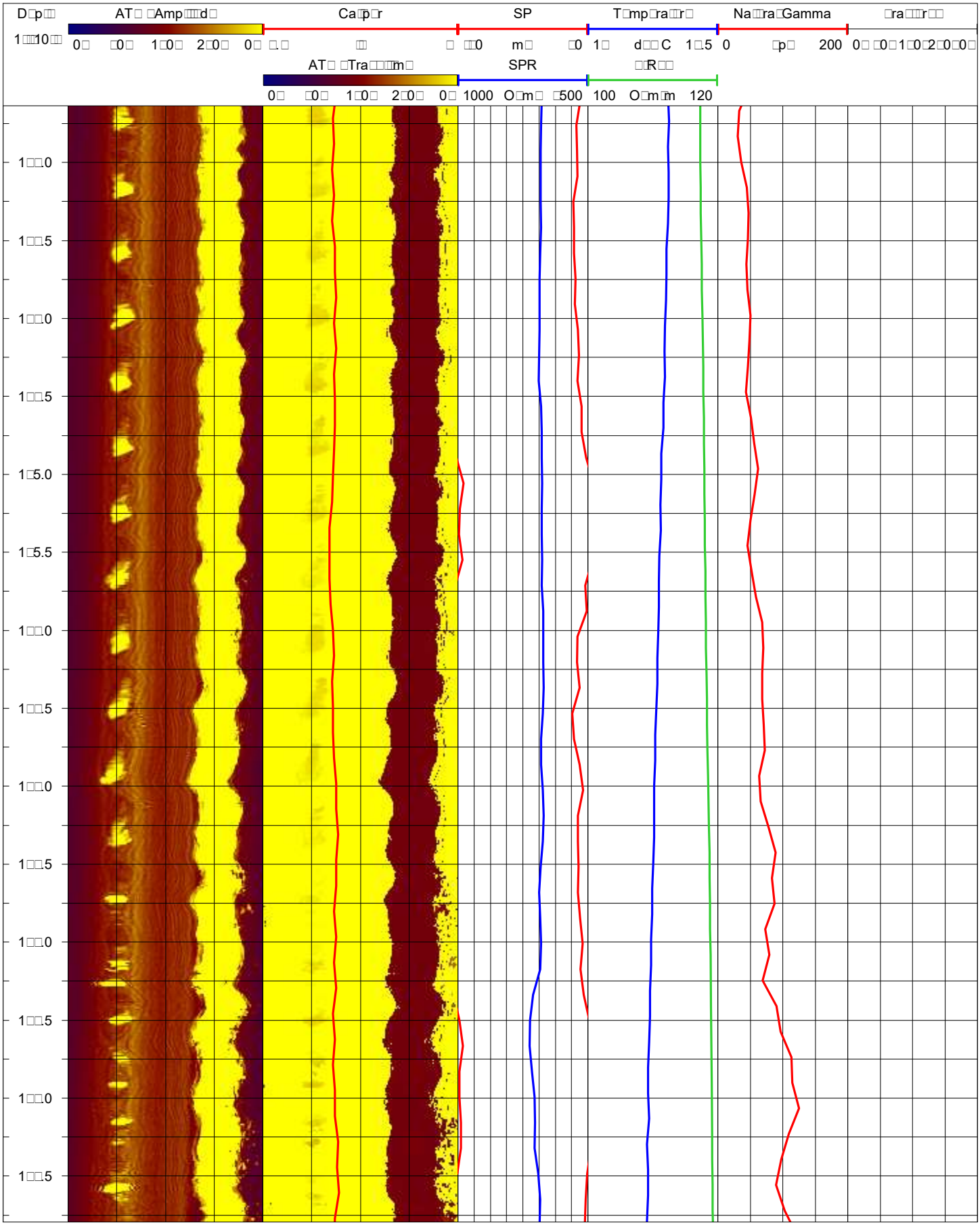
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1□5.5
1□□.0
1□□.5
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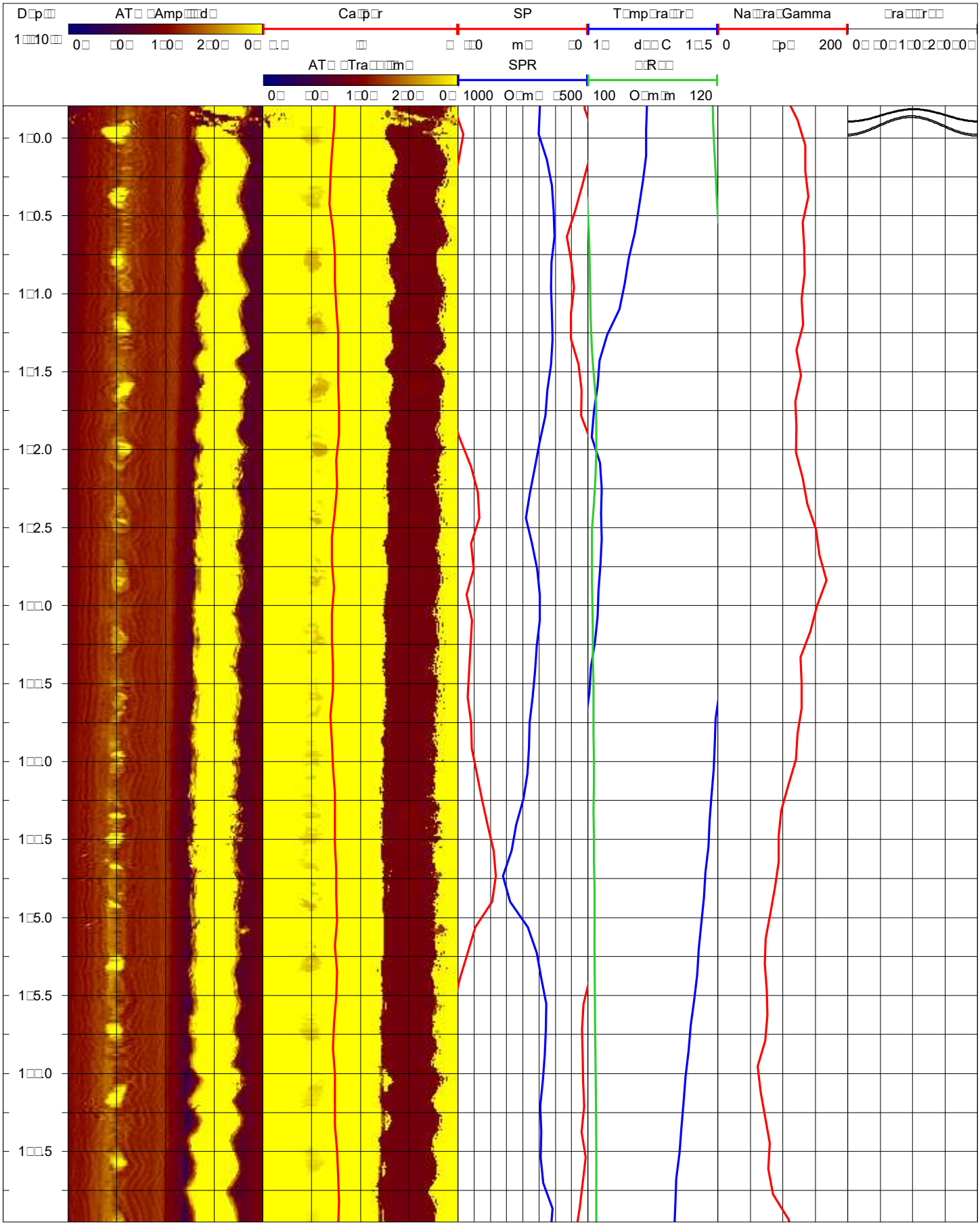
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SPR
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1□0.5
1□1.0
1□1.5
1□2.0
1□2.5
1□□.0
1□□.5
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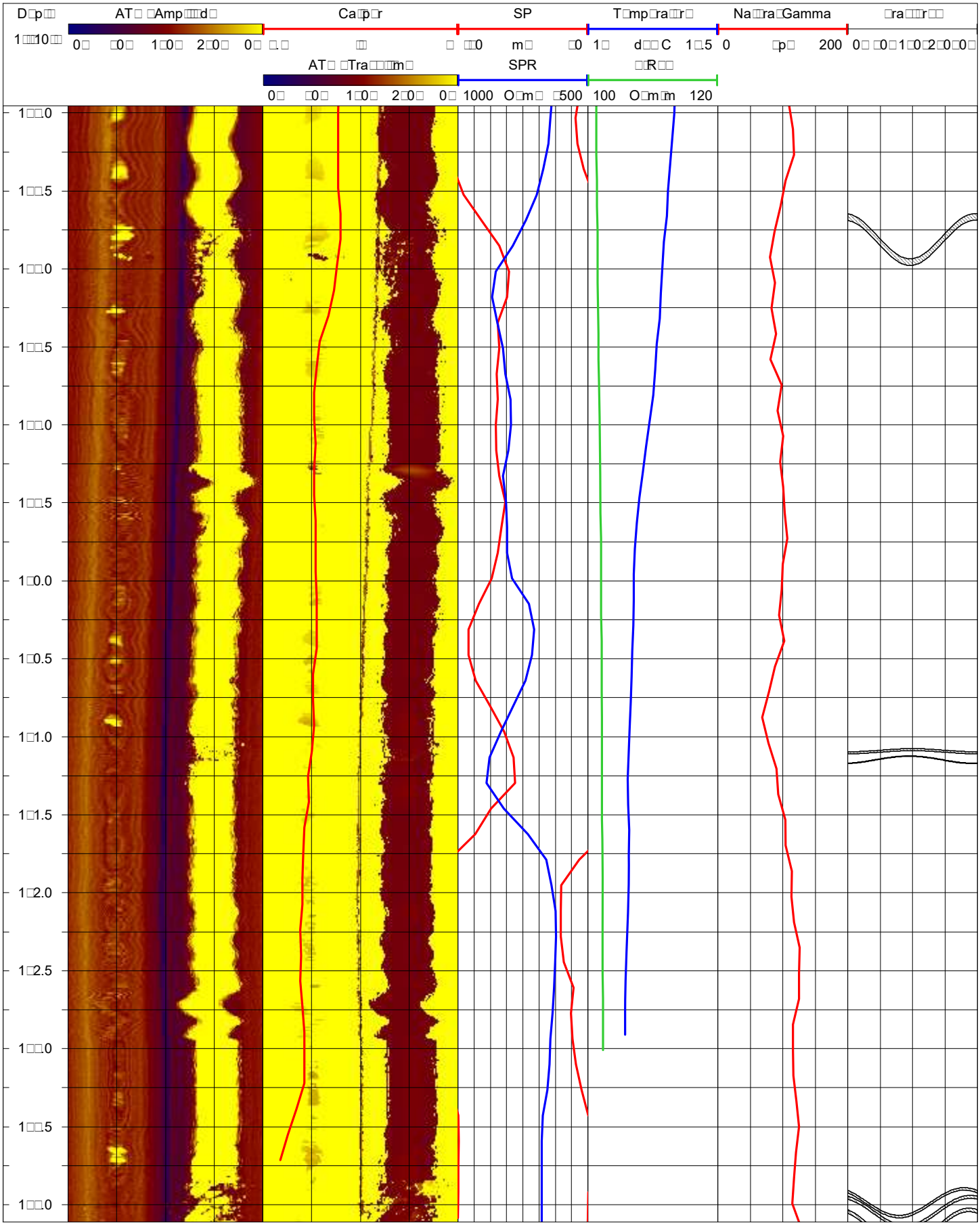
1□□.5


SP
SPR
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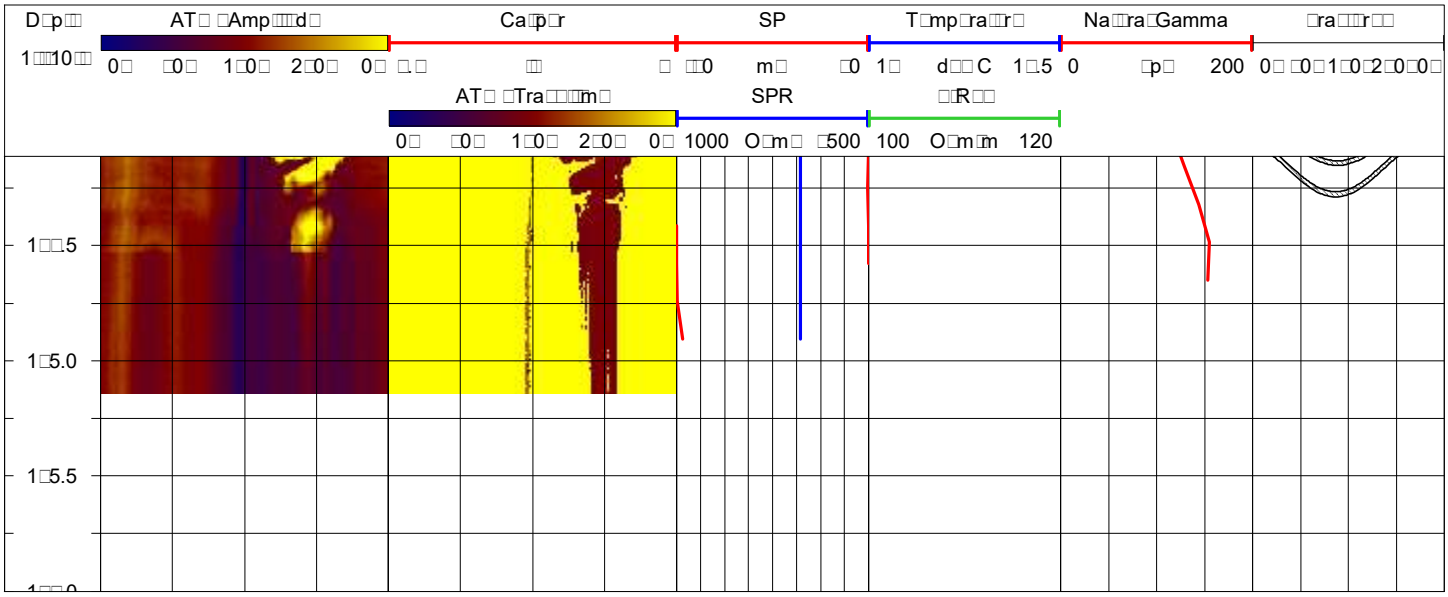
1□0.0
1□0.5
1□1.0
1□1.5
1□2.0
1□2.5


SP
SPR
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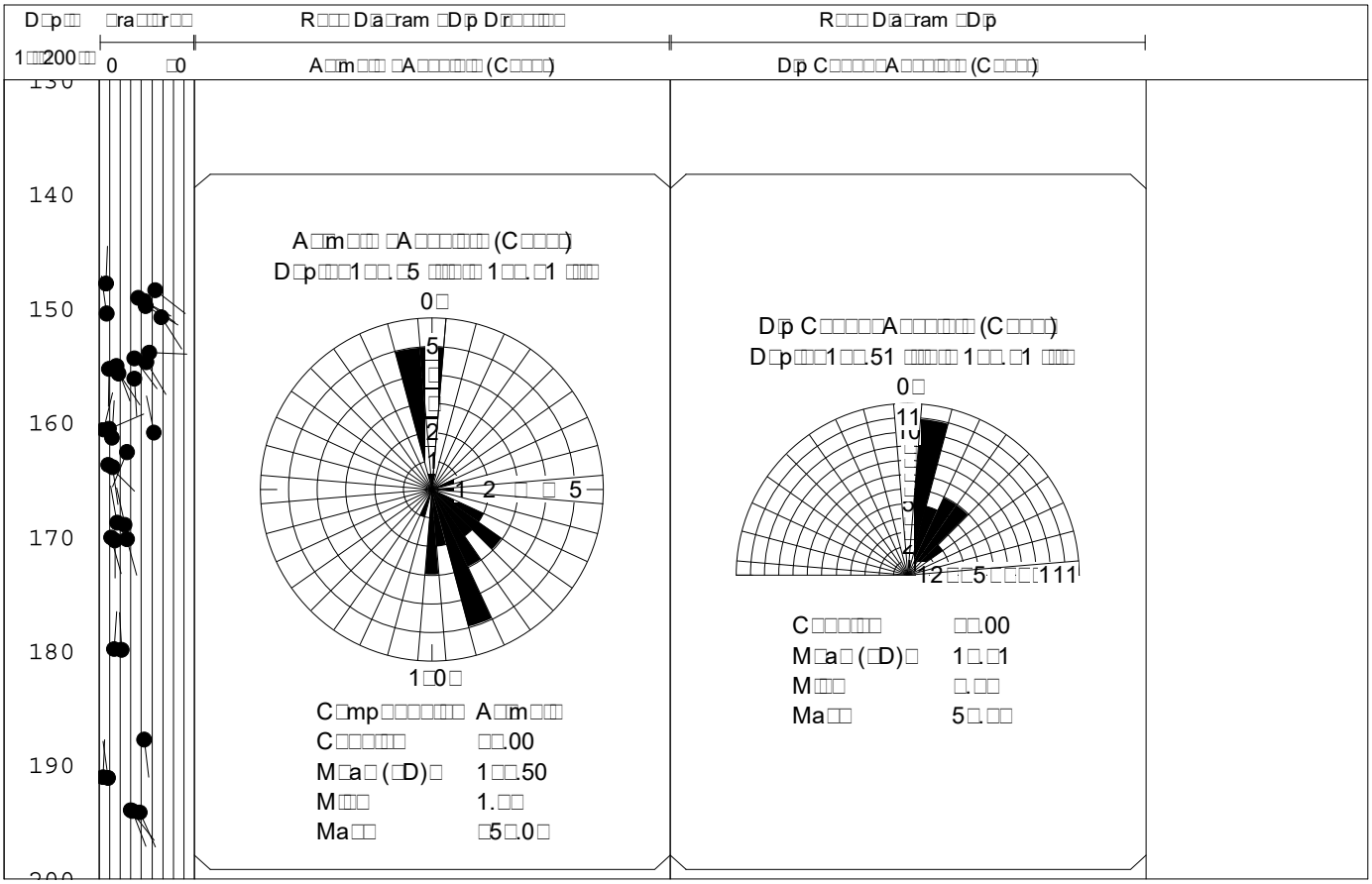
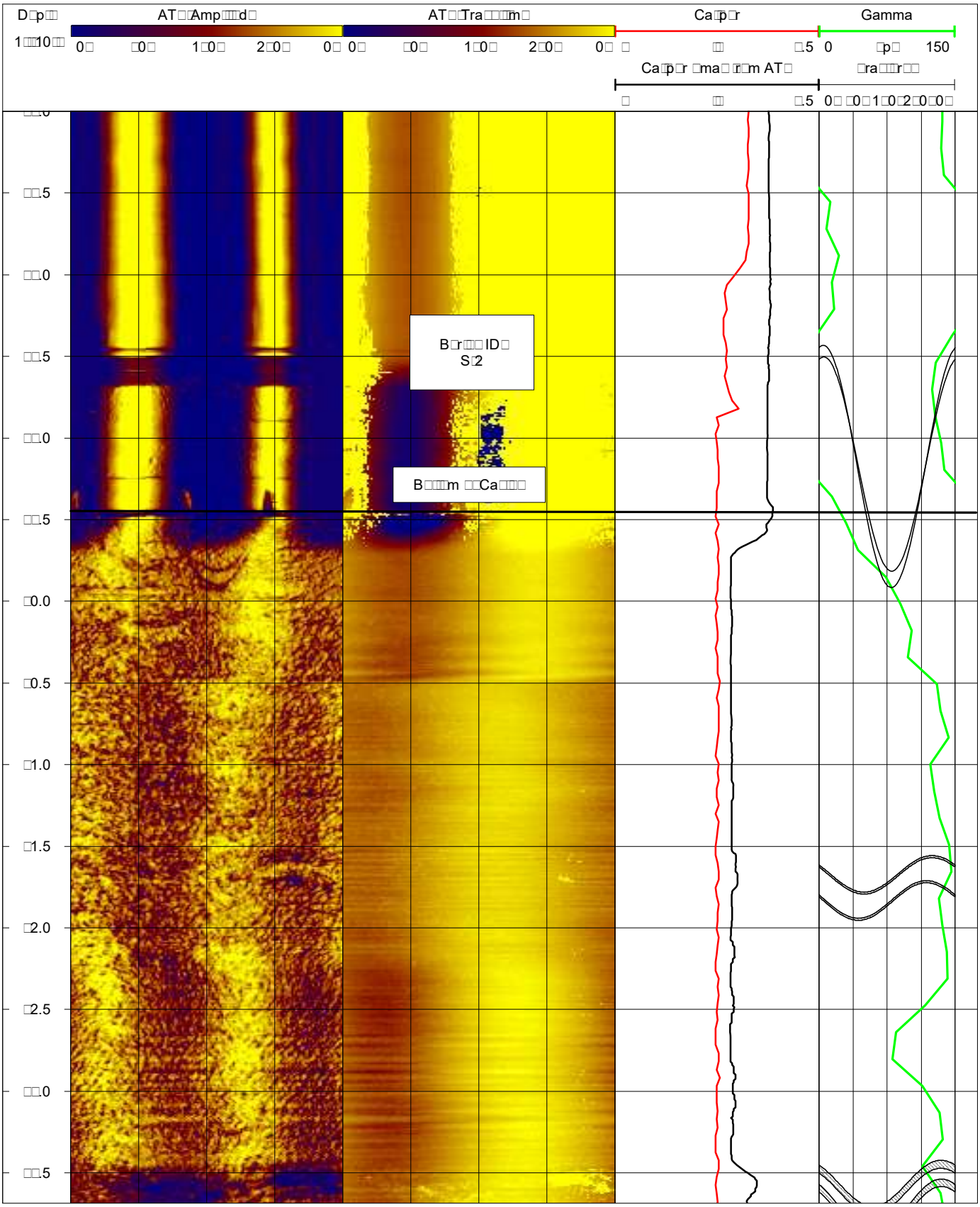
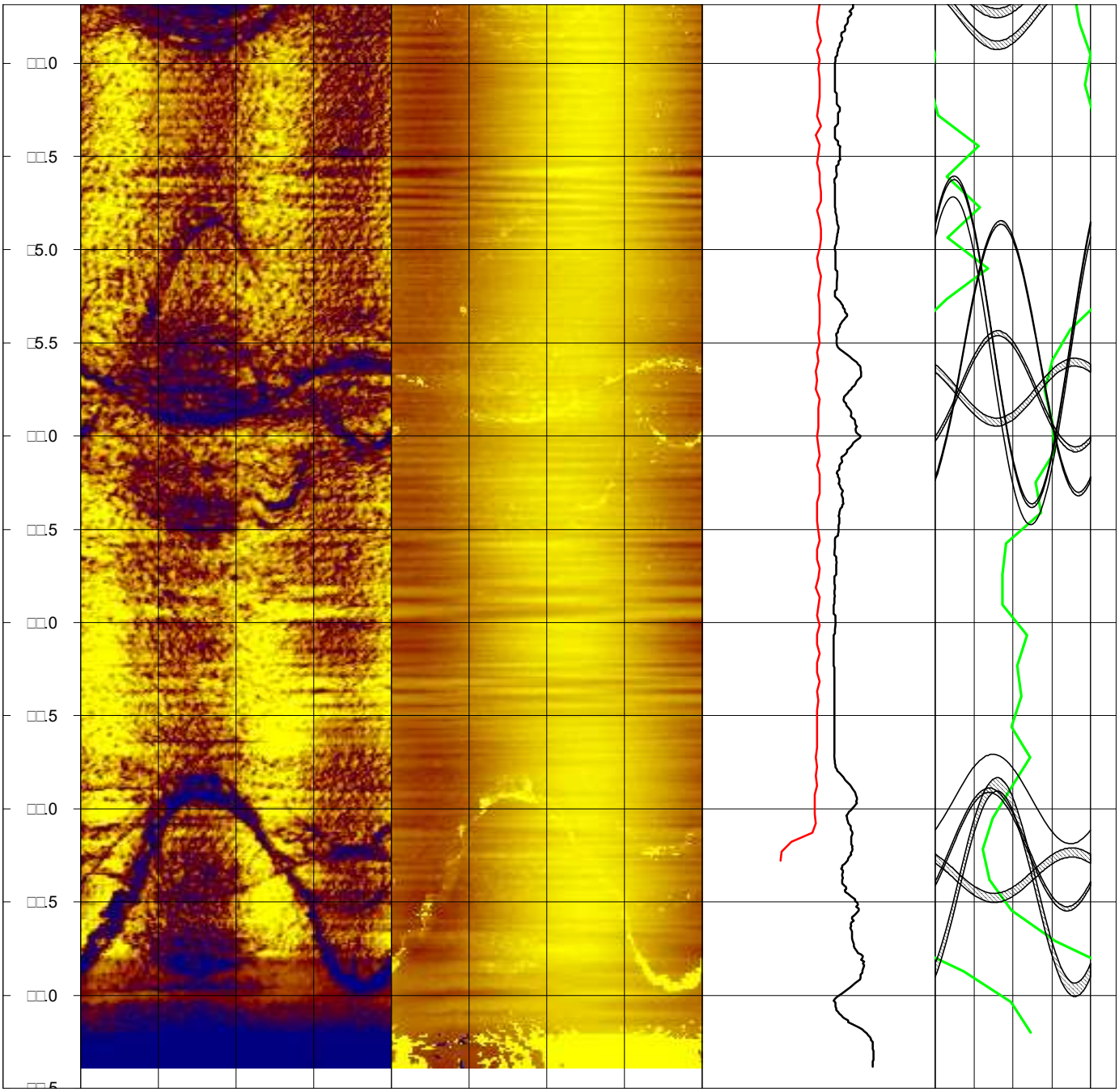
1□5.0
1□5.5


D□p□□□ □ra□□□r□□
1□□□200□□□
0 □0
R□□□□ D□a□ram □D□p D□r□□□□□□□□
A□□m□□□□ □A□□□□□□□□□ (C□□□□□)
R□□□□ D□a□ram □D□p
D□p C□□□□□□□A□□□□□□□□□ (C□□□□□)
A□□m□□□□ □A□□□□□□□□□ (C□□□□□)
D□p□□□□1□□□.□5 □□□□□□□□ 1□□□.□1 □□□□□
0□
5
2
1
1 2 □ □ 5
1□0□
C□mp□□□□□□□□□ A□□m□□□□
C□□□□□□□□□ □□□.00
M□a□ (□D)□ 1□□□.50
M□□□□ 1.□□
Ma□□ □5□.0□
D□p C□□□□□□□A□□□□□□□□□ (C□□□□□)
D□p□□□□1□□□.51 □□□□□□□□ 1□□□.□1 □□□□□
0□
11
10
3
12□□5□□□□111
C□□□□□□□□ □□□.00
M□a□ (□D)□ 1□□.□1
M□□□□ □.□□
Ma□□ 5□.□□

BORING S-2

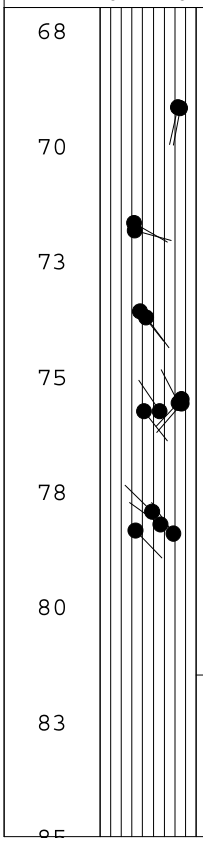


Gamma
150



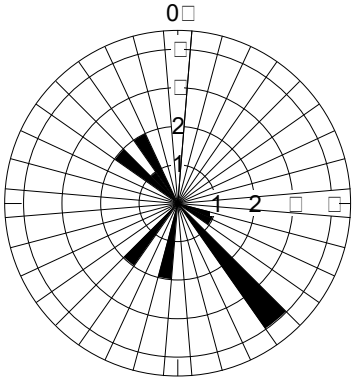
D□p□□ □ra□□□r□□ R□□□ D□a□ram □D□p D□□□□□□□□ R□□□ D□a□ram □D□p

1□□□50□□□ 0 □0 A□□m□□□ □A□□□□□□□□ (C□□□□) D□p C□□□□□□A□□□□□□□□ (C□□□□)



A□□m□□□ □A□□□□□□□□ (C□□□□)

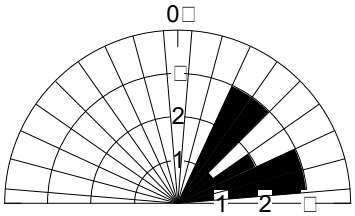
D□p□□□□□□.0□ □□□□□□□□ □1.□□ □□□□



C□mp□□□□□□□□	A□□m□□□
C□□□□□□□	15.00
M□a□ (□D)□	15□.□□
M□□□	105.50
Ma□□	□□2.□□

D□p C□□□□□□A□□□□□□□□ (C□□□□)

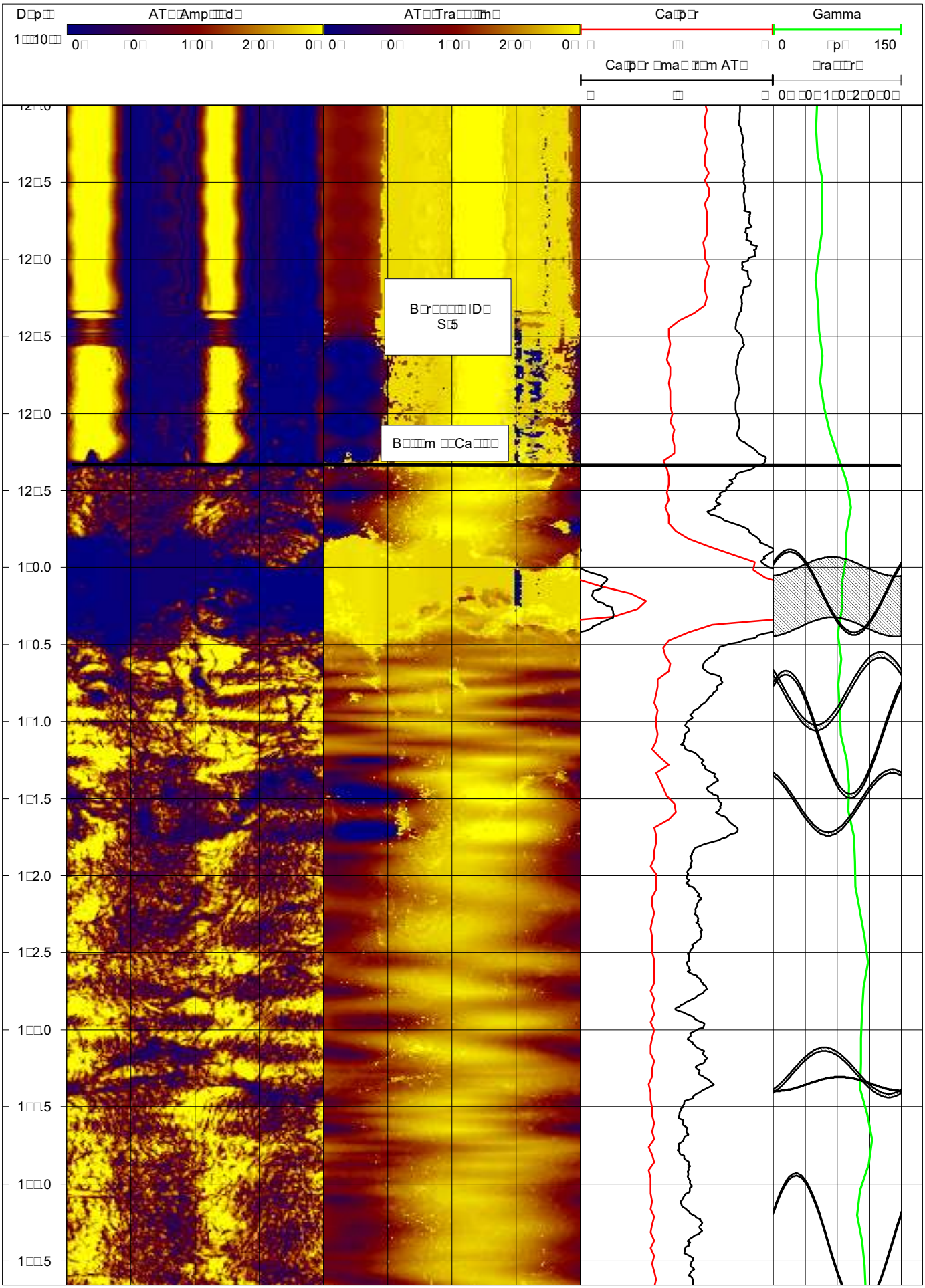
D□p□□□□□□.0□ □□□□□□□□ □1.□□ □□□□

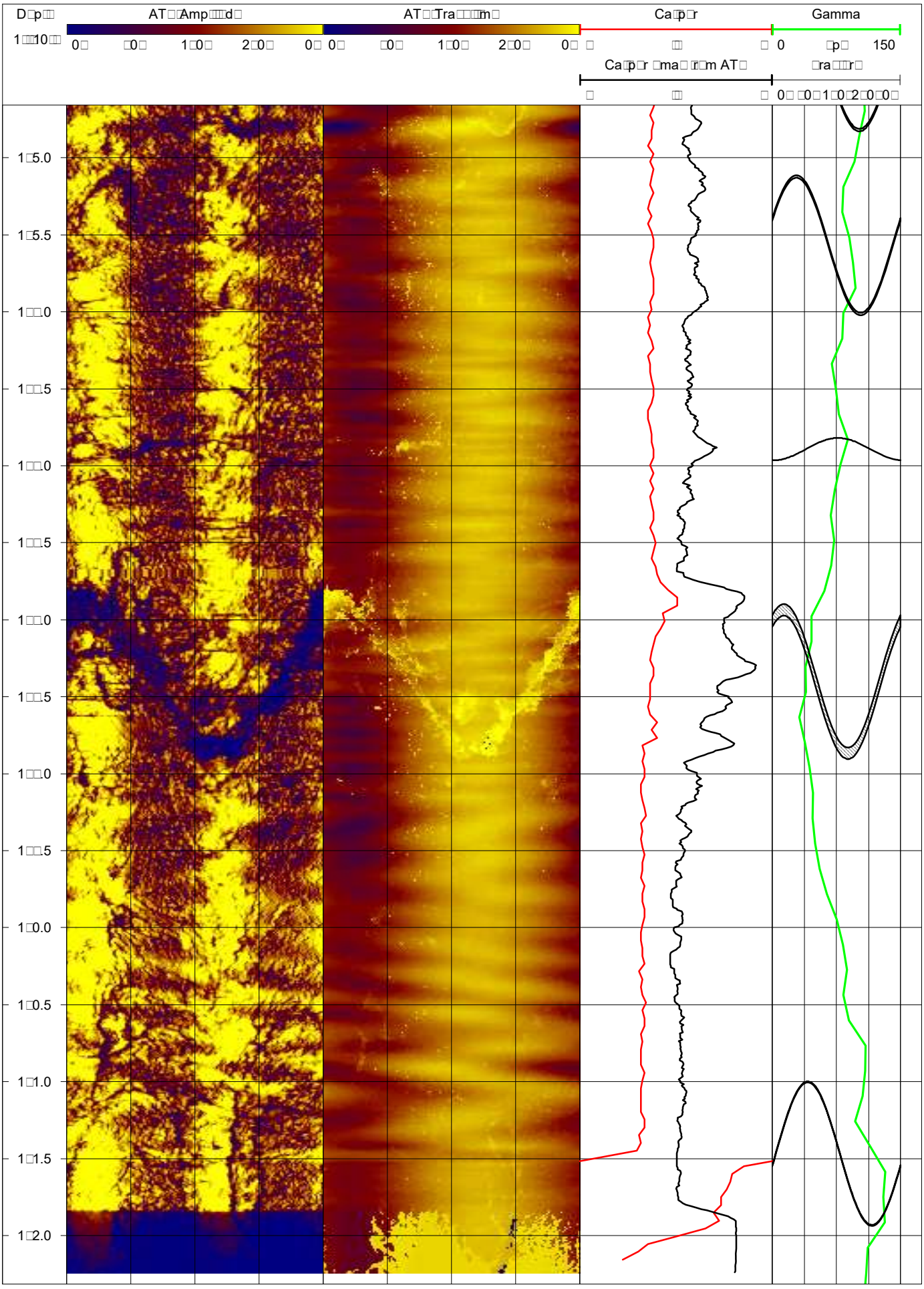


C□□□□□□□	15.00
M□a□ (□D)□	5□.2□
M□□□	□1.□□
Ma□□	□□.5□

□□r□□□ **ID**□
S□□

BORING S-5


Gamma
150
12□5
12□0
12□5
12□0
12□5
1□0.0
1□0.5
1□1.0
1□1.5
1□2.0
1□2.5



D p
AT Amp d
AT Tra m
Ca p r
Gamma
0 0 1 0 2 0 0
0 0 1 0 2 0 0
0 p 150
Ca p r ma r m AT
ra r
0 0 1 0 2 0 0
1 5.0
1 5.5
1 0.0
1 0.5
1 0.0
1 0.5
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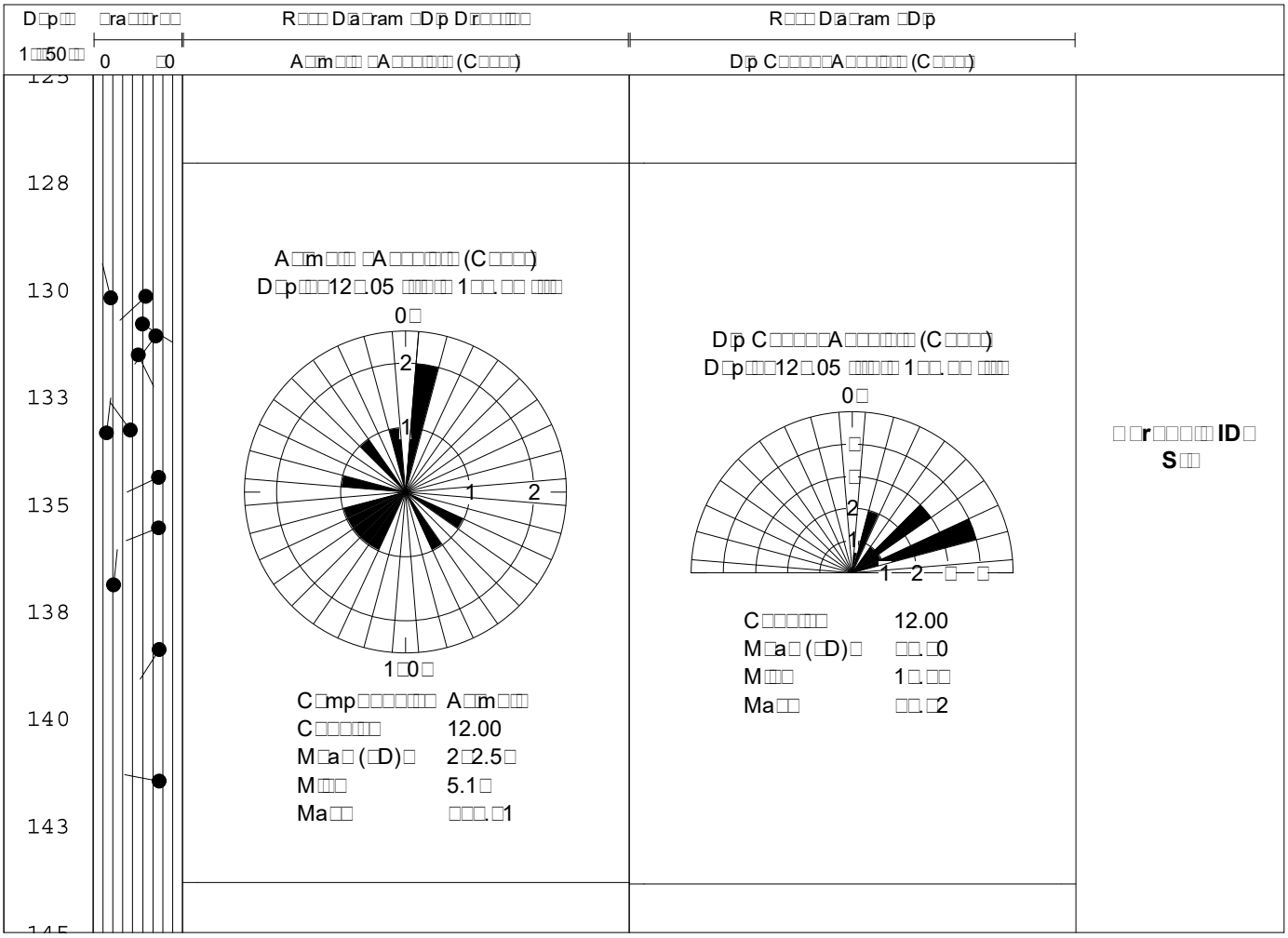
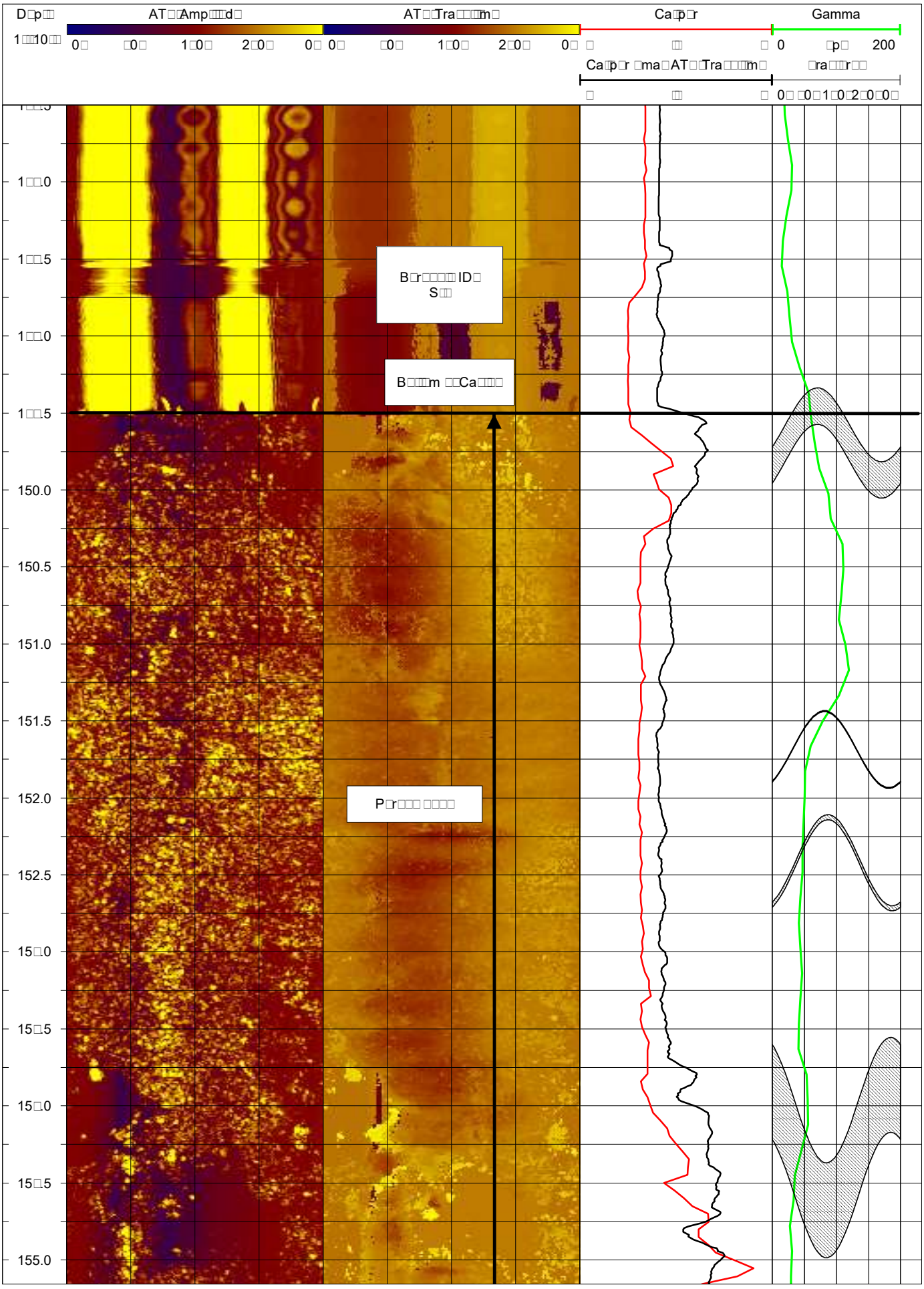
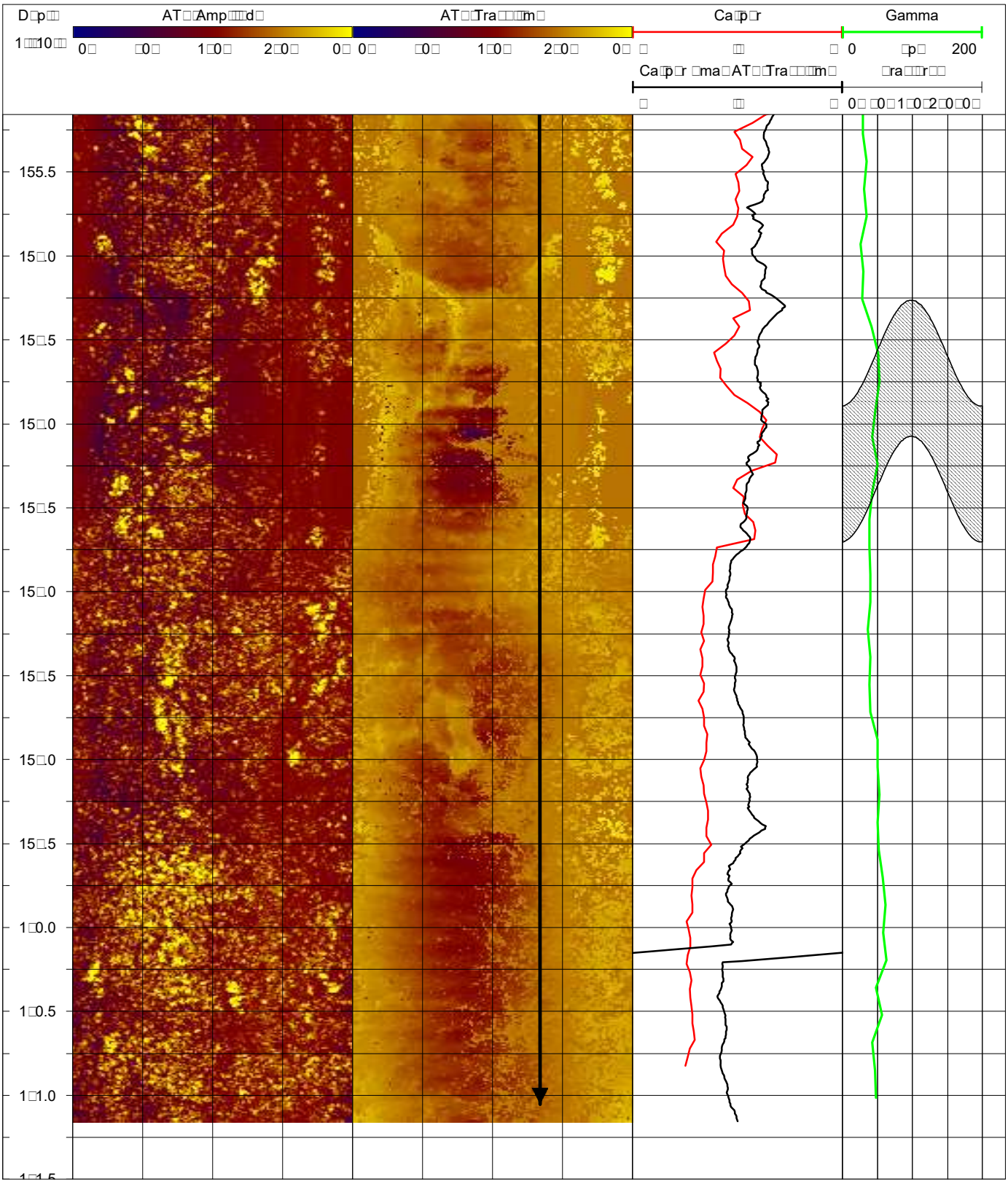
1 0.5
1 0.0
1 0.5
1 0.0
1 0.5
1 1.0
1 1.5
1 2.0

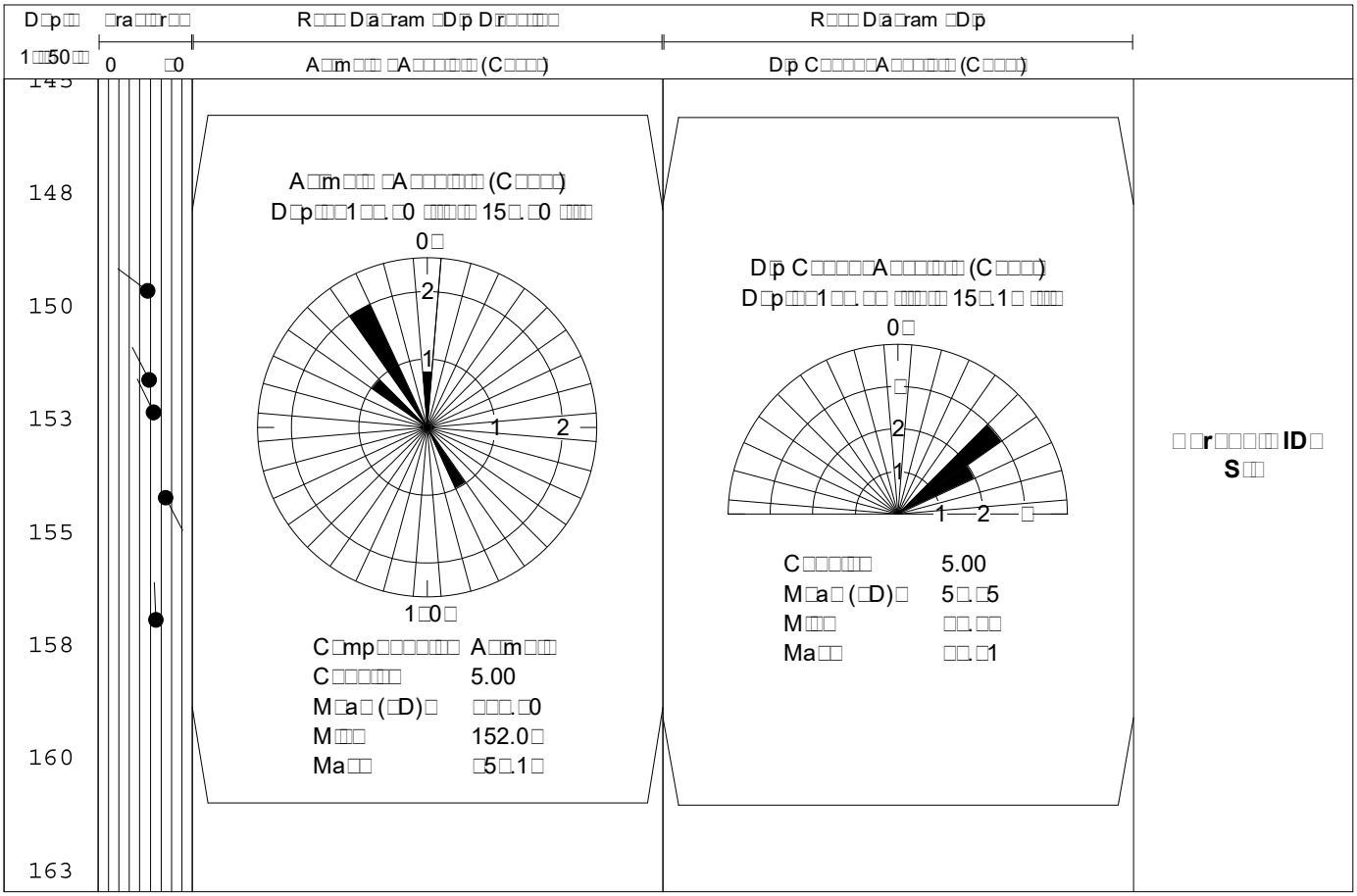


D p
ra r
R D a ram D p D r
R D a ram D p
1 50
0 0
A m A (C)
D p C A (C)
128
130
133
135
138
140
143
A m A (C)
D p 12 .05 1
0
2
1
1 2
1 0
C mp A m
C 12.00
M a (D) 2 2.5
M 5.1
Ma 1
D p C A (C)
D p 12 .05 1
0
2
1
1 2
C 12.00
M a (D) 0
M 1
Ma 2
r ID
S

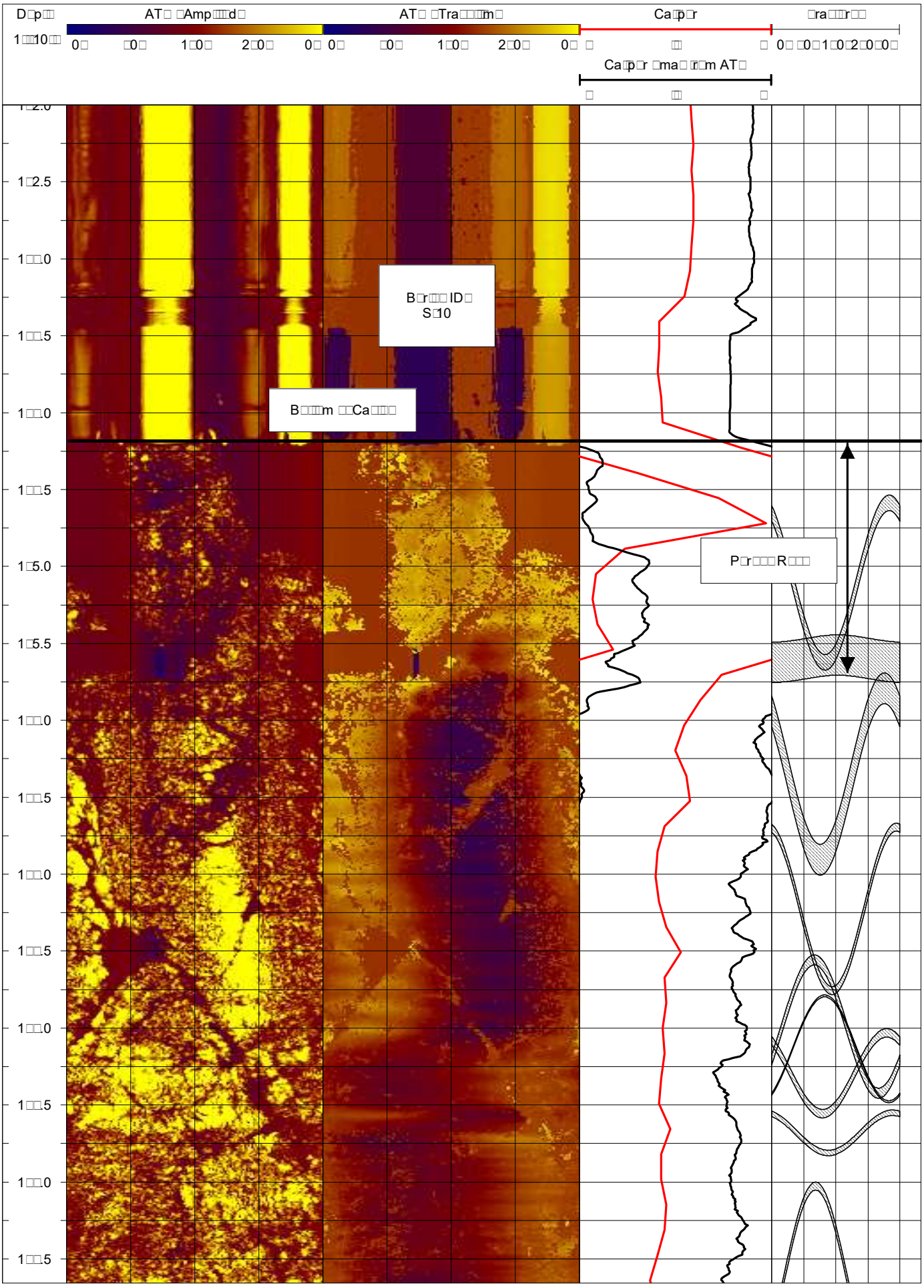
BORING S-7


D□p□□
AT□□Amp□□□d□
AT□□Tra□□□□m□
Ca□p□r
Gamma
1□□□10□□□
0□ □0□ 1□0□ 2□0□ 0□ 0□ □0□ 1□0□ 2□0□ 0□ □ □□ □ 0 □p□ 200
Ca□p□r □ma□AT□□Tra□□□□m□
□ □□ □ 0□ □0□1□0□2□0□0□
B□r□□□□□ ID□
S□□
B□□□□m □□Ca□□□□
P□r□□□ □□□□□
1□□.5
1□□.0
1□□.5
1□□.0
1□□.5
150.0
150.5
151.0
151.5
152.0
152.5
15□.0
15□.5
15□.0
15□.5
155.0


D□p□□
1□□□10□□
AT□□Amp□□□d□
0□ □0□ 1□0□ 2□0□ 0□
AT□□Tra□□□□m□
0□ □0□ 1□0□ 2□0□ 0□
Ca□p□r
□ □□ □
Gamma
0 □p□ 200
Ca□p□r □ma□AT□□Tra□□□□m□
□ □□ □
□ra□□□r□□
0□ □0□1□0□2□0□0□
155.5
15□0
15□5
15□0
15□5
15□0
15□5
15□0
15□5
1□0.0
1□0.5
1□1.0


148
150
153
155
158
160
163
5.00
152.0
5.00
5.5
ID
S

BORING S-10


D□p□□
1□□□10□□
AT□ □Amp□□□d□
0□ □0□ 1□0□ 2□0□ 0□
AT□ □Tra□□□□m□
0□ □0□ 1□0□ 2□0□ 0□
Ca□p□r
□
□□
□
□ra□□□r□□
0□ □0□ 1□0□ 2□0□ 0□
Ca□p□r □ma□ □r□m AT□
□
□□
□
B□r□□□ ID□
S□10
B□□□□m □□Ca□□□□
P□r□□□□R□□□□
1□2.5
1□□.0
1□□.5
1□□.0
1□□.5
1□5.0
1□5.5
1□□.0
1□□.5
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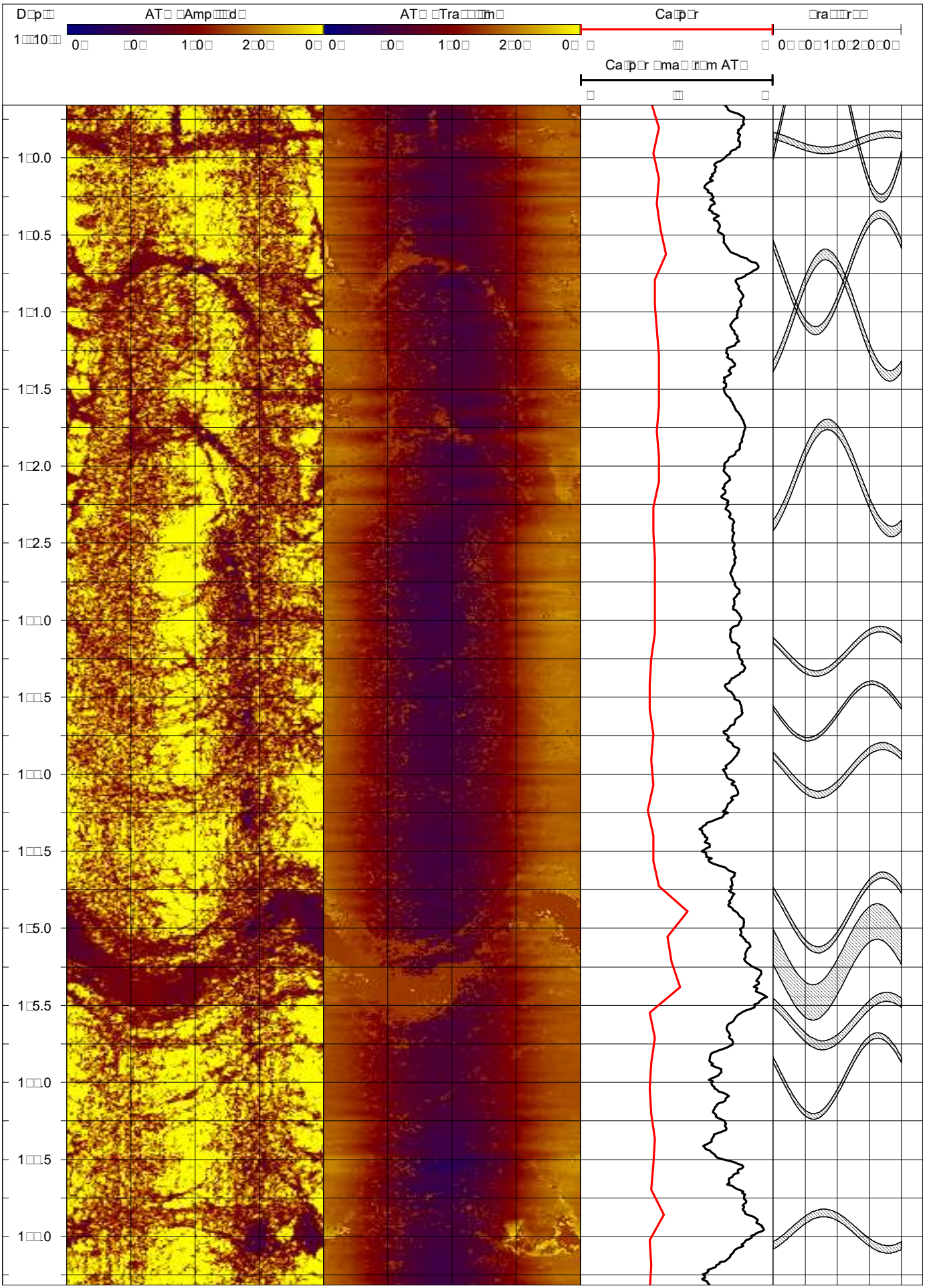
1□□.5
1□□.0
1□□.5
1□□.0
1□□.5


D□p□□
1□□□10□□
AT□ □Amp□□□d□
0□ □0□ 1□0□ 2□0□ 0□
AT□ □Tra□□□□m□
0□ □0□ 1□0□ 2□0□ 0□
Ca□p□r
□ □□ □
□ra□□□r□□
0□ □0□ 1□0□ 2□0□ 0□
Ca□p□r □ma□ r□□m AT□
□ □□ □
1□0.0
1□0.5
1□1.0
1□1.5
1□2.0
1□2.5
1□□.0
1□□.5
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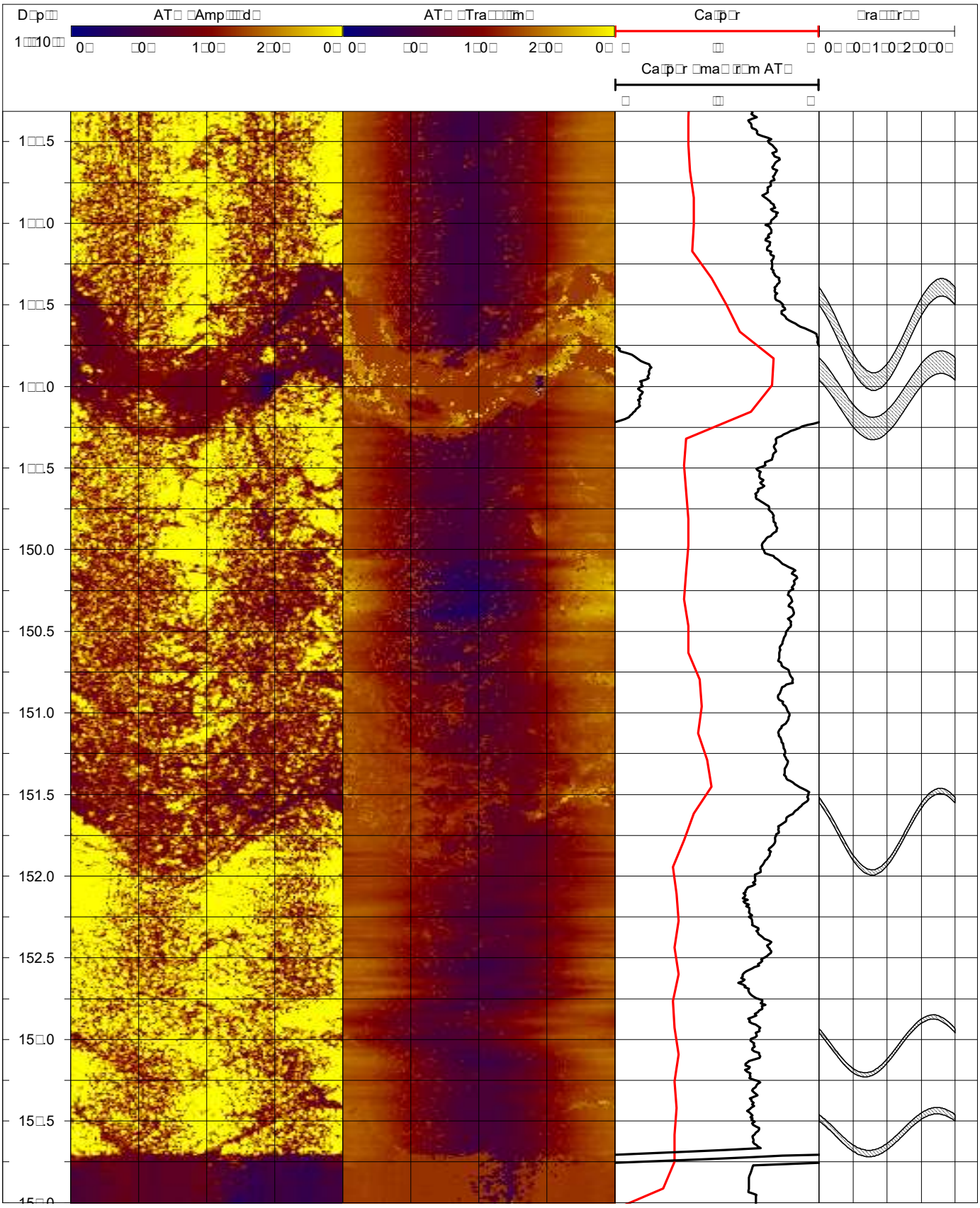
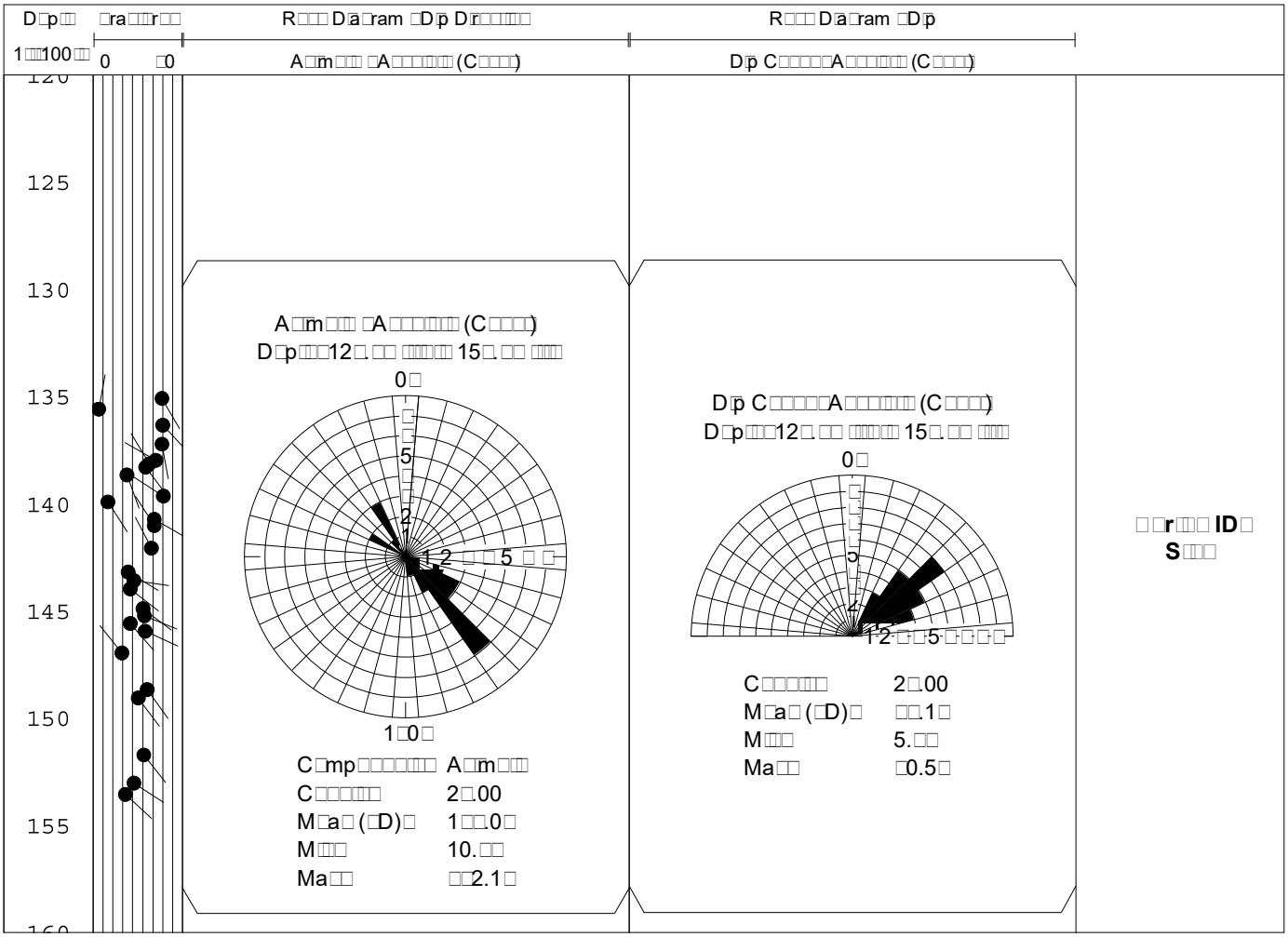
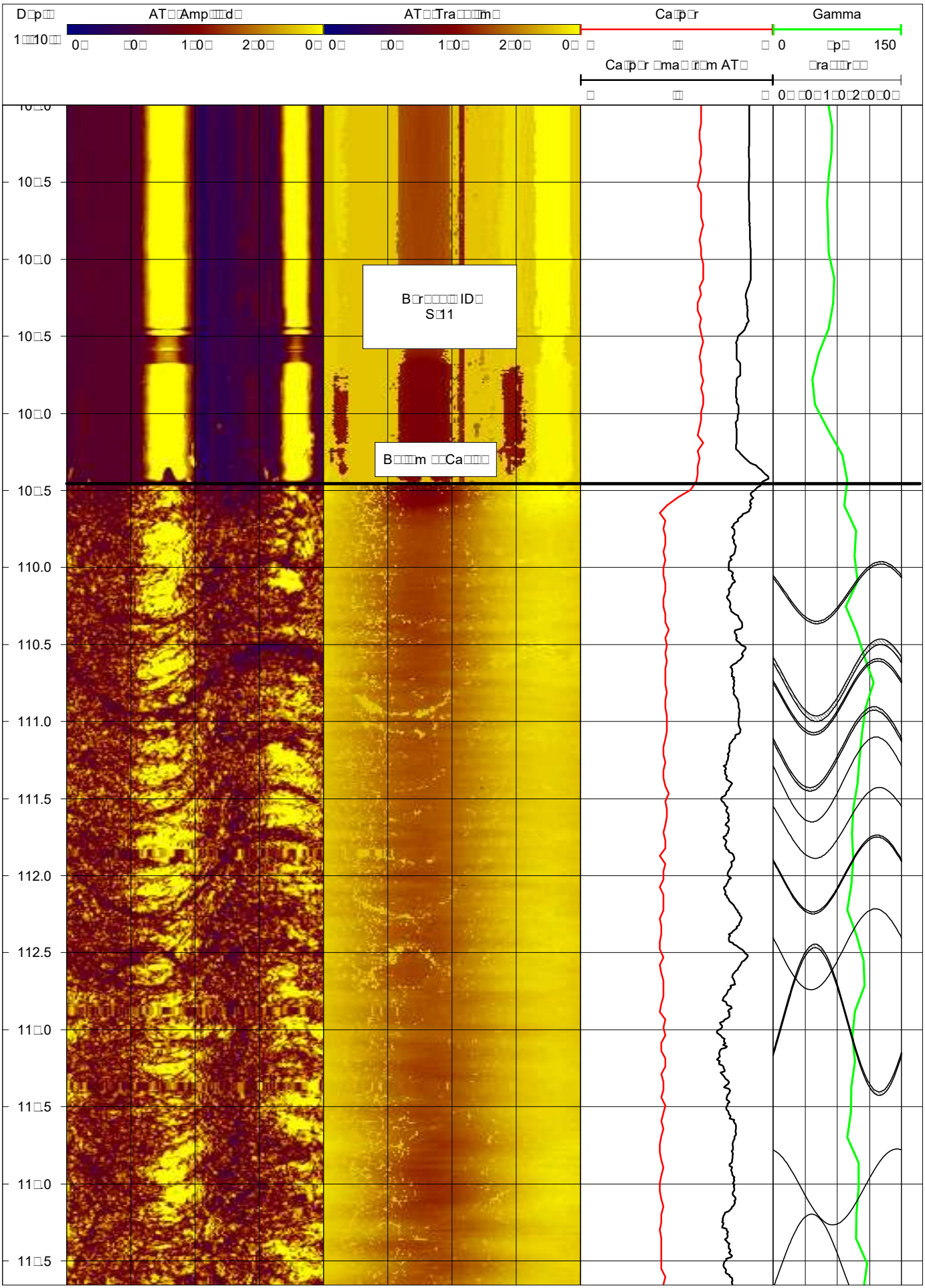
1□□.0

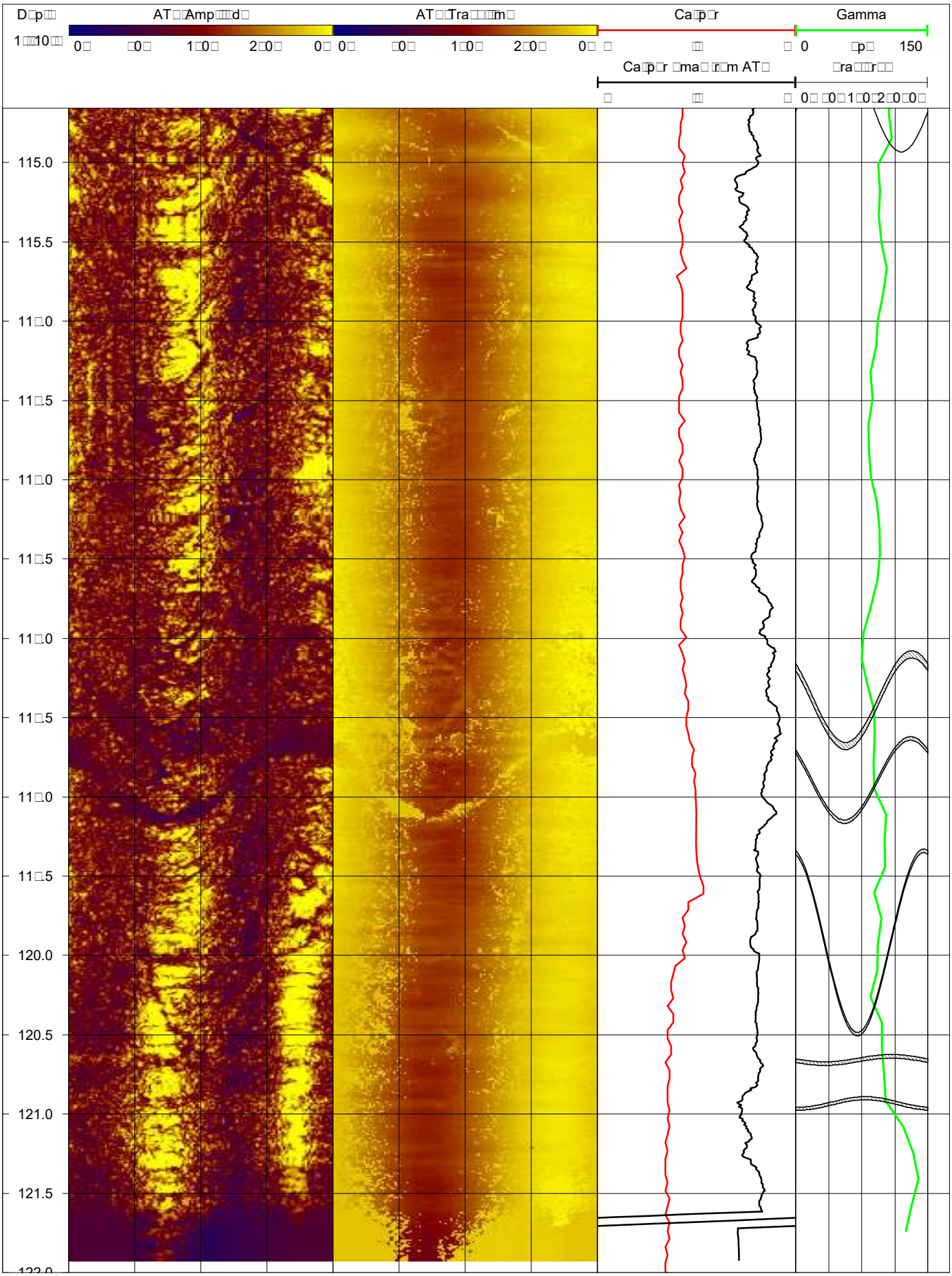

D□p□□
AT□ □Amp□□□d□
AT□ □Tra□□□□m□
Ca□p□r
□ra□□□r□□
1□□□10□□
0□ □0□ 1□0□ 2□0□ 0□ 0□ □0□ 1□0□ 2□0□ 0□ □ □ □ 0□ □0□1□0□2□0□0□
Ca□p□r □ma□ r□□m AT□
□ □□ □
1□□.5
1□□.0
1□□.5
1□□.0
1□□.5
150.0
150.5
151.0
151.5
152.0
152.5
15□.0
15□.5
15□.0


D□p□□
□ra□□□r□□
1□□□100□□□
0
□0
R□□□ D□a□ram □D□p D□r□□□□□□□
A□m□□□ □A□□□□□□□□ (C□□□□)
R□□□ D□a□ram □D□p
D□p C□□□□□□A□□□□□□□□ (C□□□□)
120
125
130
135
140
145
150
155
160
A□□m□□□□ □A□□□□□□□□ (C□□□□)
D□p□□□□12□.□□ □□□□□□□□ 15□.□□ □□□□
0□
5
2
1 2 □ □ 5 □ □
1□0□
C□mp□□□□□□□□ A□□m□□□
C□□□□□□□ 2□.00
M□a□ (□D)□ 1□□.0□
M□□□ 10.□□
Ma□□ □□2.1□
D□p C□□□□□□A□□□□□□□□ (C□□□□)
D□p□□□□12□.□□ □□□□□□□□ 15□.□□ □□□□
0□
5
4
1 2 □ □ 5 □ □ □ □
C□□□□□□□ 2□.00
M□a□ (□D)□ □□.1□
M□□□ 5.□□
Ma□□ □0.5□
□□r□□□ ID□
S□□□

BORING S-11



Gamma
150
110.0
110.5
111.0
111.5
112.0
112.5


D□p□□
1□□□10□□
AT□□Amp□□□d□
0□ □0□ 1□0□ 2□0□ 0□
AT□□Tra□□□□m□
0□ □0□ 1□0□ 2□0□ 0□
Ca□p□r
□ □□ □
Gamma
□ 0 □p□ 150
Ca□p□r □ma□ r□m AT□
□ □□ □
□ra□□r□□
0□ □0□ 1□0□ 2□0□ 0□
115.0
115.5
11□.0
11□.5
11□.0
11□.5
11□.0
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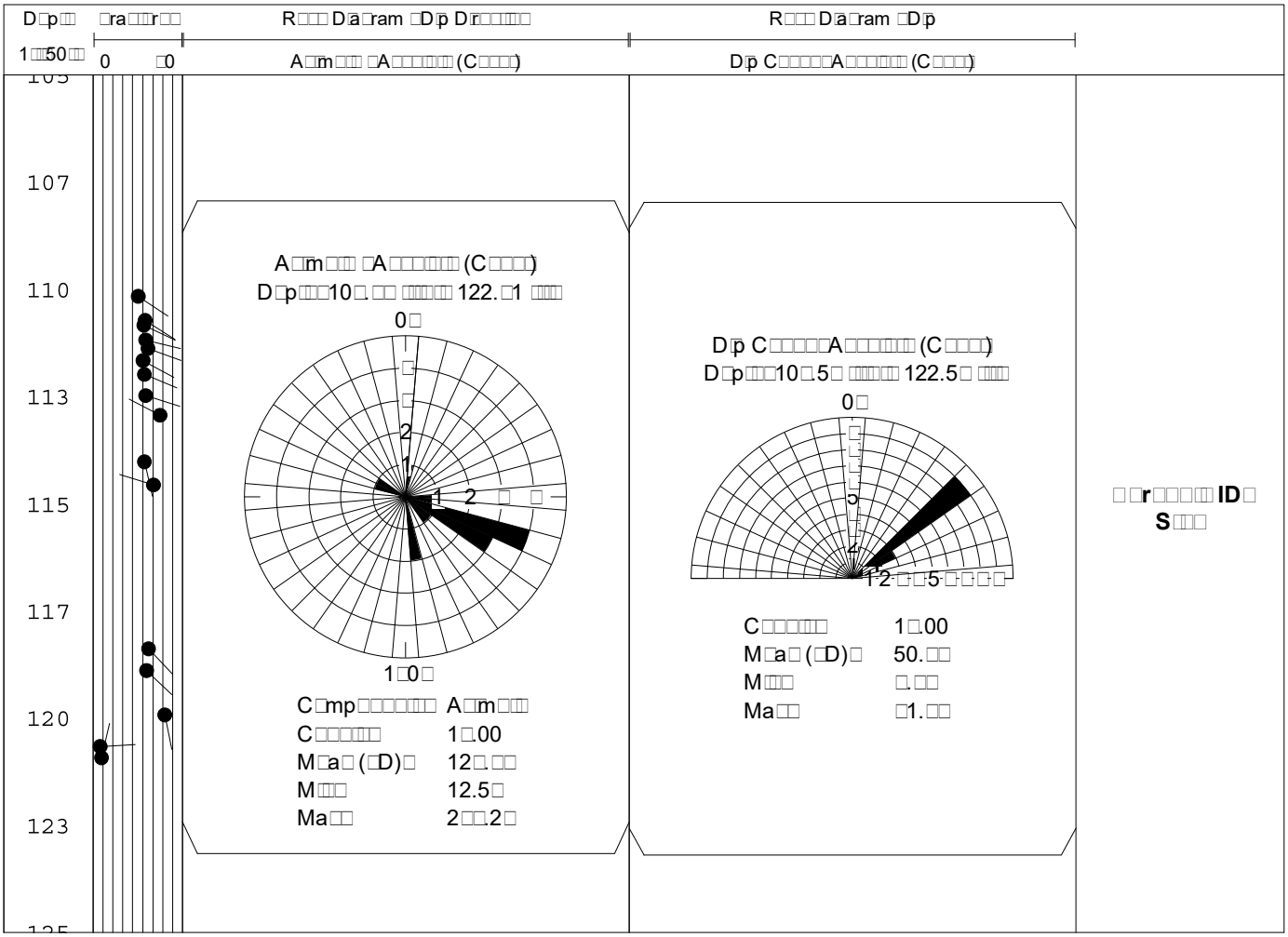
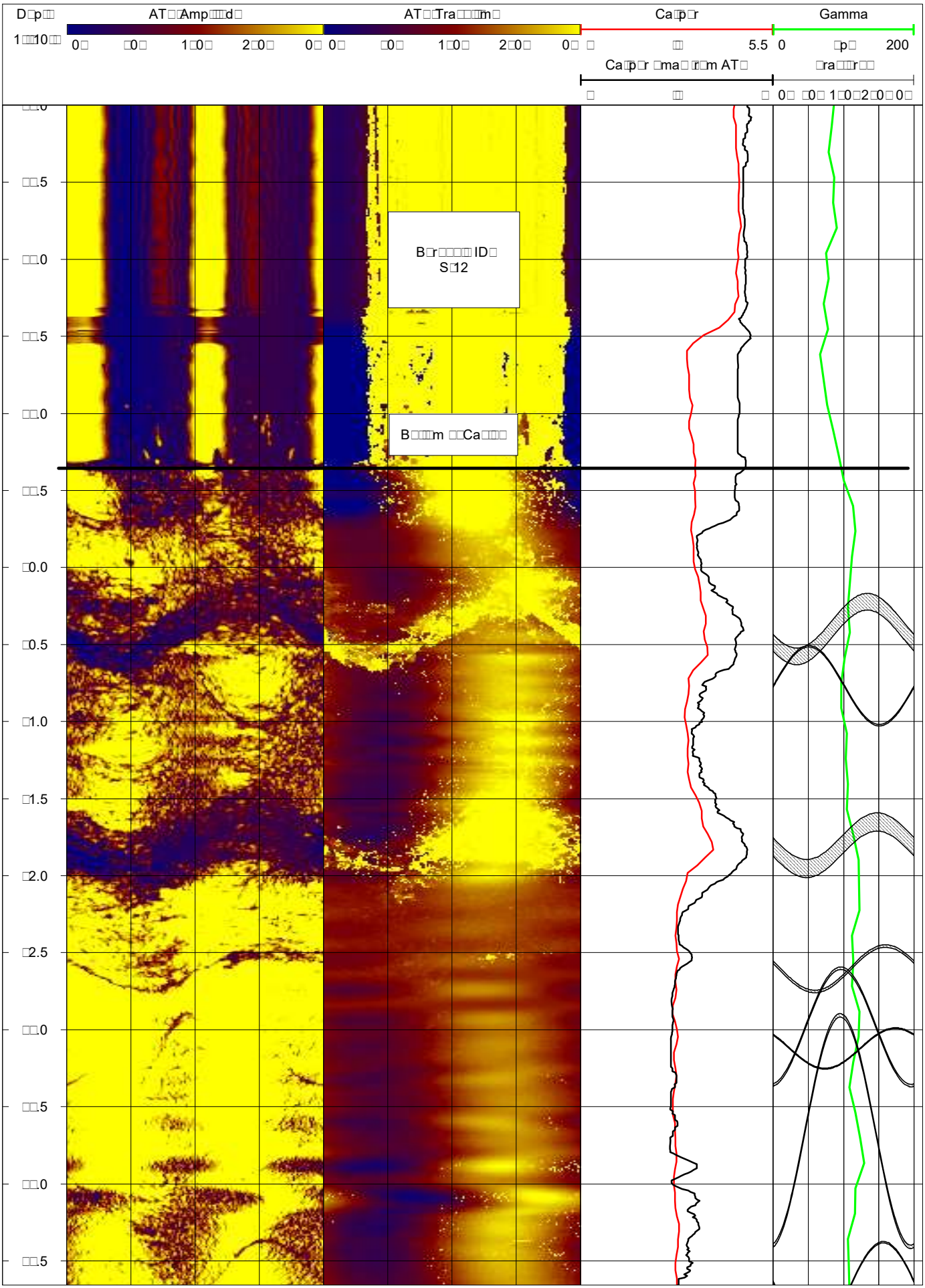
11□.0
11□.5
120.0
120.5
121.0
121.5


107
110
113
115
117
120
123
122.1
122.5
50.
12.5
1.00
1.00
12.5
2.2
1.00
50.
1.

BORING S-12



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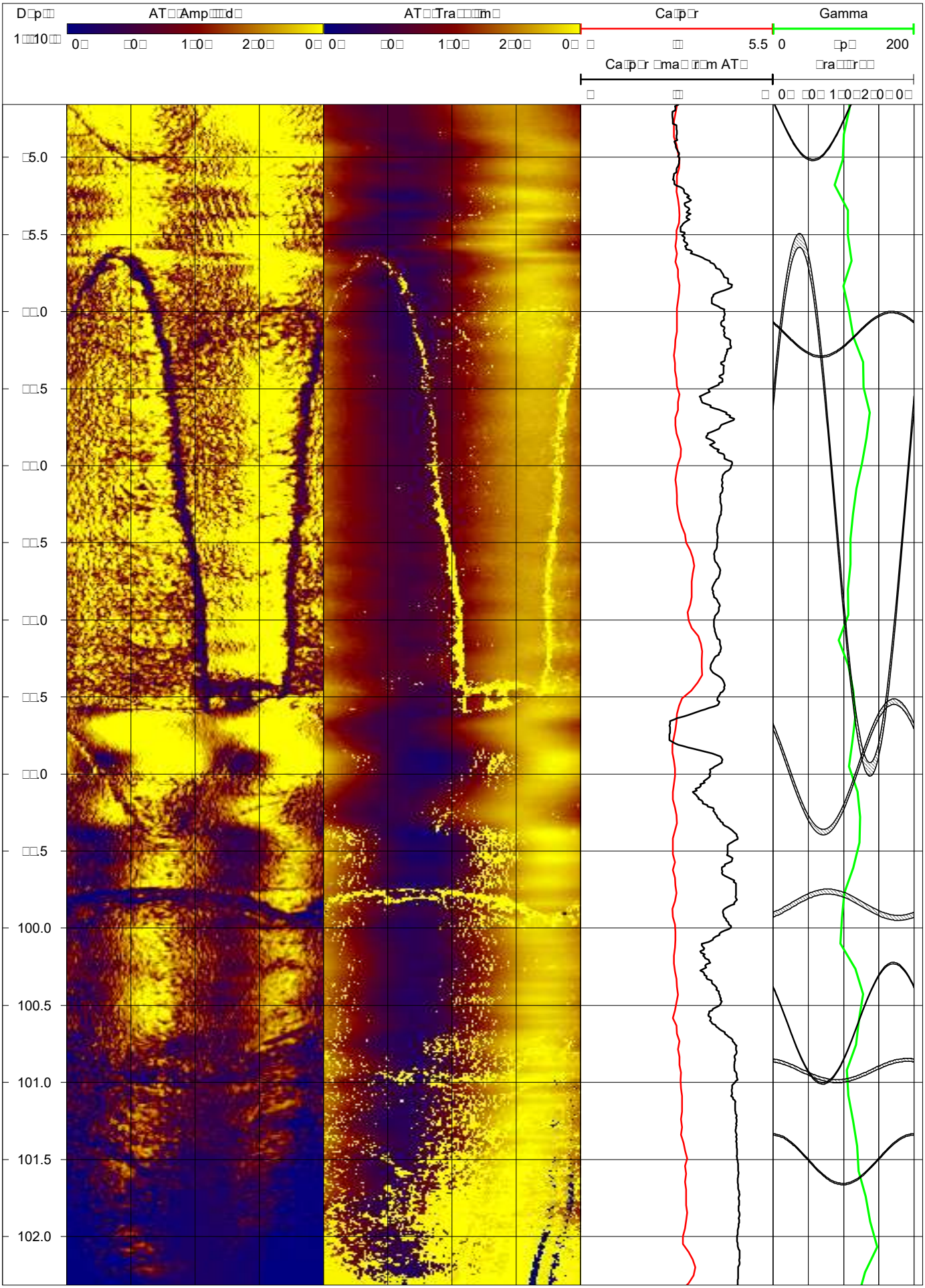
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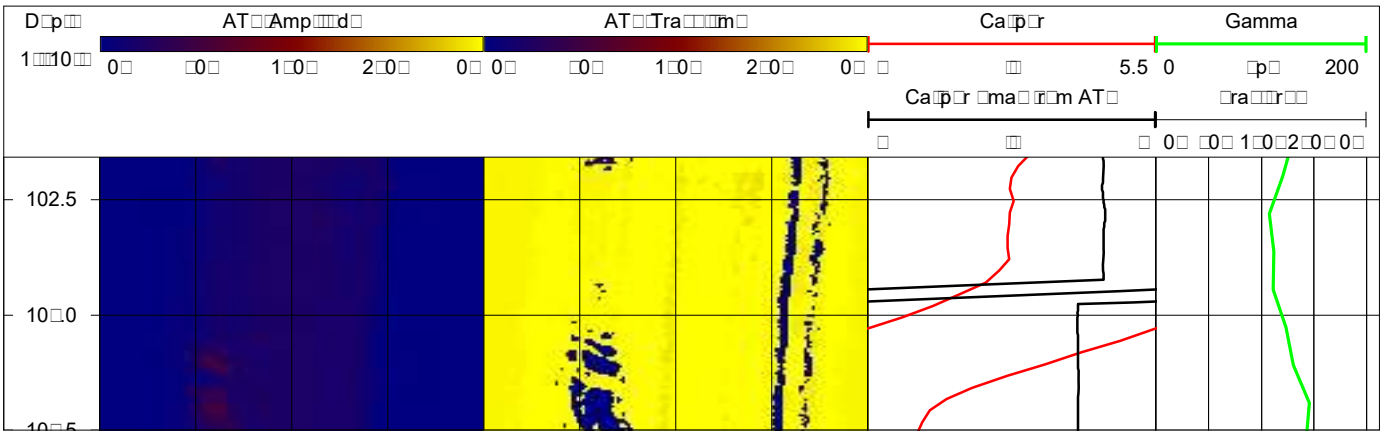
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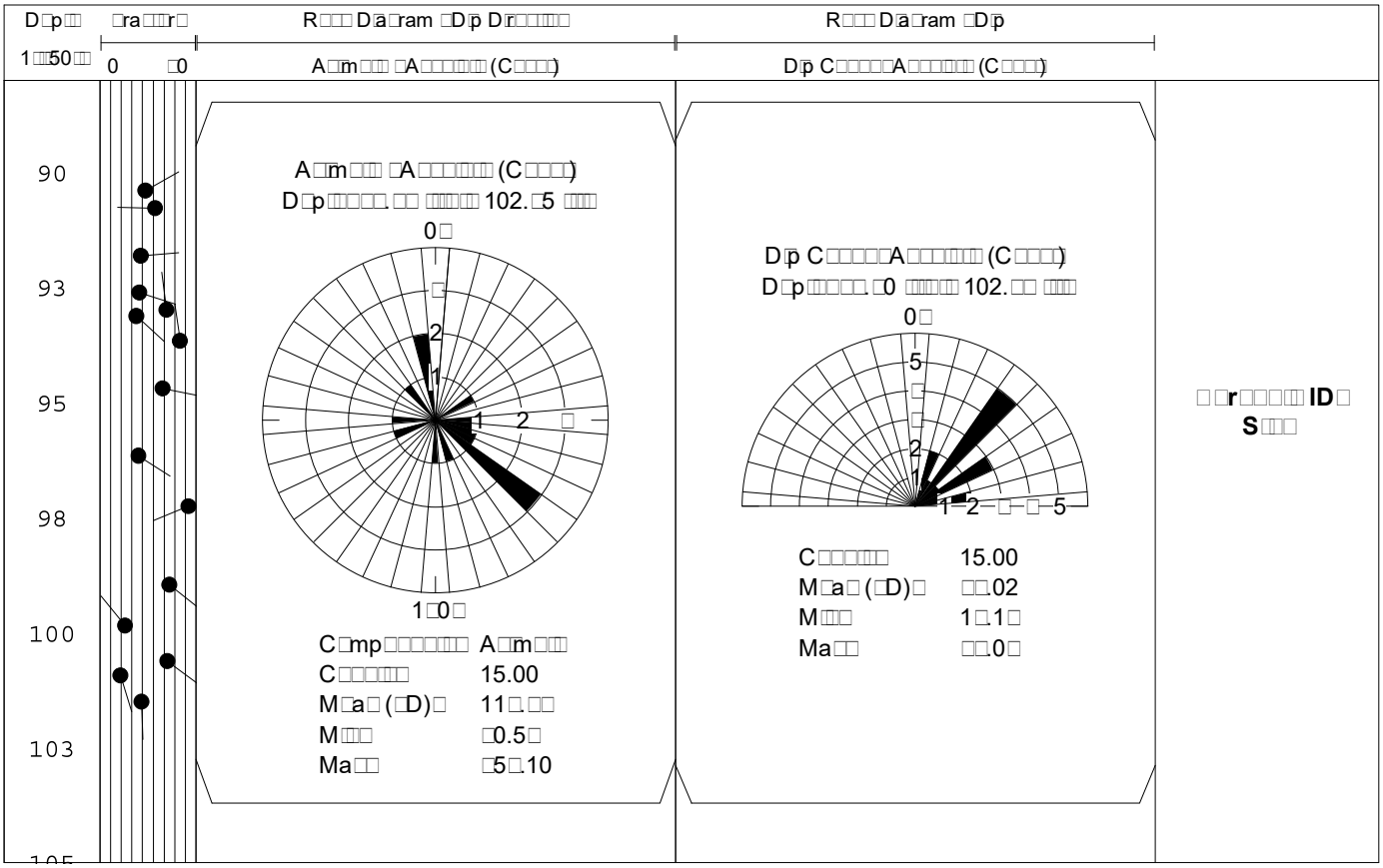

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GEL Solutions

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Geophysical Logging Report

PZ – 22, PZ – 23D, PZ – 23S, PZ – 25, PZ – 26D

Georgia Power Plant Wansley, Carrollton, Georgia

Performed for:

Geosyntec

November 11, 2020

Geophysical Logging Report: PZ – 22, PZ – 23D, PZ – 23S, PZ – 25, PZ – 26D
Georgia Power Plant Wansley, Carrollton, Georgia

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SIGNATURE PAGE

This report, entitled "Geophysical Logging Report: Geophysical Logging Report: PZ – 22, PZ – 23D, PZ – 23S, PZ – 25, PZ – 26D Georgia Power Plant Wansley, Carrollton, Georgia" has been prepared for Geosyntec located in Kennesaw, Georgia. It has been prepared under the supervision of Mr. Jorgen Bergstrom at the request of and the exclusive use of Geosyntec. This report has been prepared in accordance with accepted quality control practices and has been reviewed by the undersigned.

GEL Solutions, LLC
A Member of the GEL Group, Inc.

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Senior Geophysicist

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Geophysical Specialist

November 11, 2020

Date

EXECUTIVE SUMMARY

GEL Solutions performed geophysical borehole logging services in 5 borings located at a Georgia Power's Plant Wansley in Carrollton, Georgia. The field investigation was performed on October 13, October 14, and October 19 over the course of two separate mobilizations. This investigation was conducted to aid Geosyntec in evaluating potential pathways for groundwater migration through fractured bedrock at the site. The geophysical logs consisted of acoustic televiewer, caliper, fluid conductivity, fluid temperature, single point resistance (SPR), spontaneous potential (SP). Fluid temperature and conductivity data was collected under ambient groundwater conditions in all wells and under pumping conditions in select wells.

The logging data was analyzed to determine the location and orientation of fractures; and other features. In addition to these data sets, synthetic caliper logs were calculated from the acoustic televiewer travel time data to aid in the interpretation. The logs were analyzed for fractures and other features. Dip and azimuth (dip direction), and aperture were calculated for each detected fracture based on the televiewer dataset.

1.0 INTRODUCTION

GEL Solutions performed geophysical borehole logging services in 5 borings located at Georgia Power's Plant Wansley located in Carrollton, Georgia. The geophysical logs consisted of acoustic televiewer, 3-arm caliper, fluid conductivity, fluid temperature, single point resistance (SPR), and spontaneous potential (SP). The fluid temperature and conductivity logs were collected under ambient groundwater conditions in all wells and under pumping conditions in 1 well. The field investigation was performed on October 13, October 14, and October 19 during two separate mobilizations. The logging data was analyzed to determine the location and orientation of fractures and other features. In addition to these data sets, synthetic caliper logs were calculated from the acoustic televiewer travel time data to aid in the interpretation.

2.0 EQUIPMENT AND METHODOLOGY

The information below is an overview of the geophysical methodologies used for this investigation. The intent of this overview is to give the reader a better understanding of each method, and background information as to what is actually measured, the resolution of the method, and the limitations imposed by site-specific subsurface conditions.

2.1 Acoustic Televiewer

Acoustic televiewer (ATV) logging produces a high resolution, magnetically oriented digital image of the borehole wall to map the location and orientation of intersecting fractures, foliations, and lithologic contacts. The Acoustic televiewer tool emits a rotating, narrow, acoustic beam that is reflected off the borehole wall. The travel time and amplitude of the reflected wave are recorded by the tool and used to create borehole images. Both datasets are useful for identifying the location and orientation of fractures. The amplitude of the reflected signal will decrease at the location of fractures and the travel time will increase. The travel time data can also be used for developing a high resolution caliper log for a more comprehensive analysis of fractures. Acoustic televiewers can only be used in fluid filled boreholes. However, the fluid does not have to be optically clear for the method to work.

When operating the ATV, a "time window" is set based on the borehole diameter. The time window is the time interval in which the ATV instrument searches for an echo from the borehole wall. For smaller increases in borehole diameter around fractures and sections of weaker rock, the ATV typically records an

accurate borehole diameter (correlates well with three-arm caliper data). However, if borehole openings are much larger than the borehole diameter, the echo from the borehole wall may fall outside the time window, or be too weak to be detected. In these situations, borehole diameters recorded with ATV may be inaccurate. Since ATV only records the reflection from the borehole wall, the data cannot be used to determine how far a fracture extends from the borehole. The acoustic televiewer has a vertical resolution of 2 millimeters.

2.2 3-Arm Caliper

Caliper logging is used to generate a profile of the borehole diameter with depth. The tool measures the borehole diameter using three spring-loaded arms. Narrow enlargements in the borehole diameter can, in most cases, be attributed to fractures. Caliper logging can be conducted above and below the water surface.

2.3 Fluid Temperature

Fluid temperature logging is used to identify where water enters or exits the borehole. In the absence of fluid flow, a gradual increase on water temperature of approximately 1°F per 100 feet of depth is expected. Rapid changes in the fluid temperature indicate water-producing or water-receiving zones. Little or no temperature gradient indicates intervals of vertical flow.

2.4 Fluid Conductivity

Fluid conductivity logging is used to measure the electrical conductivity of the fluid in the borehole. Variations in fluid conductivity can be contributed to concentration variations of dissolved solids. These differences can occur when sources of water have contrasting chemistry and have come from different transmissive zones. Fluid temperature and conductivity are measured concurrently using the same logging tool.

2.5 Single Point Resistance (SPR)

Single point resistance logging involves passing an alternate current between a surface electrode and a probe electrode and measuring the voltage difference created by the current. SPR is then calculated using Ohm's law. SPR is the sum of cable resistance, and the resistance based on the composition of the medium, the cross sectional area and length of the path through the medium. Therefore, the single point resistance log does not provide quantitative data. In general, SPR increases with increasing grain size and decreases with increasing borehole diameter, fracture density, and the concentration of dissolved solids in the water. Single-point resistance logs are useful in the determination of lithology, water quality, and location of fracture zones

2.6 Spontaneous Potential (SP)

SP logging is conducted to measure naturally occurring voltage differences along a borehole. The method has been found useful for delineating sandstone/shale layering and other boundaries between permeable and impermeable beds. The measurements are made with reference to an electrode at ground level. Therefore, SP logging does not provide quantitative data.

3.0 FIELD PROCEDURES

All GEL Solutions activities on-site were supervised by a senior geophysicist. For this investigation, GEL Solutions used a Mount Sopris Matrix logging system. Pumping tests during HPF testing were conducted using a Grundfos Redi-Flow-2 water pump with variable speed control box and an in-situ Mini-Troll pressure transducer with logging capabilities. The pump is placed above the interval to be analyzed and preferably in the casing (unless the water level is too low). HPF logging under pumping conditions commenced after the borehole water level had stabilized. HPF logging was conducted at every 5 feet throughout the logging intervals under ambient and pumping conditions. More closely spaced readings were then conducted at sections with abrupt changes in flow. A summary of the configuration of the boreholes, pumping rates, and water levels is provided below. All depth measurements are referenced from the ground surface. All borings are surface cased and open hole below the casing.

Logging Configuration Summary

Well ID:	PZ - 22	PZ - 23D	PZ - 23S	PZ - 25	PZ - 26D
Casing Material:	Steel	Steel	Steel	Steel	Steel
Casing Diameter (in):	5.5	5.5	5.5	5.5	5.5
Open Hole (ft):	8.3-50.3	20.4-90.7	29.5-68.2	48.2-70.6	38.2-73.3
Open Hole Diameter (in):	6.2	6.2	6.2	6.2	6.2
Ambient Groundwater Level (ft):	12.4	47.5	35.5	23.6	12.3
Pump Depth (ft):	-	-	-	55	-
Pump Rate (Gallon per Minute):	-	-	-	0.2	-
Groundwater Level While Pumping (ft):	-	-	-	47.2	-

4.0 DATA PROCESSING AND RESULTS

The logs were analyzed for fractures and other features using WellCAD software, manufactured by Advanced Logic Technology. The travel time data from the acoustic televiewer log was used to develop a maximum caliper log. Fractures were interpreted through a complete data analysis of all logs. Dip and azimuth (dip direction) and aperture were calculated for each detected fracture. The fracture data was corrected from apparent to true dip and azimuth using deviation logs included with the televiewer dataset, and from magnetic north to true north by rotating the fracture azimuths 4.8° counterclockwise. Magnetic north is 4.8° west of true north at the site (according to National Oceanic and Atmospheric Administration). The reported azimuth is measured clockwise from true north (Figure 1). A fracture summary table including fracture attributes is provided in Appendix 1. Major fractures are shown in bold.

Schmidt stereonets (lower hemisphere) with fracture characteristics and fracture rose diagrams are presented on Appendix 2. Fluid Temperature and Conductivity logs and fracture characteristics are shown on Appendix 3. All logs are presented on Appendix 4. All depths are referenced from ground surface.

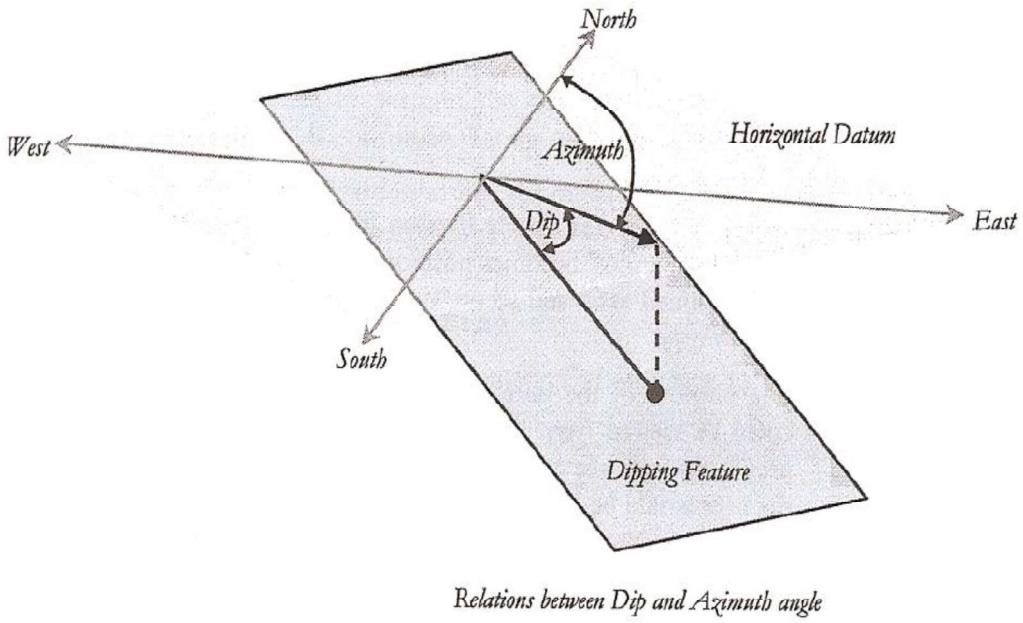


Figure 1: Explanation of azimuth and dip for fractures

Appendix 1

PZ - 22: Fractures

Depth	Azimuth	Dip	Aperture
ft	deg	deg	mm
12.1	260	34	1
12.3	258	30	1
12.9	129	33	10
14.3	43	82	5
14.8	291	74	1
14.9	69	49	1
16.6	125	28	1
16.7	129	27	1
18.8	136	23	1
18.9	50	75	5
19.6	129	19	11
21.4	68	1	14
21.6	152	12	23
22.3	285	64	1
23.5	132	34	8
23.6	144	38	13
24.5	126	29	12
25.3	142	28	14
26.9	152	34	1
27.1	141	35	1
29.2	**320**	**61**	**38**
29.4	**306**	**81**	**30**
30.4	21	49	1
30.9	**2**	**61**	**61**
33.5	314	75	17
35.3	268	68	3
37.0	278	77	1
37.2	284	75	7
39.9	54	1	1
40.9	163	47	1
41.0	315	79	1
43.2	251	8	1
43.7	150	27	1
43.8	149	26	9
45.0	308	83	1
45.7	155	52	10
46.0	142	44	1
46.5	**147**	**41**	**50**
48.7	**325**	**74**	**46**

PZ - 23D: Fractures

Depth	Azimuth	Dip	Aperture
ft	deg	deg	mm
48.5	230	66	1
50.4	211	80	1
53.2	271	19	1
53.7	112	26	1
54.3	295	64	1
55.8	305	73	1
56.1	149	15	12
56.3	147	12	12
57.1	313	71	1
58.3	132	73	1
58.4	128	81	10
58.4	141	46	1
60.8	136	15	1
61.2	117	28	1
61.9	158	36	1
64.0	287	69	3
65.9	**235**	**27**	**14**
66.1	305	79	7
66.9	174	31	24
67.6	322	36	10
68.7	147	14	1
69.1	141	24	21
69.4	148	34	23
71.0	164	73	1
73.7	313	61	6
73.9	**300**	**75**	**26**
75.0	309	63	1
75.1	310	59	1
75.9	9	65	1
77.0	**143**	**85**	**6**
77.2	98	67	3
81.3	341	73	1
81.5	16	81	1
81.8	176	75	1
81.8	179	71	1
82.1	345	68	1
83.6	142	7	6
83.8	**141**	**21**	**7**
84.6	307	69	1

PZ - 23D: Fractures

Depth	Azimuth	Dip	Aperture
ft	deg	deg	mm
84.7	193	67	1
85.0	311	70	1
86.7	327	65	1
86.8	294	66	1
86.8	298	76	1
87.0	305	79	4
88.1	299	71	1
89.0	137	29	1
89.1	137	29	1
89.9	43	2	1

PZ - 23S: Fractures

Depth	Azimuth	Dip	Aperture
ft	deg	deg	mm
35.7	163	9	14
36.0	323	27	1
36.1	126	45	4
36.8	282	13	27
37.2	203	55	1
38.0	169	32	5
38.2	195	9	1
38.9	180	25	18
39.7	58	2	1
40.1	246	9	48
40.2	208	84	1
41.6	29	78	2
41.6	314	69	6
43.1	134	33	17
43.7	151	22	1
44.2	129	33	1
44.6	130	46	1
46.8	311	56	1
47.7	310	62	6
48.7	311	57	8
48.9	319	57	1
50.7	212	83	3
51.0	313	60	8
51.9	317	73	3
52.2	319	77	3
53.2	319	58	4
56.2	162	21	6
56.3	33	84	1
59.0	36	86	1
59.1	53	2	1
59.1	141	45	1
59.5	128	28	1
62.7	**162**	**28**	**74**
65.4	151	26	52
65.8	25	81	1
66.4	25	80	2
66.8	30	76	1
68.1	26	79	1

PZ - 25: Fractures

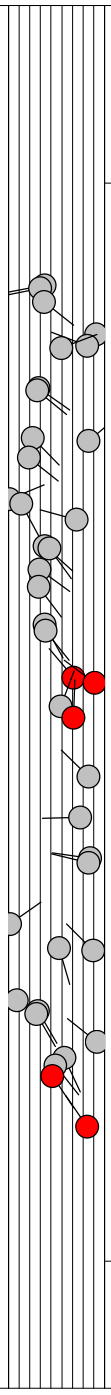
Depth	Azimuth	Dip	Aperture
ft	deg	deg	mm
50.4	91	22	1
50.6	73	33	1
52.1	100	10	1
52.8	93	34	5
54.1	**138**	**34**	**104**
55.8	127	19	1
56.7	297	42	5
56.9	145	27	1
57.2	136	30	1
57.3	132	79	1
57.5	135	29	1
57.9	129	26	13
57.9	123	80	1
59.1	108	30	1
59.5	52	2	1
59.9	306	74	1
60.1	116	13	1
60.2	121	13	1
61.5	310	45	7
62.2	304	76	1
62.6	284	73	1
62.9	296	69	1
64.3	157	30	9
64.9	306	57	1
65.3	313	63	1
66.0	336	47	1
67.1	327	69	1
67.1	292	58	1
67.4	303	60	1
68.1	341	62	1
68.8	300	51	1
69.3	316	55	1
70.5	319	68	5

PZ - 26D: Fractures

Depth	Azimuth	Dip	Aperture
ft	deg	deg	mm
40.9	74	63	1
41.1	356	69	1
42.4	312	56	9
42.8	271	61	1
43.0	260	63	1
43.7	261	65	1
44.5	257	50	1
45.3	257	64	1
45.5	254	66	1
46.0	267	60	1
47.3	261	62	1
48.4	141	49	3
48.6	141	52	1
48.6	239	55	1
49.0	140	48	1
49.6	108	30	1
50.1	83	52	1
50.6	109	44	1
51.5	329	84	4
53.9	138	78	5
55.5	222	13	1
55.8	123	80	5
57.6	260	18	1
58.4	137	47	27
59.4	137	57	8
60.6	156	42	1
61.4	248	72	1
63.4	327	78	1
63.6	252	33	1
64.2	323	24	1
65.2	145	24	1
66.0	160	47	1
66.5	163	35	1
67.6	253	54	1
68.0	240	21	1
68.2	149	37	8
69.0	41	53	6
69.6	24	42	11
70.4	123	40	1
70.5	121	40	1
70.8	126	38	1
71.6	304	80	1
72.5	148	54	63

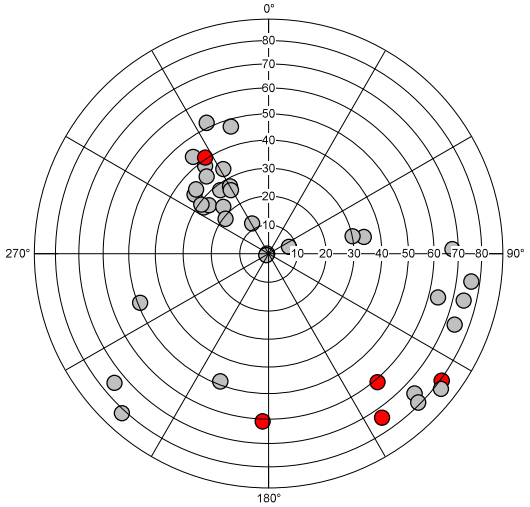
Appendix 2

Depth	Fractures	Poles - Dip - Lower Hemisphere	Great Circles - Strike - Lower Hemisphere
1ft:100ft	0 90	Schmidt Plot - LH - Type	Schmidt Plot (Strike) - LH - Type

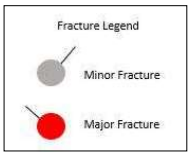


Well ID: PZ - 22

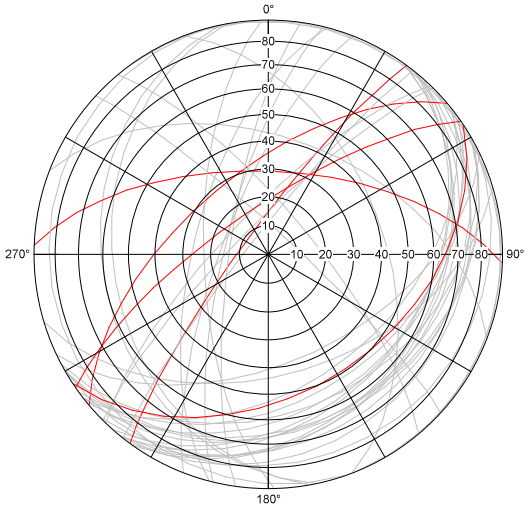
Schmidt Plot - LH - Type
Depth: 7.71 [ft] to 54.49 [ft]



	Counts	Dip[deg]	Azi[deg]
Mean	39	29.04	136.17
○	34	25.99	137.09
●	5	74.97	326.05

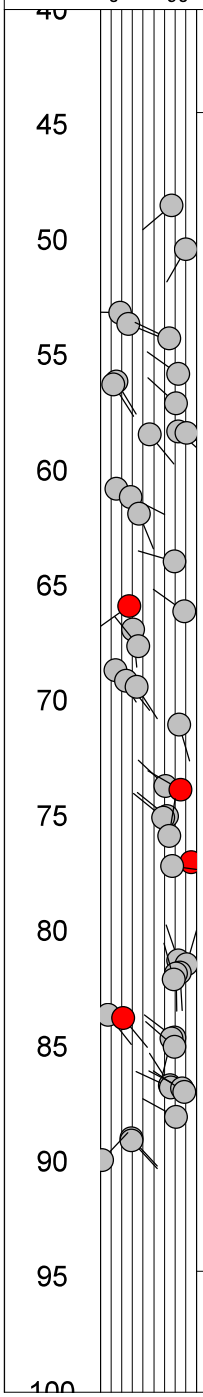


Schmidt Plot (Strike) - LH - Type
Depth: 7.74 [ft] to 54.56 [ft]

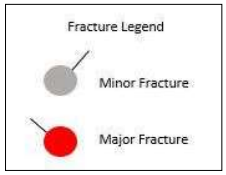


	Counts	Dip[deg]	Strike[deg]
Mean	39	29.04	46.17
○	34	25.99	47.09
●	5	74.97	236.05

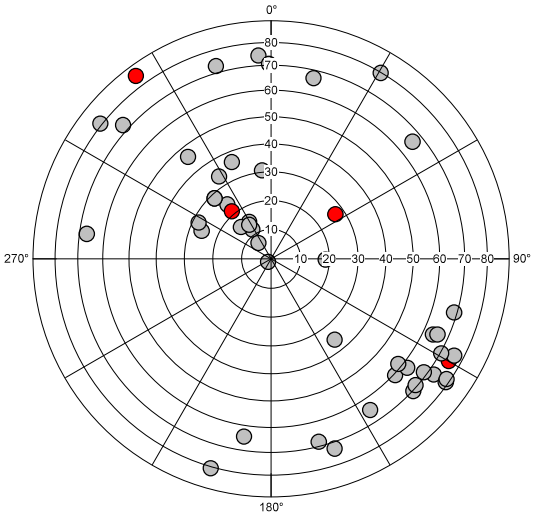
Depth	Fractures	Poles - Dip - Lower Hemisphere	Great Circles - Strike - Lower Hemisphere
1ft:100ft	0 90	Schmidt Plot - LH - Type	Schmidt Plot (Strike) - LH - Type



Well ID:
PZ - 23D

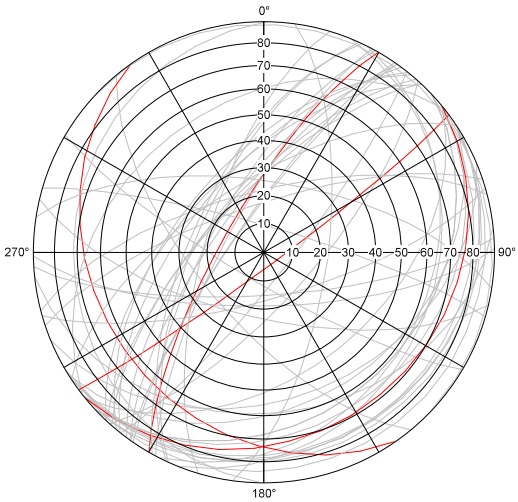


Schmidt Plot - LH - Type
Depth: 44.46 [ft] to 94.75 [ft]



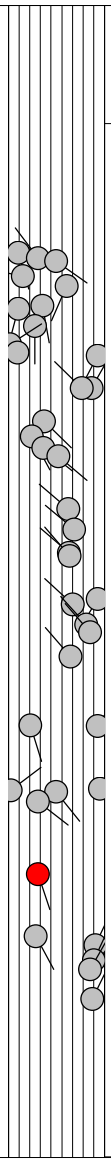
	Counts	Dip[deg]	Azi[deg]
Mean	49	87.10	138.40
○	45	88.59	138.93
●	4	62.30	140.07

Schmidt Plot (Strike) - LH - Type
Depth: 44.46 [ft] to 94.88 [ft]



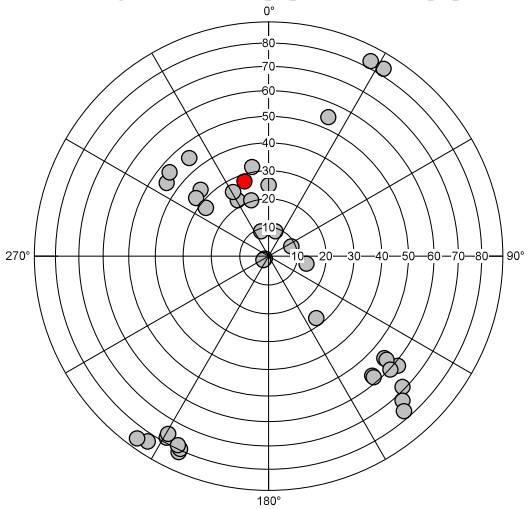
	Counts	Dip[deg]	Strike[deg]
Mean	49	87.10	48.40
○	45	88.59	48.93
●	4	62.30	50.07

Depth	Fractures	Poles - Dip - Lower Hemisphere	Great Circles - Strike - Lower Hemisphere
1ft:100ft	0 90	Schmidt Plot - LH - Type	Schmidt Plot (Strike) - LH - Type

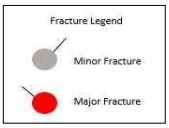


Well ID:
PZ - 23S

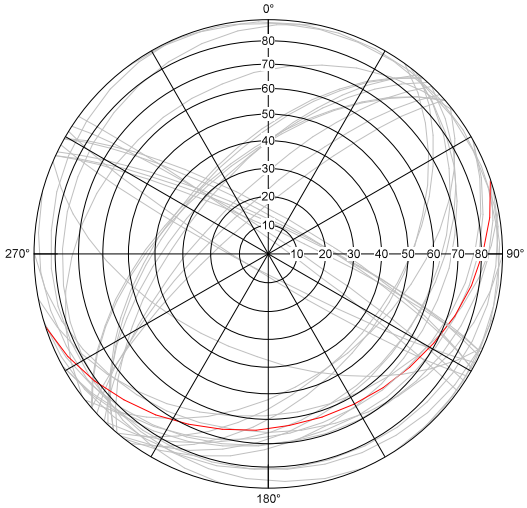
Schmidt Plot - LH - Type
Depth: 30.13 [ft] to 74.98 [ft]



	Counts	Dip[deg]	Azi[deg]
Mean	38	13.50	174.68
○	37	10.41	178.85
●	1	27.54	161.73

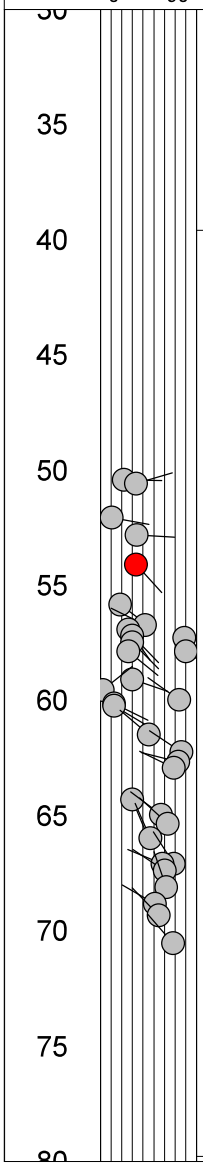


Schmidt Plot (Strike) - LH - Type
Depth: 30.03 [ft] to 74.88 [ft]

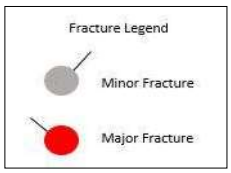


	Counts	Dip[deg]	Strike[deg]
Mean	38	13.50	84.68
○	37	10.41	88.85
●	1	27.54	71.73

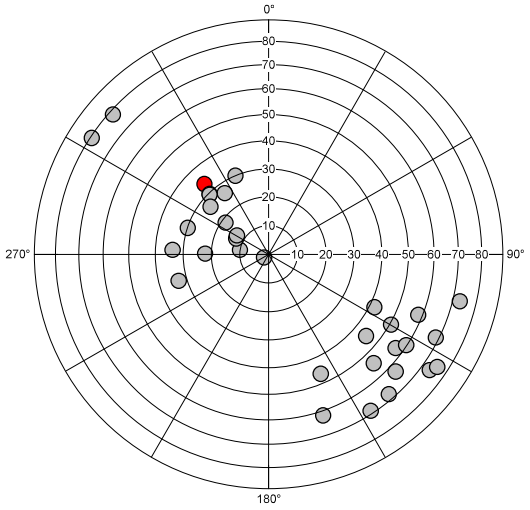
Depth	Fractures	Poles - Dip - Lower Hemisphere	Great Circles - Strike - Lower Hemisphere
1ft:100ft	0 90	Schmidt Plot - LH - Type	Schmidt Plot (Strike) - LH - Type



Well ID:
PZ - 25

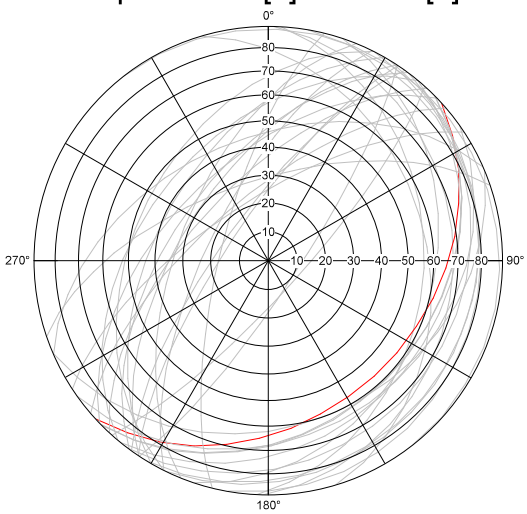


Schmidt Plot - LH - Type
Depth: 39.58 [ft] to 79.77 [ft]



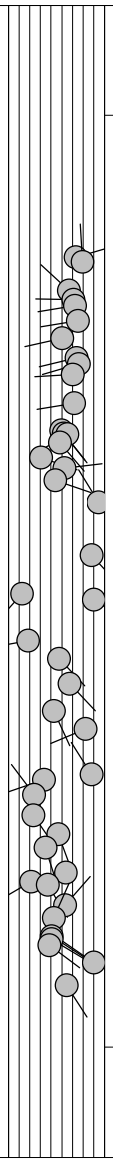
	Counts	Dip[deg]	Azi[deg]
Mean	33	29.68	313.24
●	32	36.54	312.19
●	1	33.63	137.60

Schmidt Plot (Strike) - LH - Type
Depth: 39.58 [ft] to 79.93 [ft]

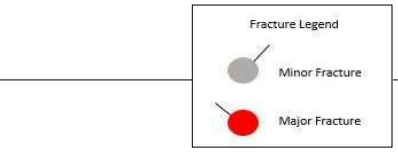


	Counts	Dip[deg]	Strike[deg]
Mean	33	29.68	223.24
●	32	36.54	222.19
●	1	33.63	47.60

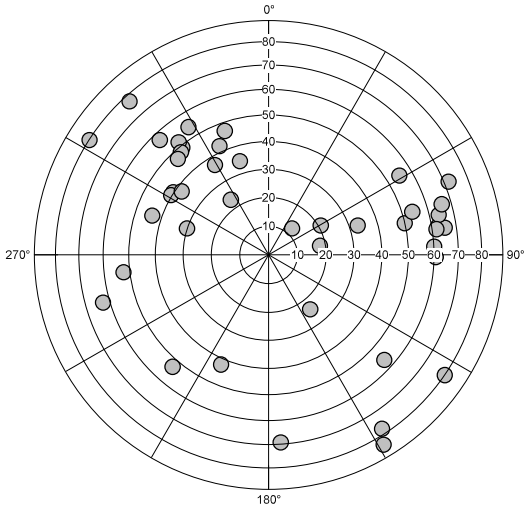
Depth	Fractures	Poles - Dip - Lower Hemisphere	Great Circles - Strike - Lower Hemisphere
1ft:100ft	0 90	Schmidt Plot - LH - Type	Schmidt Plot (Strike) - LH - Type



Well ID:
PZ - 26D

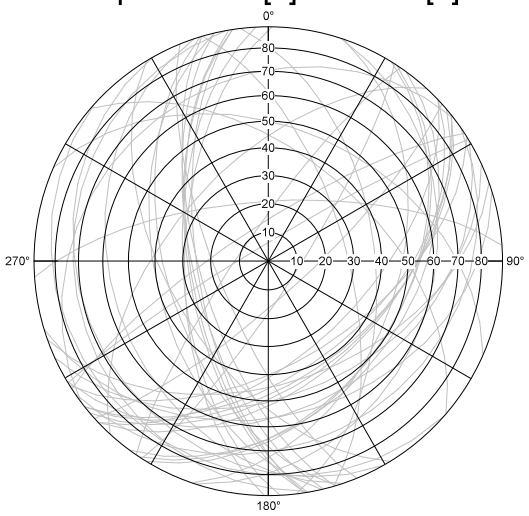


Schmidt Plot - LH - Type
Depth: 34.76 [ft] to 75.21 [ft]

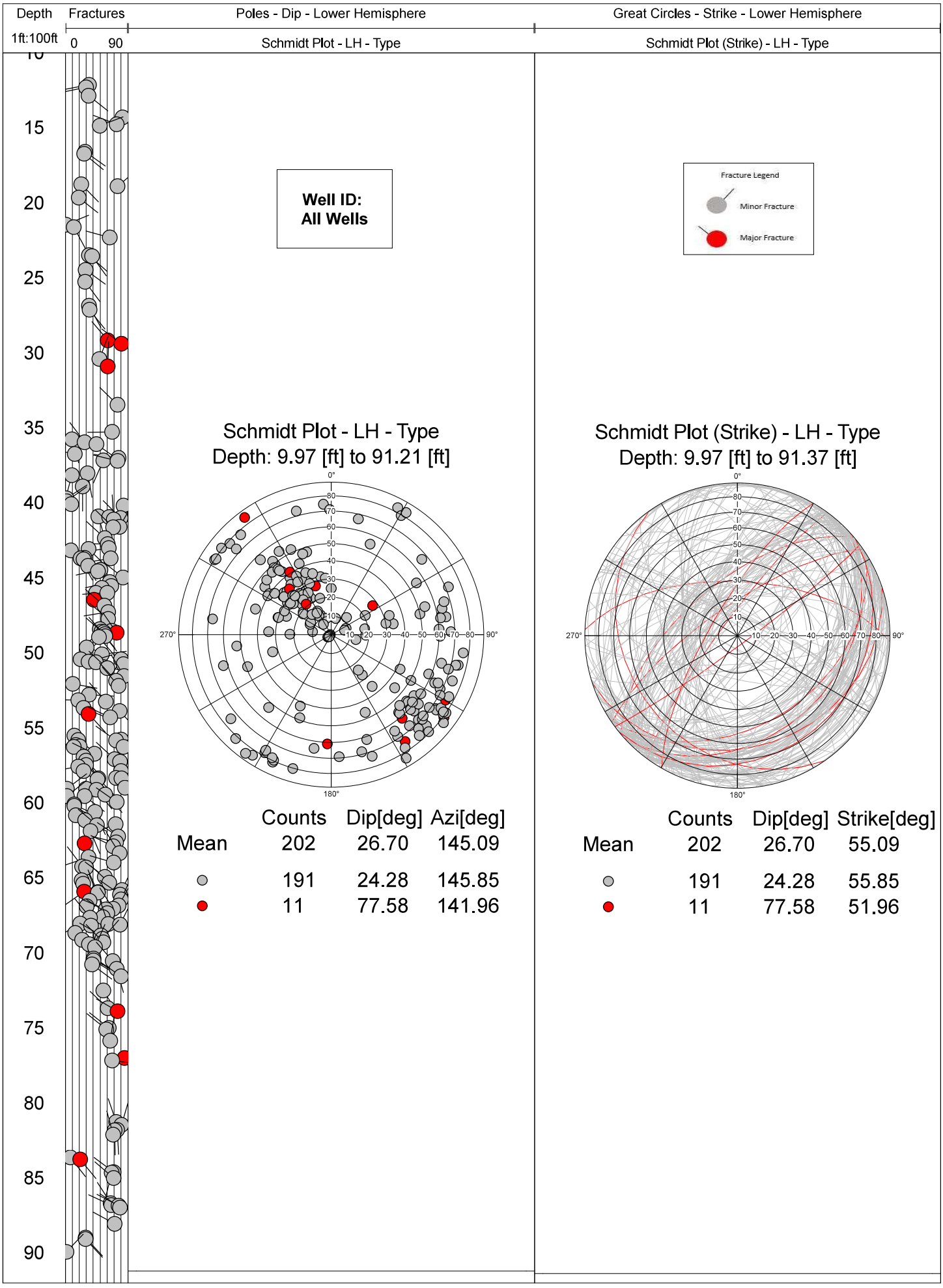


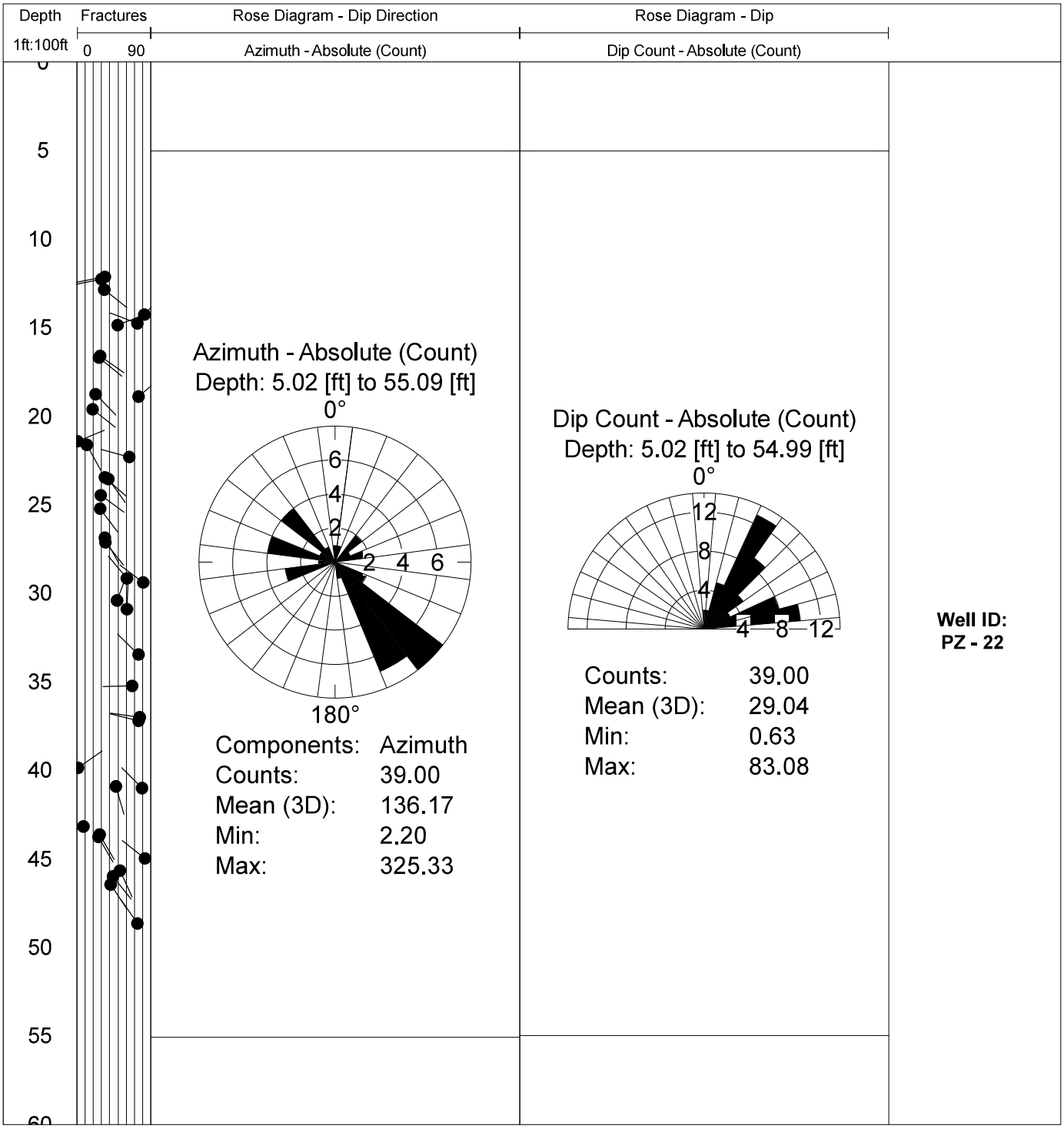
	Counts	Dip[deg]	Azi[deg]
Mean	43	36.53	141.79
○	43	36.53	141.79

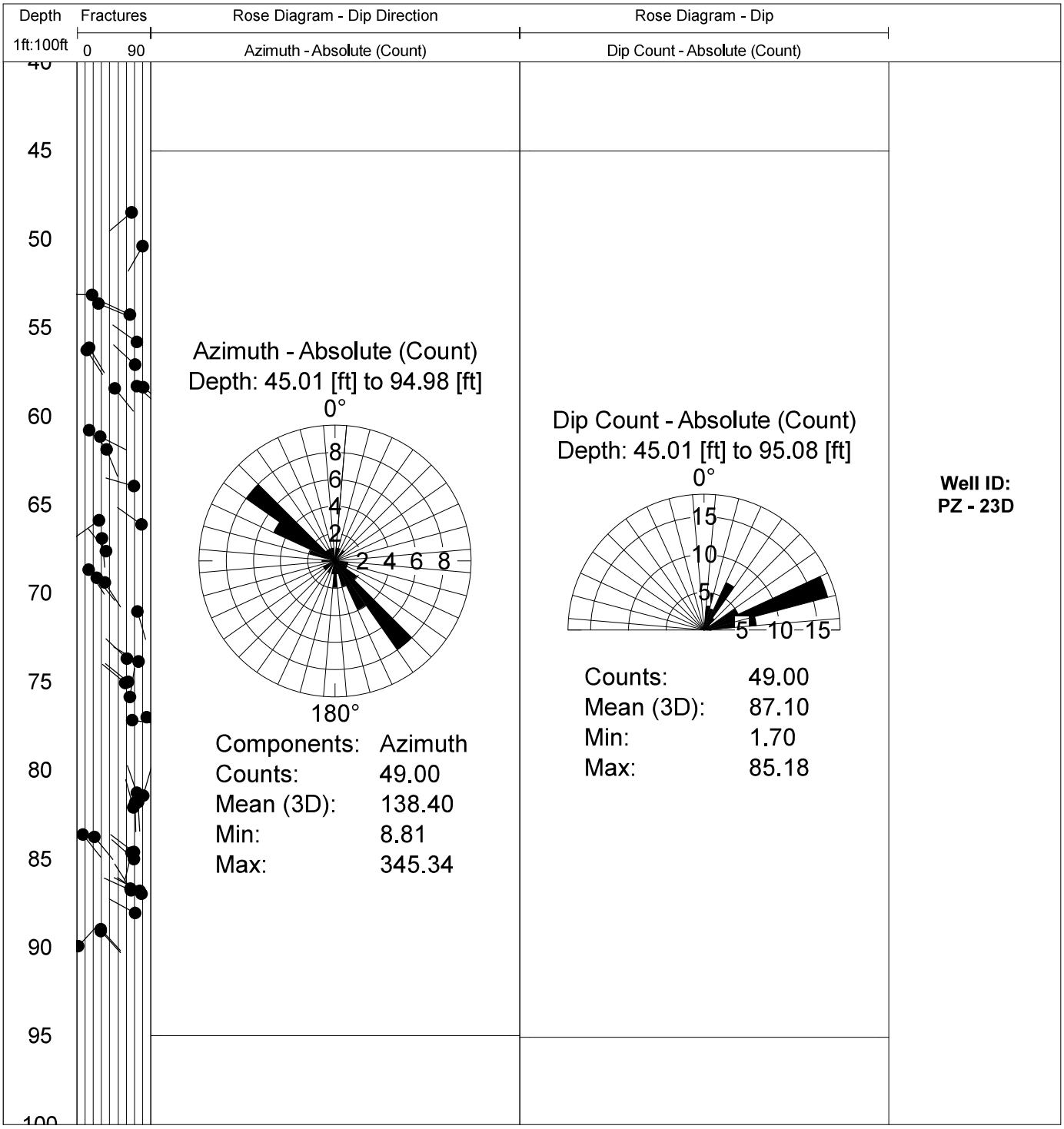
Schmidt Plot (Strike) - LH - Type
Depth: 34.79 [ft] to 75.34 [ft]

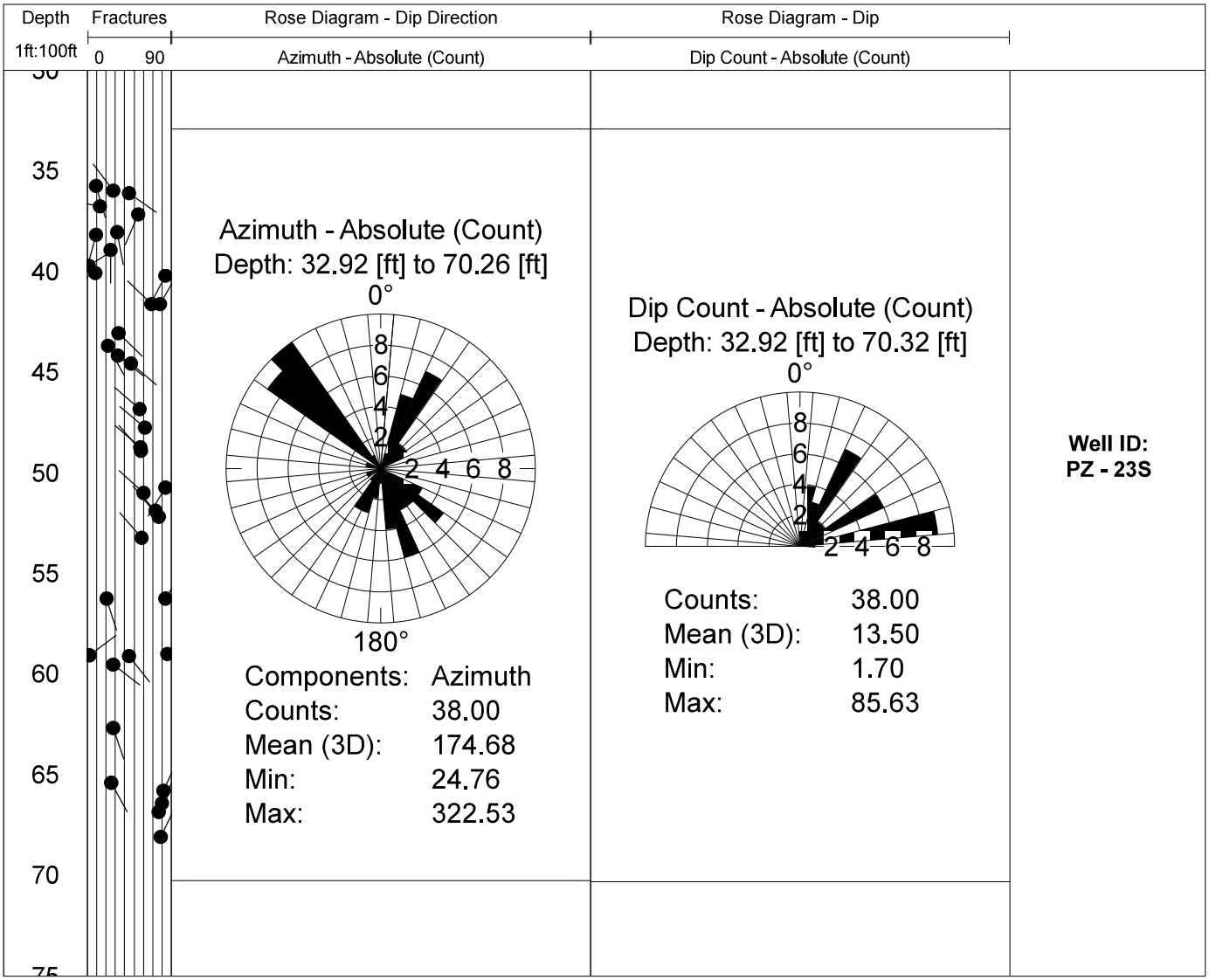


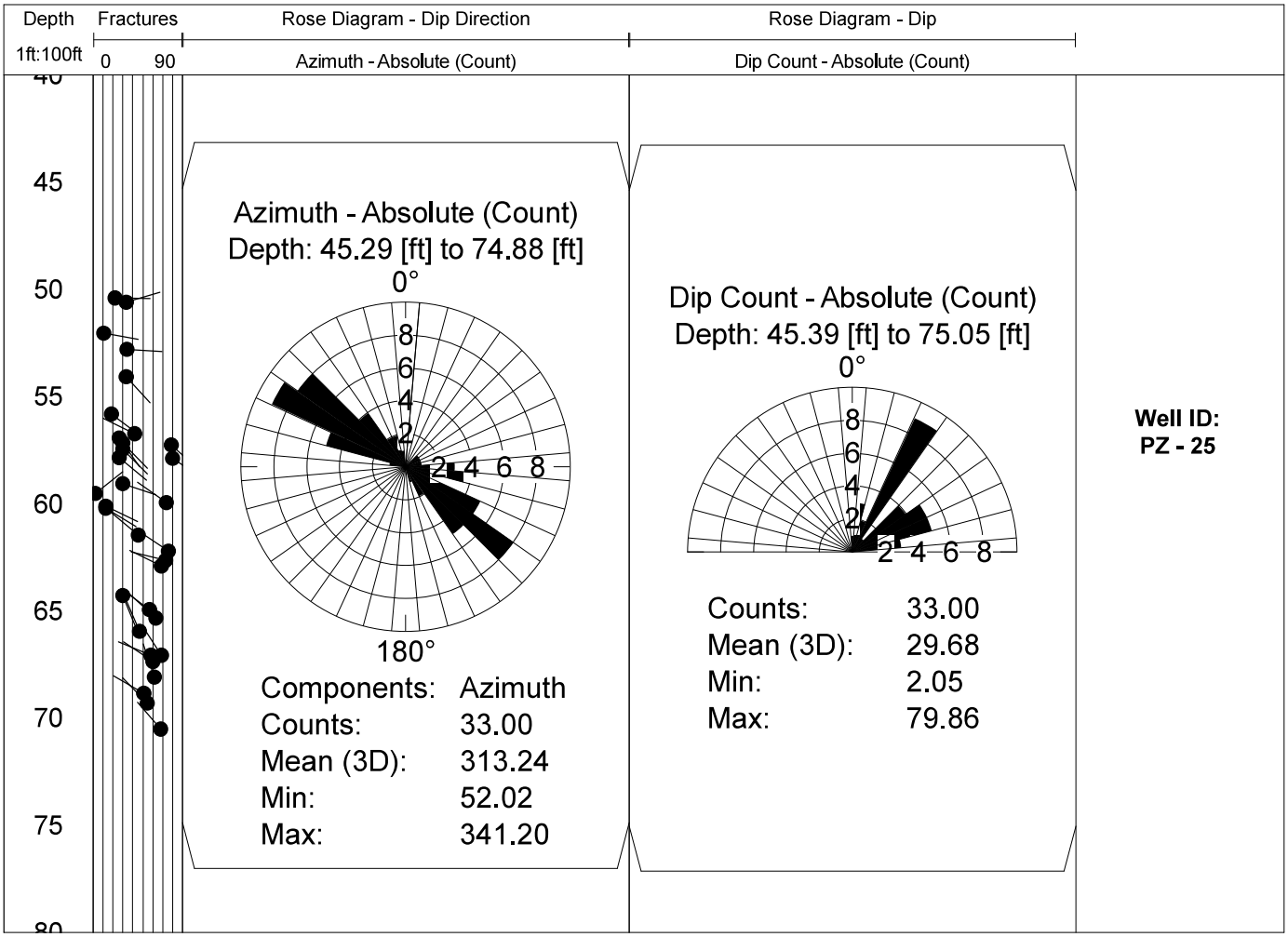
	Counts	Dip[deg]	Strike[deg]
Mean	43	36.53	51.79
○	43	36.53	51.79

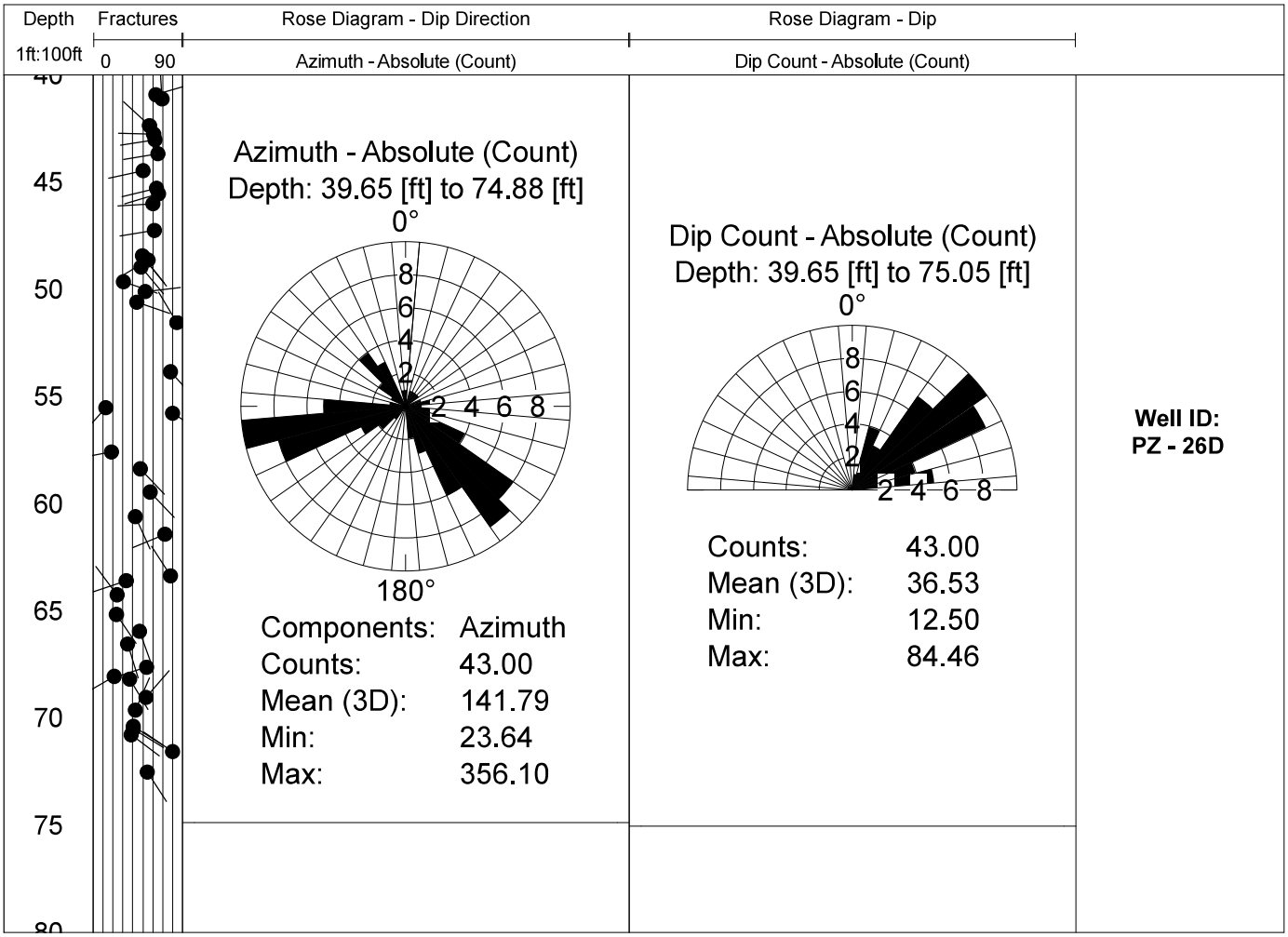

Depth
1ft:100ft
Fractures
0
90
Poles - Dip - Lower Hemisphere
Schmidt Plot - LH - Type
Great Circles - Strike - Lower Hemisphere
Schmidt Plot (Strike) - LH - Type
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
Well ID:
All Wells
Fracture Legend
Minor Fracture
Major Fracture
Schmidt Plot - LH - Type
Depth: 9.97 [ft] to 91.21 [ft]
Schmidt Plot (Strike) - LH - Type
Depth: 9.97 [ft] to 91.37 [ft]
0°
90°
180°
270°
Counts Dip[deg] Azi[deg]
Mean 202 26.70 145.09
191 24.28 145.85
11 77.58 141.96
Counts Dip[deg] Strike[deg]
Mean 202 26.70 55.09
191 24.28 55.85
11 77.58 51.96


Depth
1ft:100ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
5
10
15
20
25
30
35
40
45
50
55
60
Azimuth - Absolute (Count)
Depth: 5.02 [ft] to 55.09 [ft]
0°
6
4
2
2
4
6
180°
Components: Azimuth
Counts: 39.00
Mean (3D): 136.17
Min: 2.20
Max: 325.33
Dip Count - Absolute (Count)
Depth: 5.02 [ft] to 54.99 [ft]
0°
12
8
4
4
8
12
Counts: 39.00
Mean (3D): 29.04
Min: 0.63
Max: 83.08
Well ID:
PZ - 22

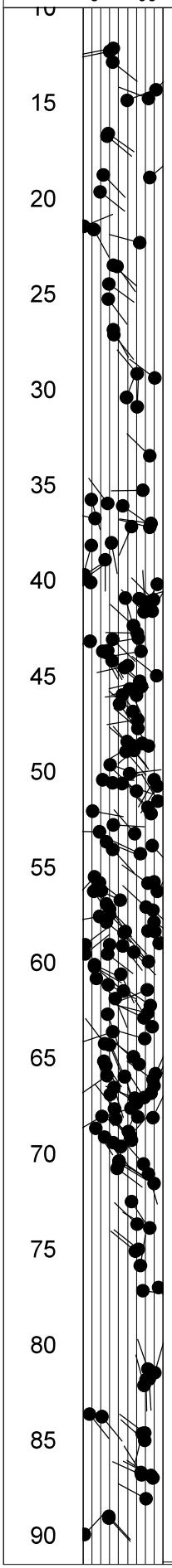

Depth
1ft:100ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
45
50
55
60
65
70
75
80
85
90
95
Azimuth - Absolute (Count)
Depth: 45.01 [ft] to 94.98 [ft]
0°
8
6
4
2
2 4 6 8
180°
Components: Azimuth
Counts: 49.00
Mean (3D): 138.40
Min: 8.81
Max: 345.34
Dip Count - Absolute (Count)
Depth: 45.01 [ft] to 95.08 [ft]
0°
15
10
5
5 10 15
Counts: 49.00
Mean (3D): 87.10
Min: 1.70
Max: 85.18
Well ID:
PZ - 23D


Depth
1ft:100ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
35
40
45
50
55
60
65
70
Azimuth - Absolute (Count)
Depth: 32.92 [ft] to 70.26 [ft]
0°
8
6
4
2
2 4 6 8
180°
Components: Azimuth
Counts: 38.00
Mean (3D): 174.68
Min: 24.76
Max: 322.53
Dip Count - Absolute (Count)
Depth: 32.92 [ft] to 70.32 [ft]
0°
8
6
4
2
2 4 6 8
Counts: 38.00
Mean (3D): 13.50
Min: 1.70
Max: 85.63
Well ID:
PZ - 23S

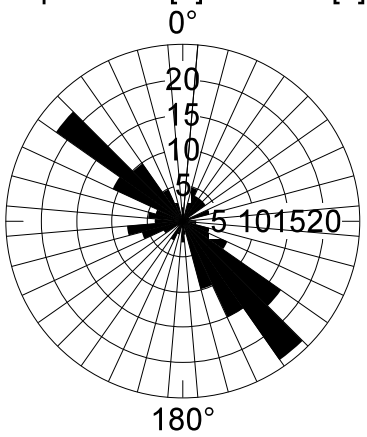

Depth
1ft:100ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
45
50
55
60
65
70
75
Azimuth - Absolute (Count)
Depth: 45.29 [ft] to 74.88 [ft]
0°
8
6
4
2
2 4 6 8
180°
Components: Azimuth
Counts: 33.00
Mean (3D): 313.24
Min: 52.02
Max: 341.20
Dip Count - Absolute (Count)
Depth: 45.39 [ft] to 75.05 [ft]
0°
8
6
4
2
2 4 6 8
Counts: 33.00
Mean (3D): 29.68
Min: 2.05
Max: 79.86
Well ID:
PZ - 25


Depth
1ft:100ft
Fractures
0
90
Rose Diagram - Dip Direction
Azimuth - Absolute (Count)
Rose Diagram - Dip
Dip Count - Absolute (Count)
45
50
55
60
65
70
75
Azimuth - Absolute (Count)
Depth: 39.65 [ft] to 74.88 [ft]
0°
8
6
4
2
2 4 6 8
180°
Components: Azimuth
Counts: 43.00
Mean (3D): 141.79
Min: 23.64
Max: 356.10
Dip Count - Absolute (Count)
Depth: 39.65 [ft] to 75.05 [ft]
0°
8
6
4
2
2 4 6 8
Counts: 43.00
Mean (3D): 36.53
Min: 12.50
Max: 84.46
Well ID:
PZ - 26D

Depth	Fractures	Rose Diagram - Dip Direction	Rose Diagram - Dip
1ft:100ft	0 90	Azimuth - Absolute (Count)	Dip Count - Absolute (Count)

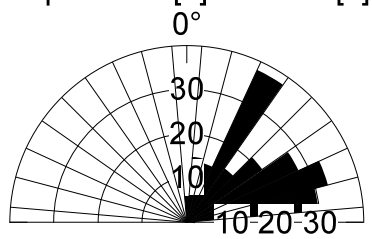


Azimuth - Absolute (Count)
Depth: 9.97 [ft] to 91.37 [ft]



Components:	Azimuth
Counts:	202.00
Mean (3D):	145.09
Min:	2.20
Max:	356.10

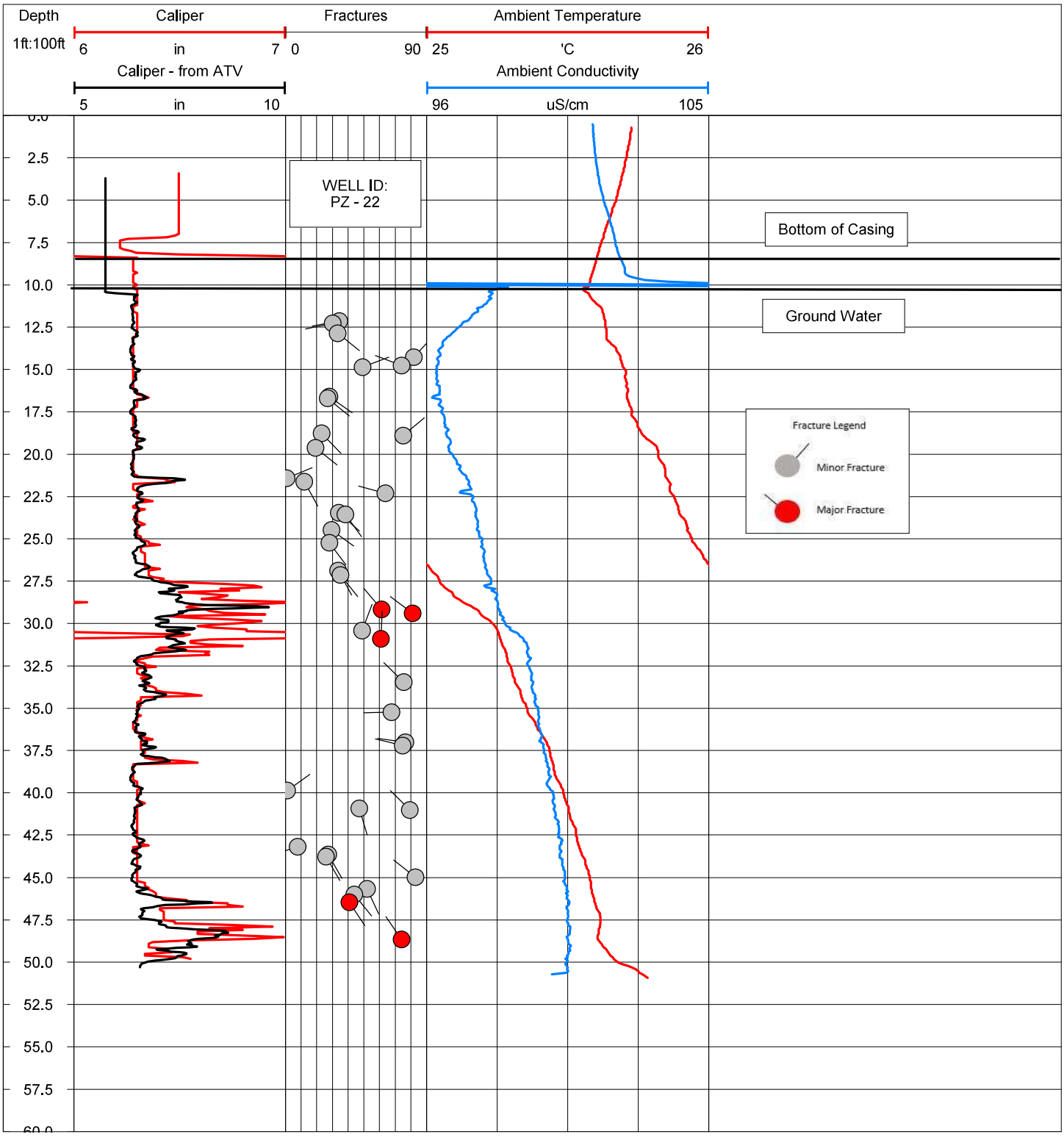
Dip Count - Absolute (Count)
Depth: 9.97 [ft] to 91.44 [ft]

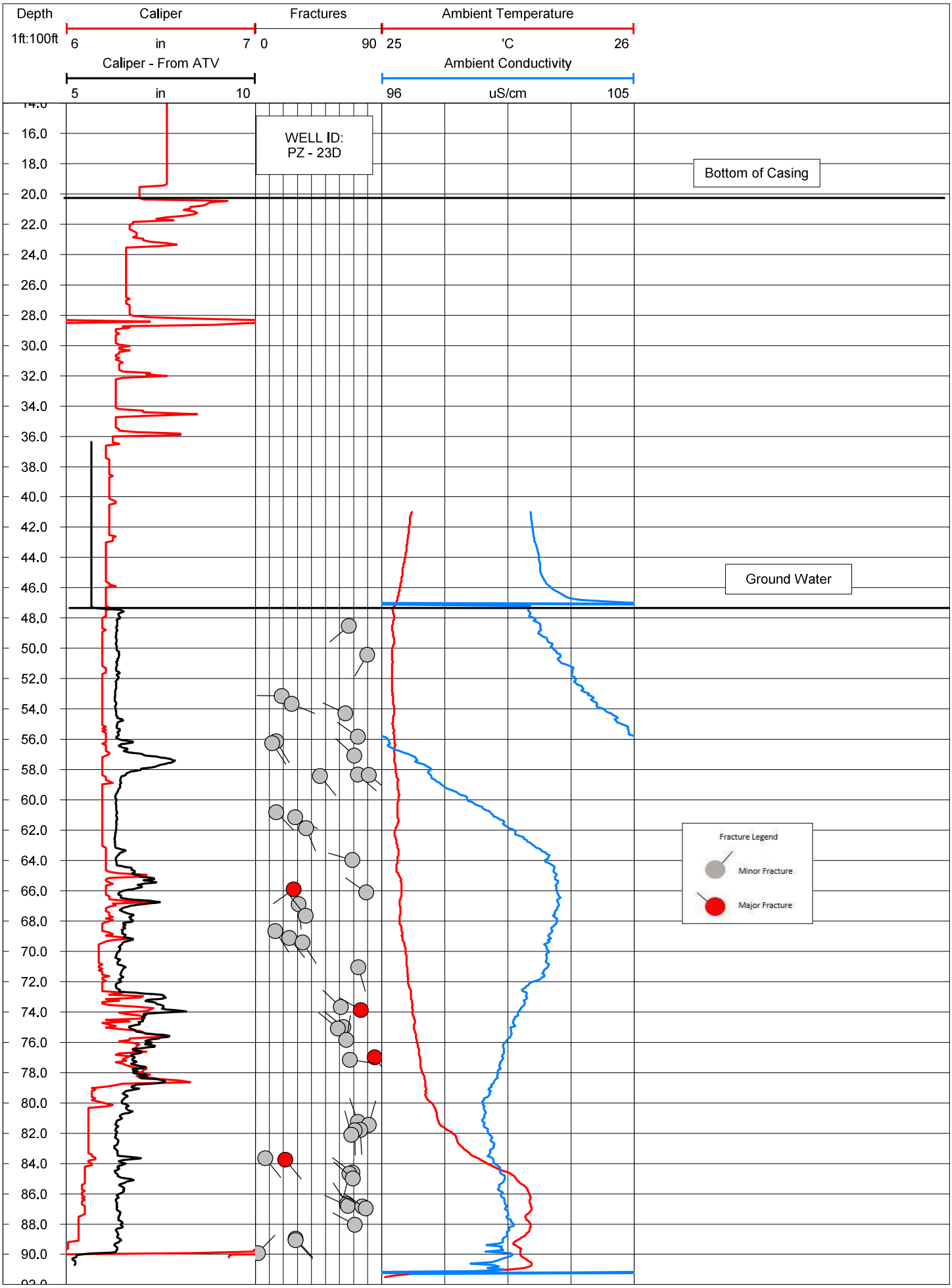


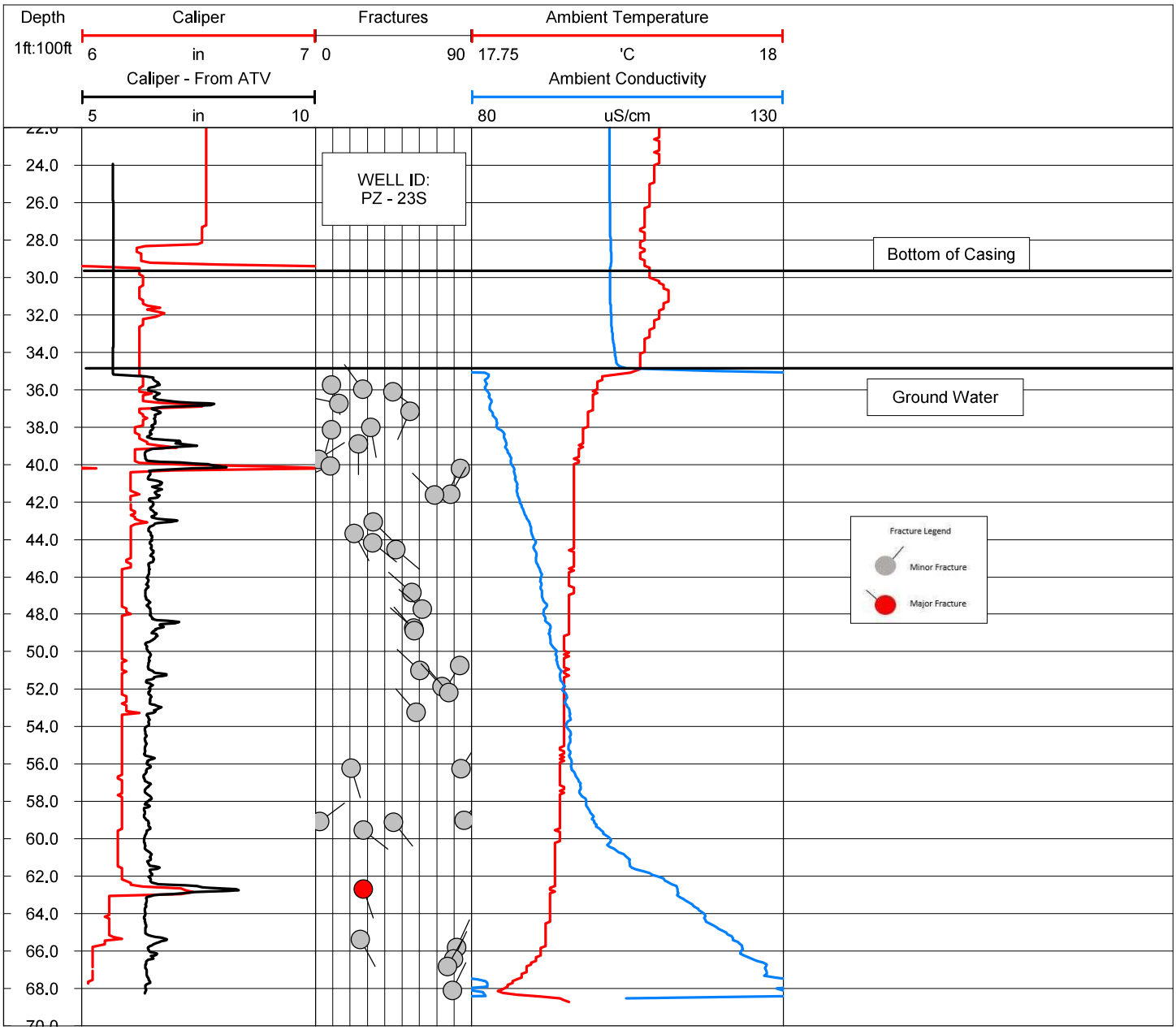
Counts:	202.00
Mean (3D):	26.70
Min:	0.63
Max:	85.63

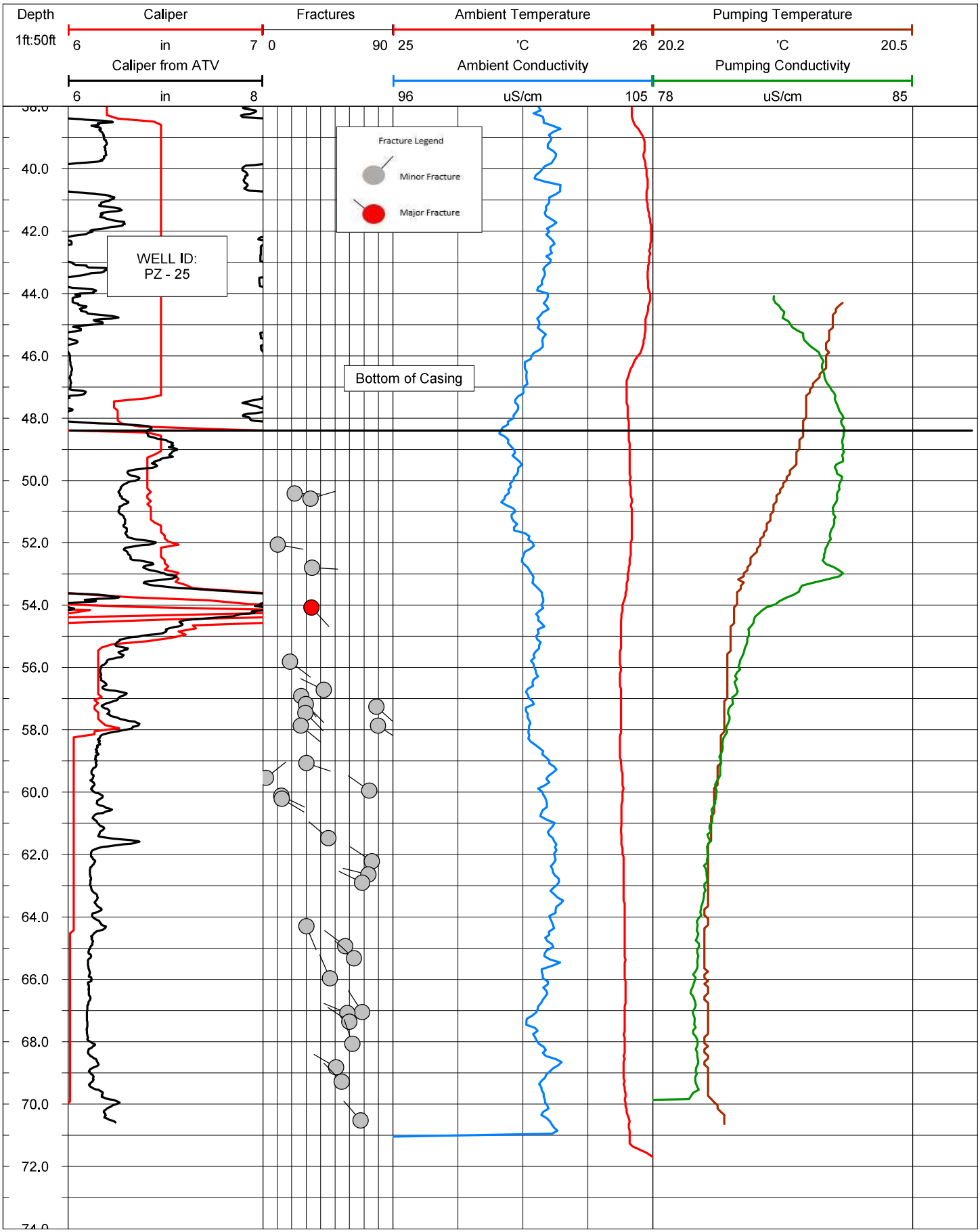
Well ID:
All Wells

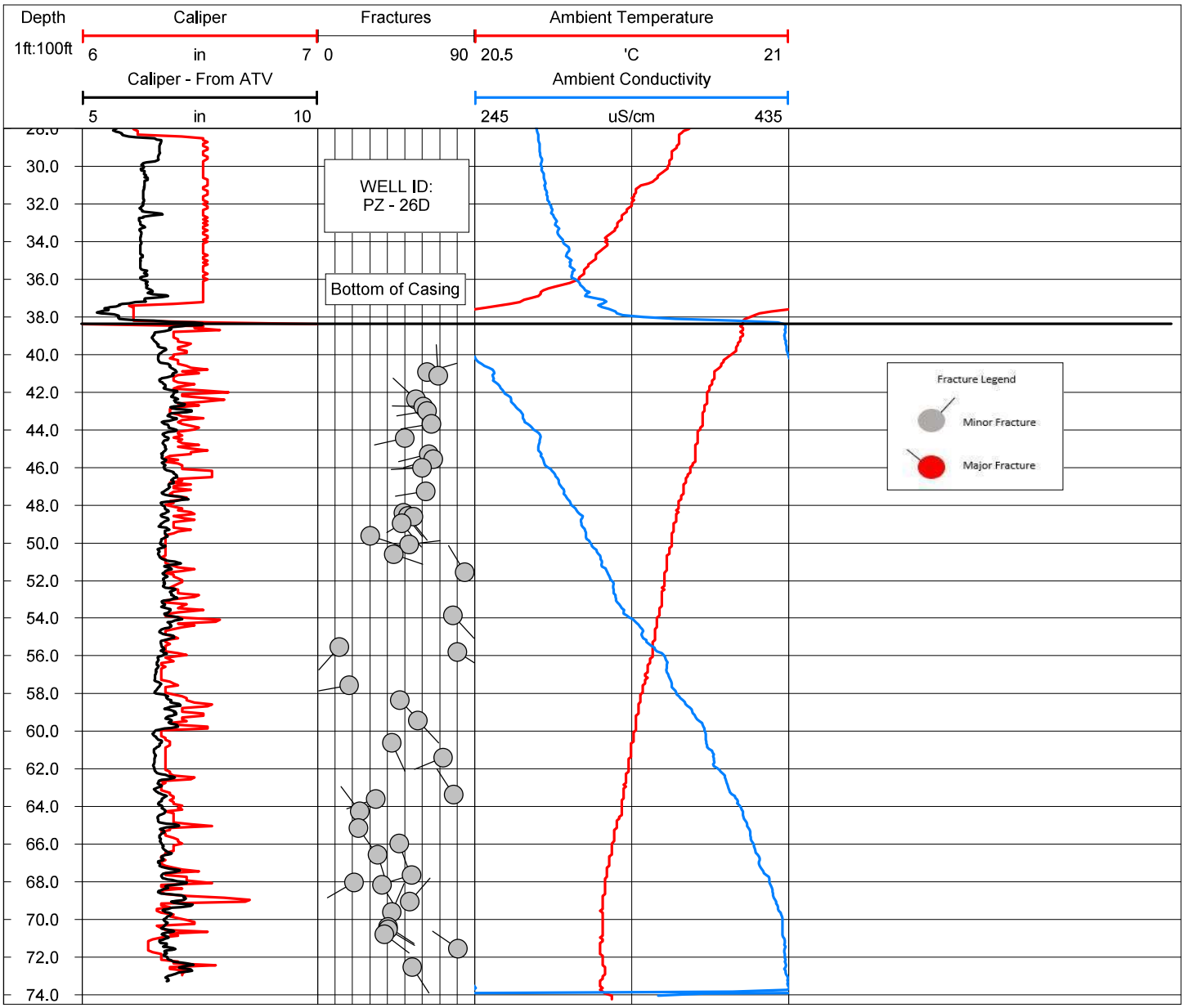
Appendix 3


Depth
1ft:100ft
Caliper
6
in
7
Caliper - from ATV
5
in
10
Fractures
0
90
Ambient Temperature
25
'C
26
Ambient Conductivity
96
uS/cm
105
WELL ID:
PZ - 22
Bottom of Casing
Ground Water
Fracture Legend
Minor Fracture
Major Fracture
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0
37.5
40.0
42.5
45.0
47.5
50.0
52.5
55.0
57.5

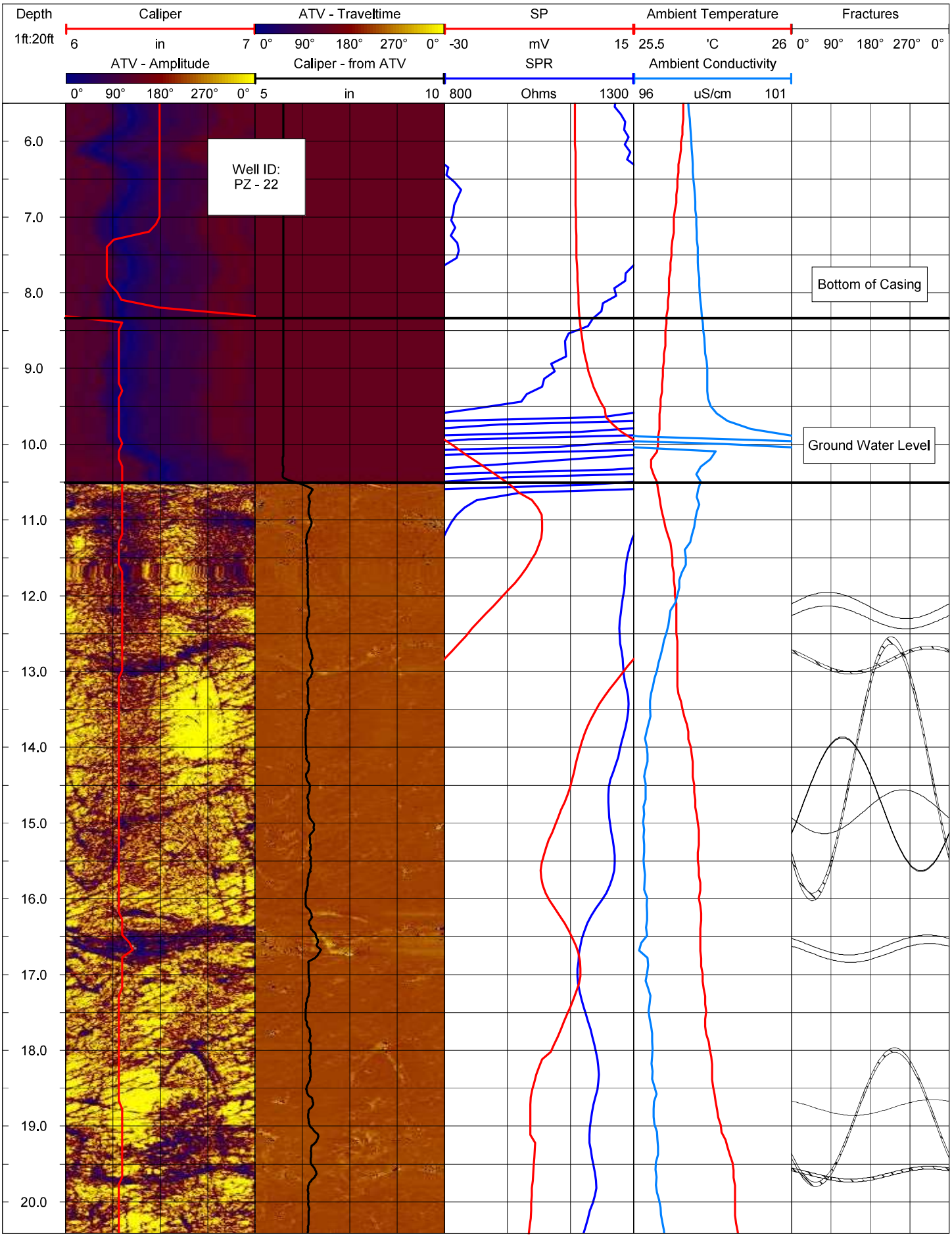

Depth
1ft:100ft
Caliper
6
in
7
Fractures
0
90
Ambient Temperature
25
'C
26
Caliper - From ATV
5
in
10
Ambient Conductivity
96
uS/cm
105
WELL ID:
PZ - 23D
Bottom of Casing
Ground Water
Fracture Legend
Minor Fracture
Major Fracture

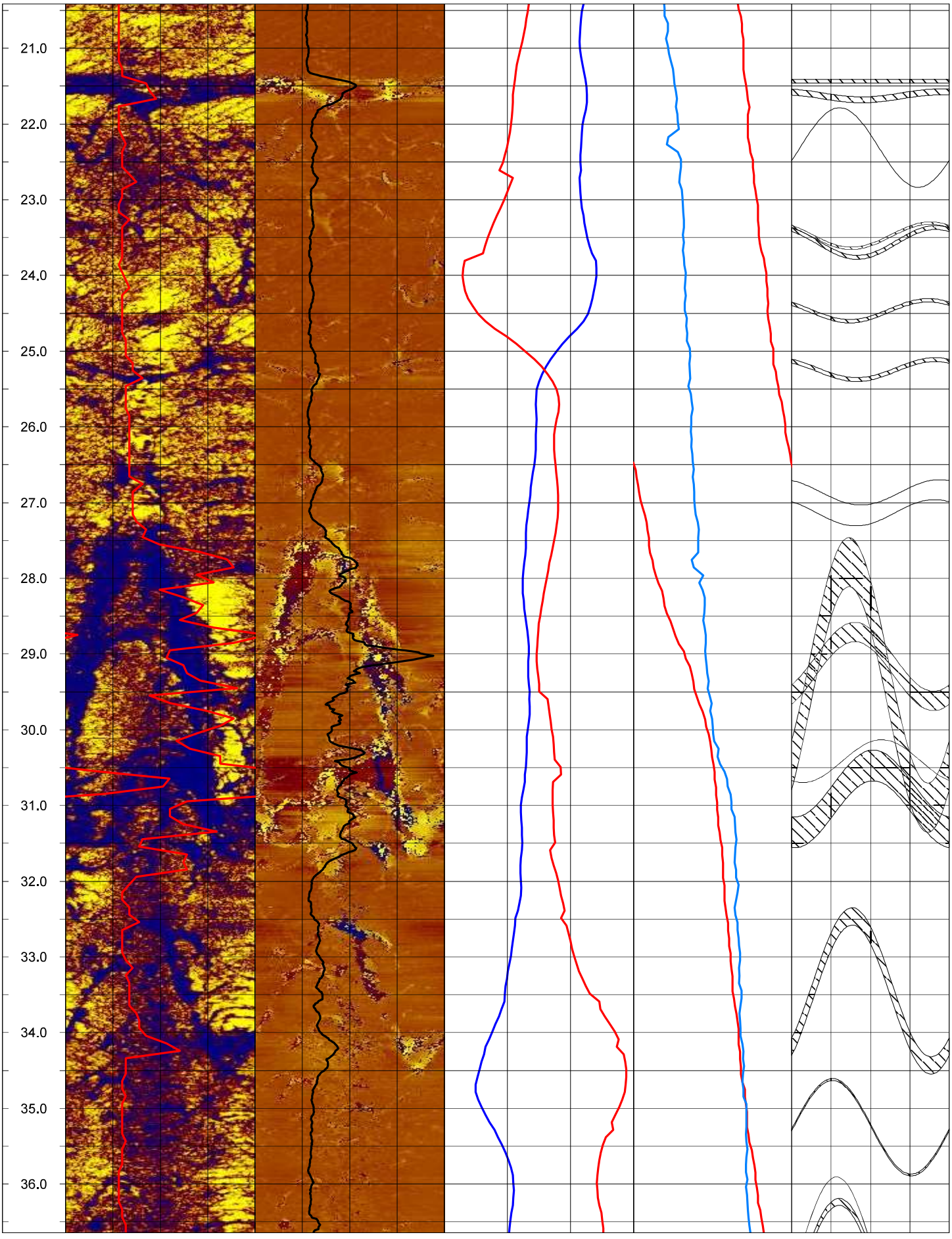

Depth
1ft:100ft
Caliper
6
in
7
Caliper - From ATV
5
in
10
Fractures
0
90
Ambient Temperature
17.75
'C
18
Ambient Conductivity
80
uS/cm
130
WELL ID:
PZ - 23S
Bottom of Casing
Ground Water
Fracture Legend
Minor Fracture
Major Fracture
24.0
26.0
28.0
30.0
32.0
34.0
36.0
38.0
40.0
42.0
44.0
46.0
48.0
50.0
52.0
54.0
56.0
58.0
60.0
62.0
64.0
66.0
68.0

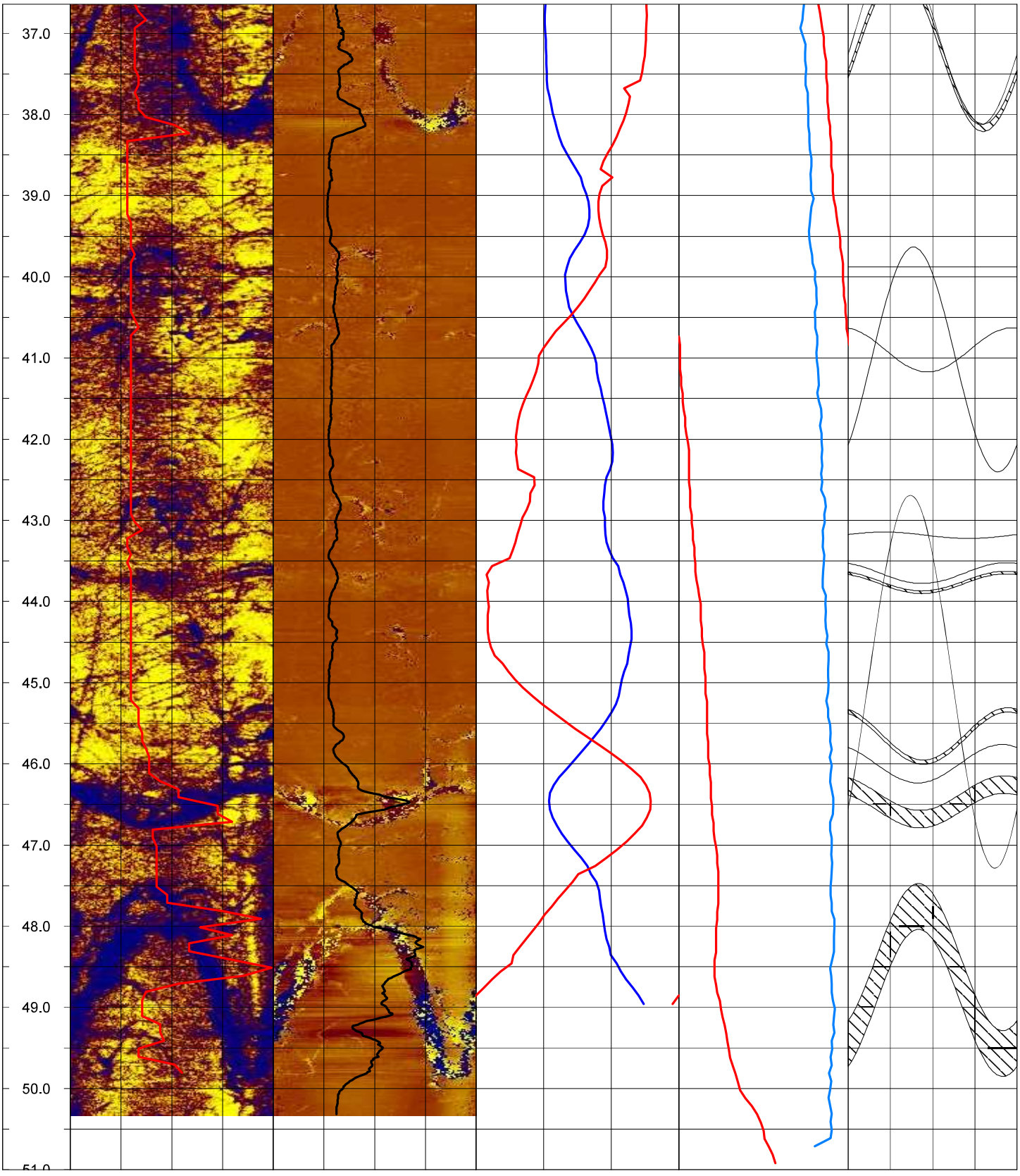

Depth
1ft:50ft
Caliper
6
in
7
Caliper from ATV
6
in
8
Fractures
0
90
Ambient Temperature
25
'C
26
Ambient Conductivity
96
uS/cm
105
Pumping Temperature
20.2
'C
20.5
Pumping Conductivity
78
uS/cm
85
Fracture Legend
Minor Fracture
Major Fracture
WELL ID:
PZ - 25
Bottom of Casing
40.0
42.0
44.0
46.0
48.0
50.0
52.0
54.0
56.0
58.0
60.0
62.0
64.0
66.0
68.0
70.0
72.0

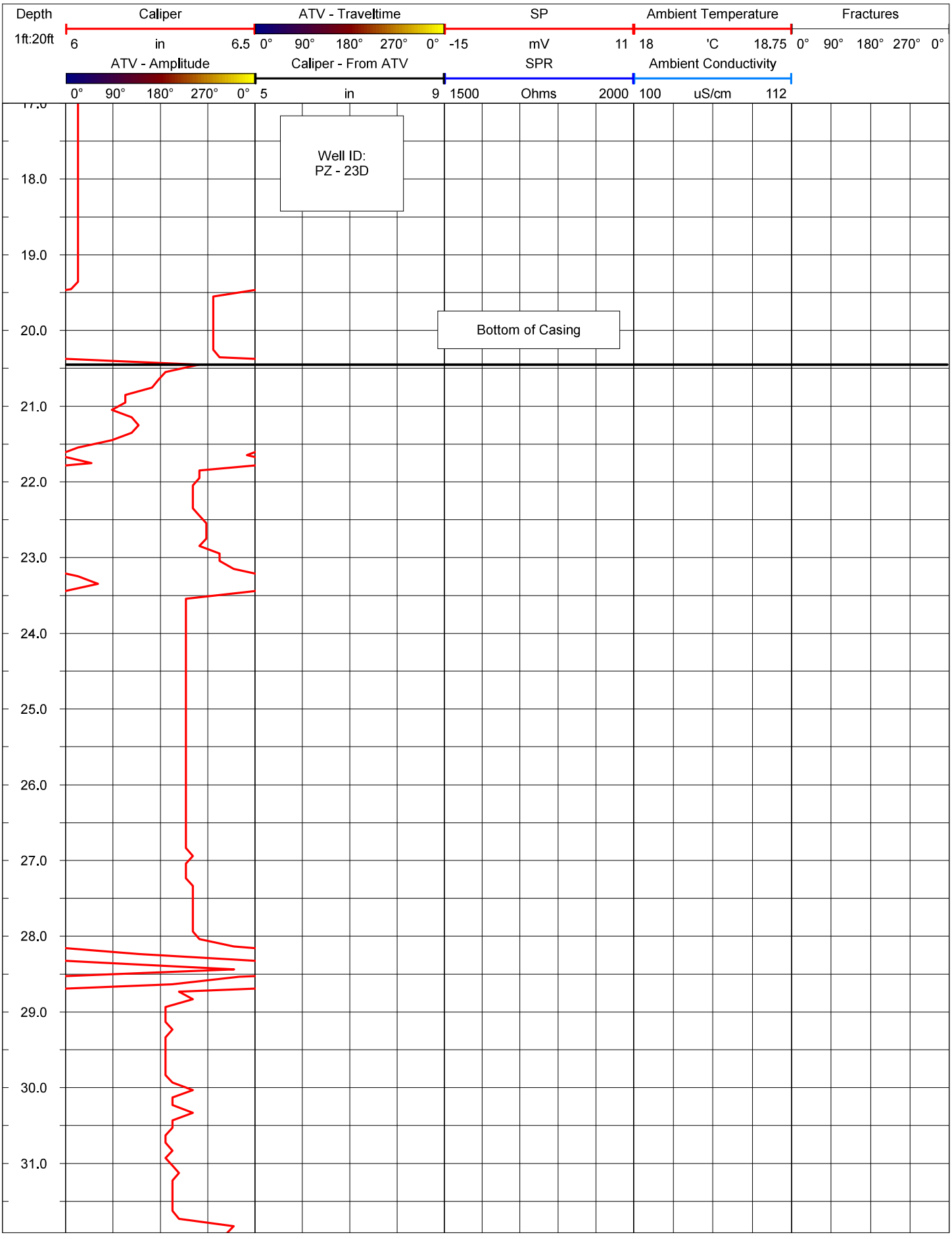

Depth
1ft:100ft
Caliper
6
in
7
Caliper - From ATV
5
in
10
Fractures
0
90
Ambient Temperature
20.5
'C
21
Ambient Conductivity
245
uS/cm
435
WELL ID:
PZ - 26D
Bottom of Casing
Fracture Legend
Minor Fracture
Major Fracture
30.0
32.0
34.0
36.0
38.0
40.0
42.0
44.0
46.0
48.0
50.0
52.0
54.0
56.0
58.0
60.0
62.0
64.0
66.0
68.0
70.0
72.0
74.0

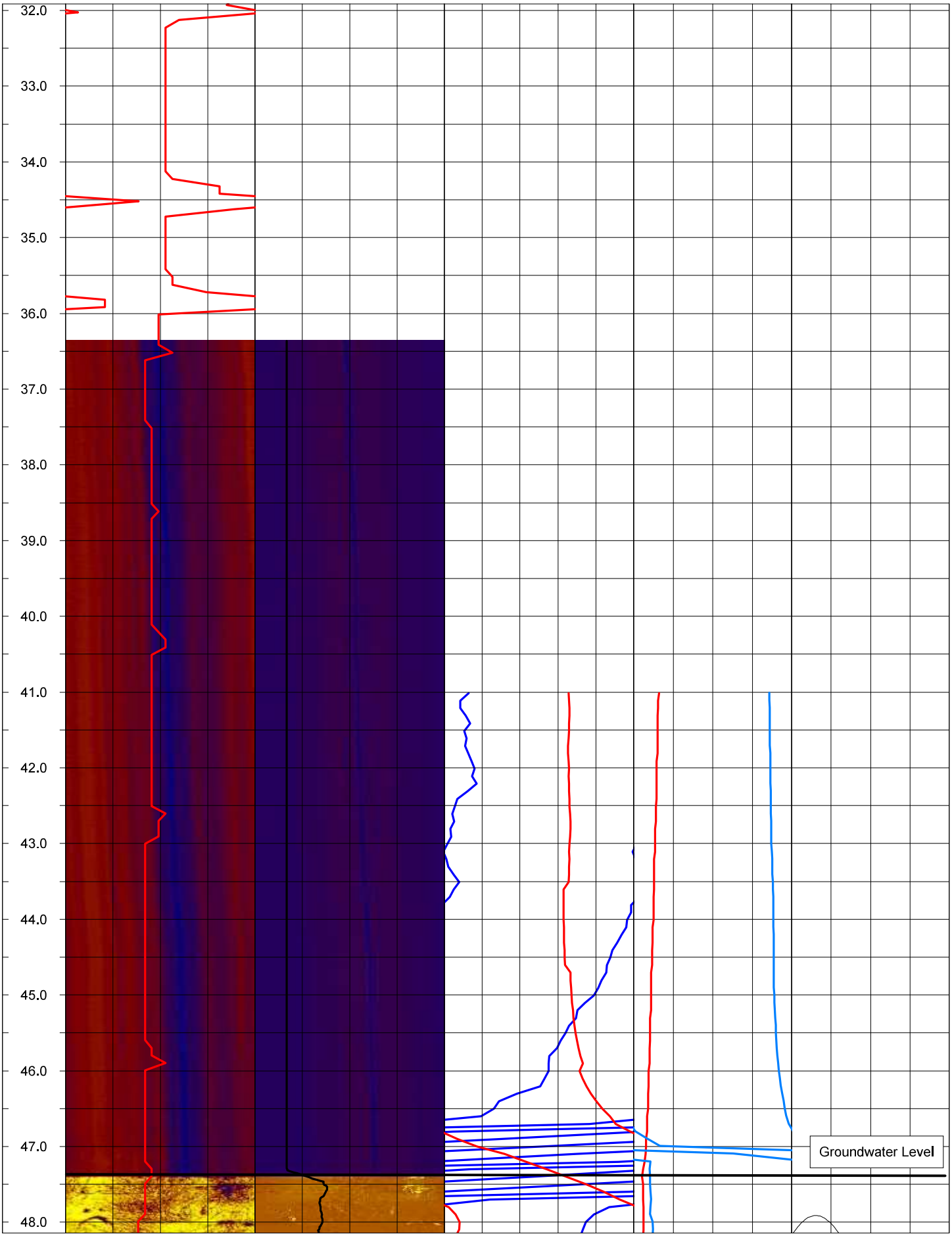
Appendix 4

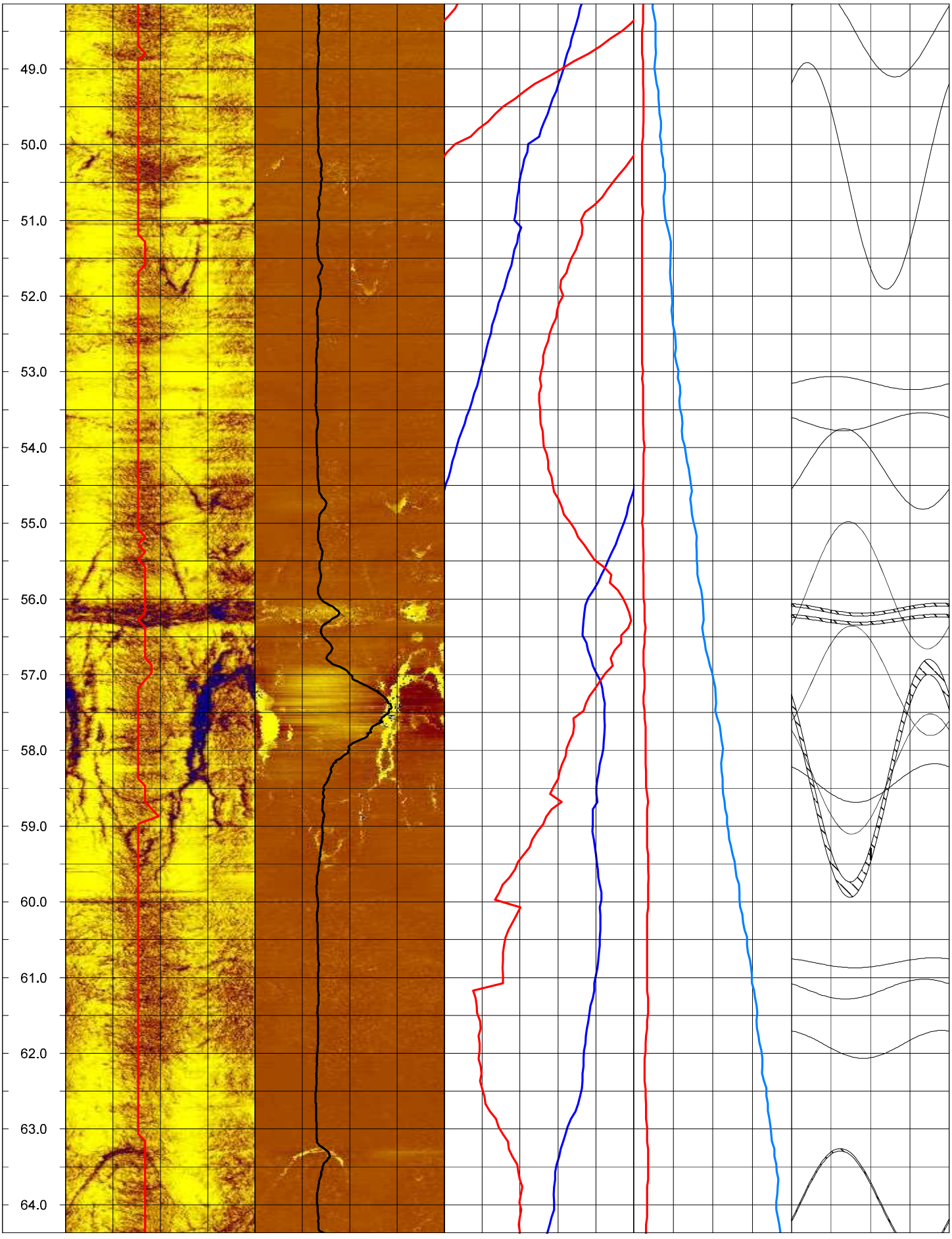

Depth
1ft:20ft
Caliper
6
in
7
ATV - Traveltime
0°
90°
180°
270°
0°
SP
-30
mV
15
Ambient Temperature
25.5
'C
26
Fractures
0°
90°
180°
270°
0°
ATV - Amplitude
0°
90°
180°
270°
0°
Caliper - from ATV
5
in
10
SPR
800
Ohms
1300
Ambient Conductivity
96
uS/cm
101
Well ID:
PZ - 22
Bottom of Casing
Ground Water Level
6.0
7.0
8.0
9.0
10.0
11.0
12.0
13.0
14.0
15.0
16.0
17.0
18.0
19.0
20.0


21.0
22.0
23.0
24.0
25.0
26.0
27.0
28.0
29.0
30.0
31.0
32.0
33.0
34.0
35.0
36.0


37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
49.0
50.0


Depth
1ft:20ft
Caliper
6
in
6.5
ATV - Traveltime
0° 90° 180° 270° 0°
SP
-15
mV
11
Ambient Temperature
18
'C
18.75
Fractures
0° 90° 180° 270° 0°
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper - From ATV
5
in
9
SPR
1500
Ohms
2000
Ambient Conductivity
100
uS/cm
112
Well ID:
PZ - 23D
Bottom of Casing
18.0
19.0
20.0
21.0
22.0
23.0
24.0
25.0
26.0
27.0
28.0
29.0
30.0
31.0


32.0
33.0
34.0
35.0
36.0
37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
Groundwater Level


49.0
50.0
51.0
52.0
53.0
54.0
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56.0
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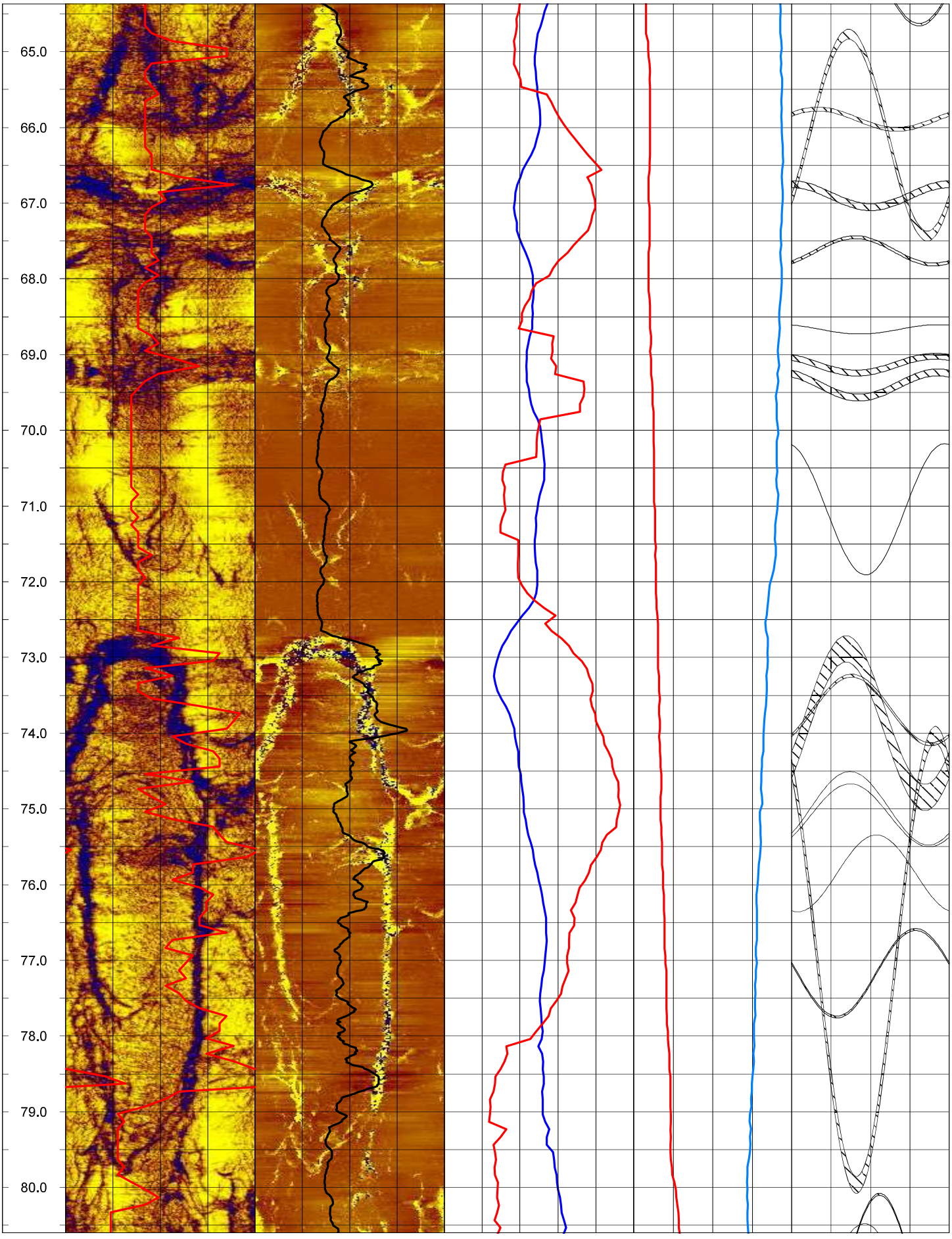
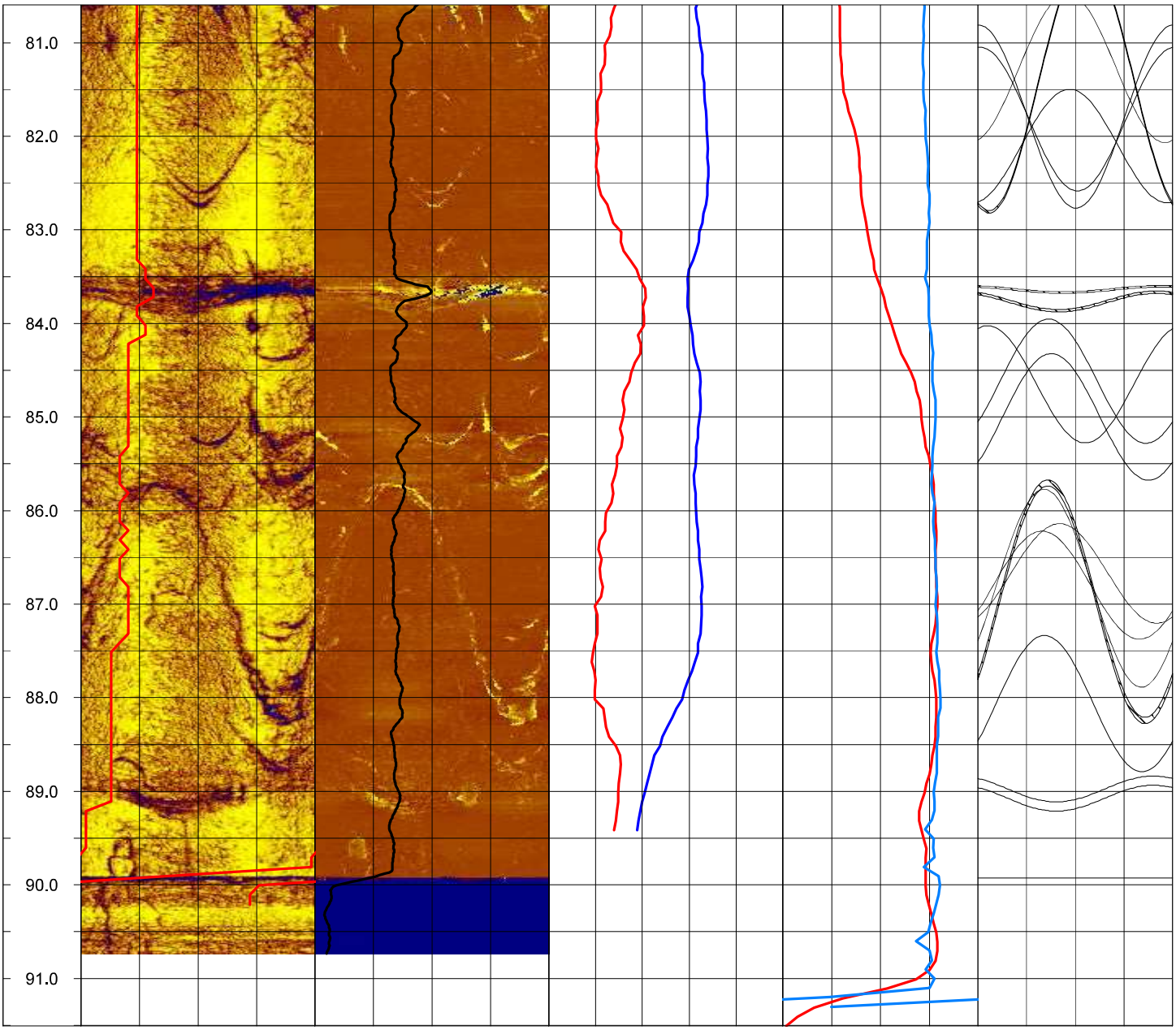
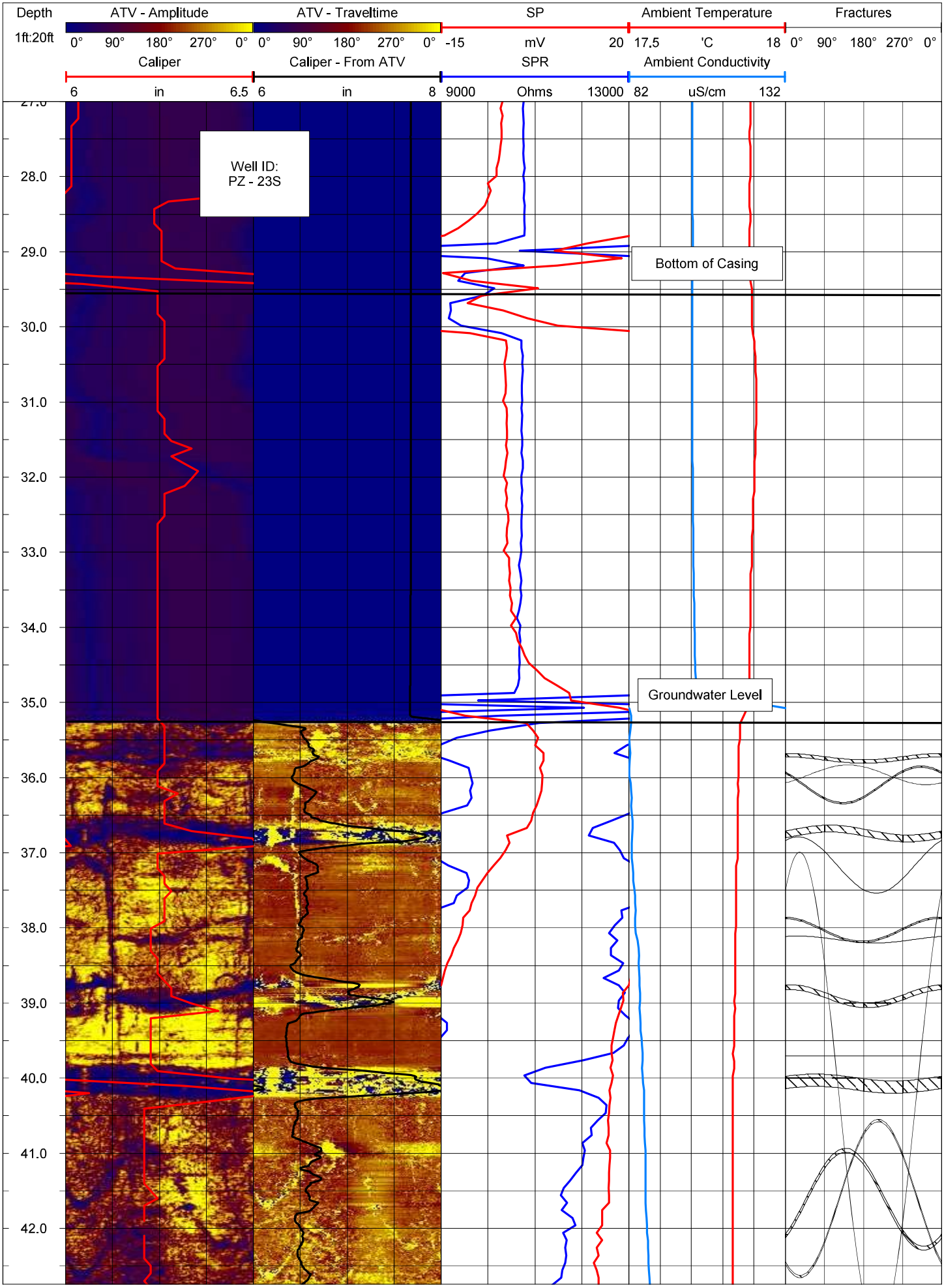
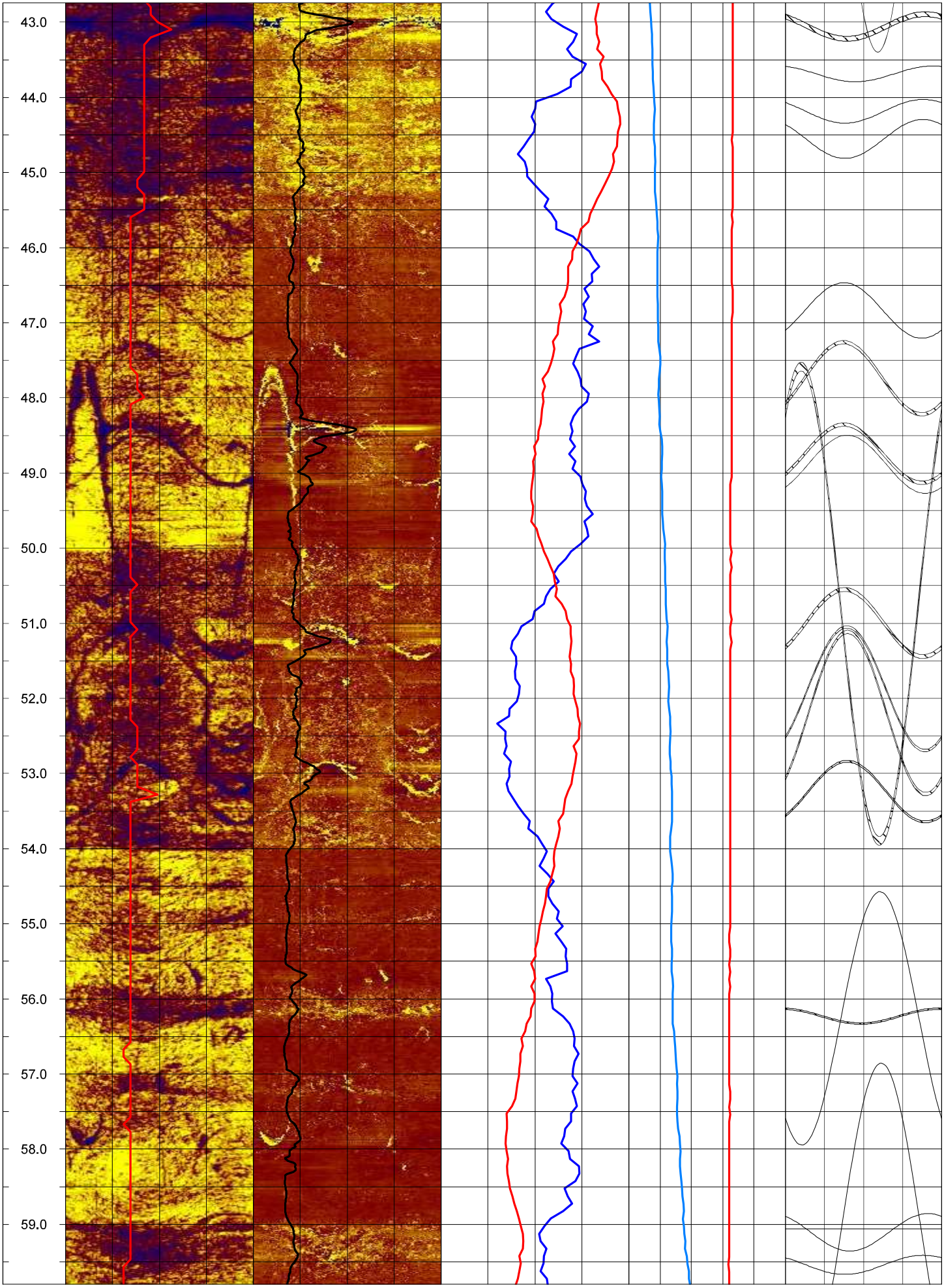
60.0
61.0
62.0
63.0
64.0


65.0
66.0
67.0
68.0
69.0
70.0
71.0
72.0
73.0
74.0
75.0
76.0
77.0
78.0
79.0
80.0


81.0
82.0
83.0
84.0
85.0
86.0
87.0
88.0
89.0
90.0
91.0


Depth
1ft:20ft
ATV - Amplitude
0° 90° 180° 270° 0°
ATV - Traveltime
0° 90° 180° 270° 0°
SP
-15 mV 20
Ambient Temperature
17.5 'C 18
Fractures
0° 90° 180° 270° 0°
Caliper
6 in 6.5
Caliper - From ATV
6 in 8
SPR
9000 Ohms 13000
Ambient Conductivity
82 uS/cm 132
Well ID:
PZ - 23S
Bottom of Casing
Groundwater Level
28.0
29.0
30.0
31.0
32.0
33.0
34.0
35.0
36.0
37.0
38.0
39.0
40.0
41.0
42.0


43.0
44.0
45.0
46.0
47.0
48.0
49.0
50.0
51.0
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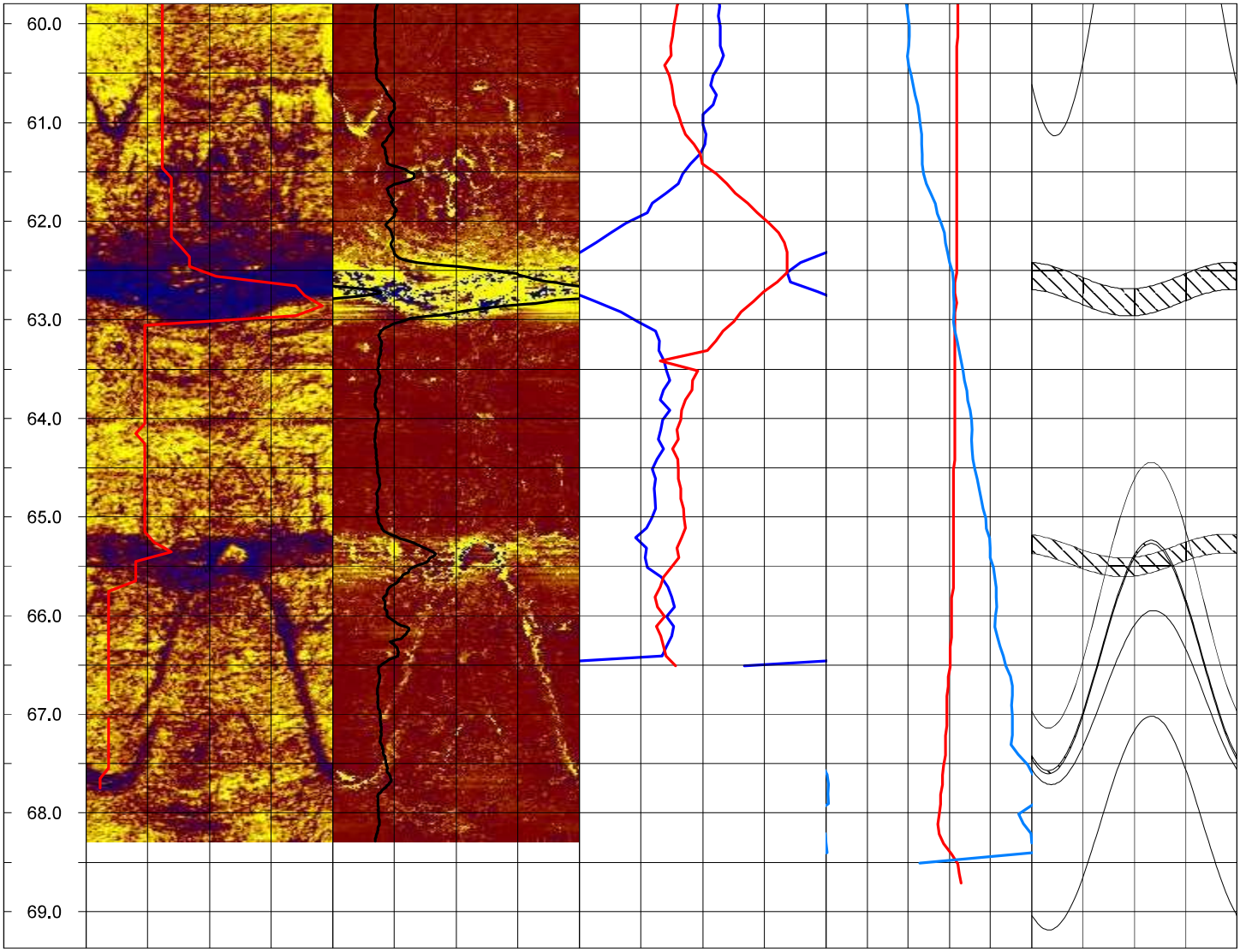
53.0
54.0
55.0
56.0
57.0
58.0
59.0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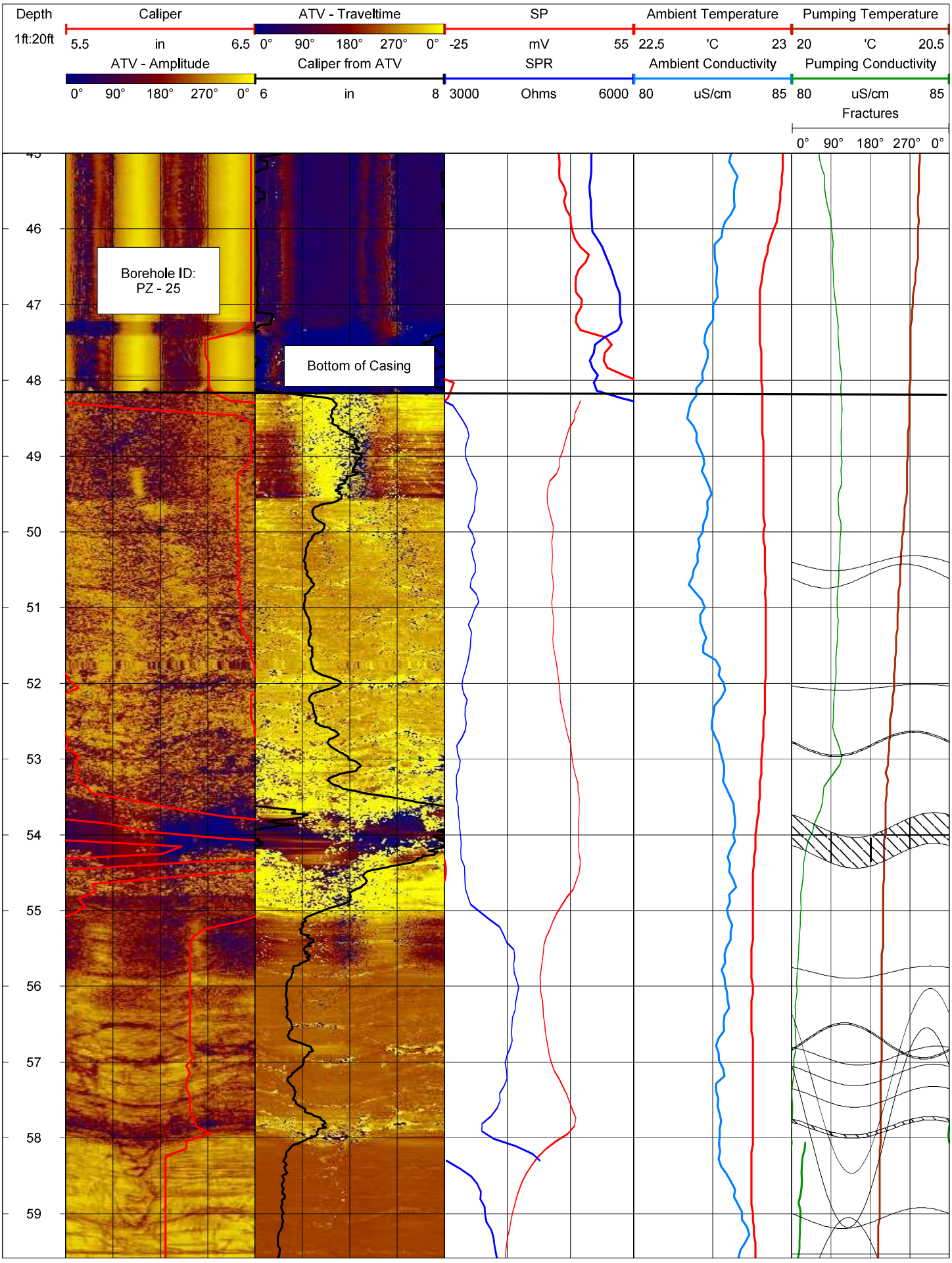
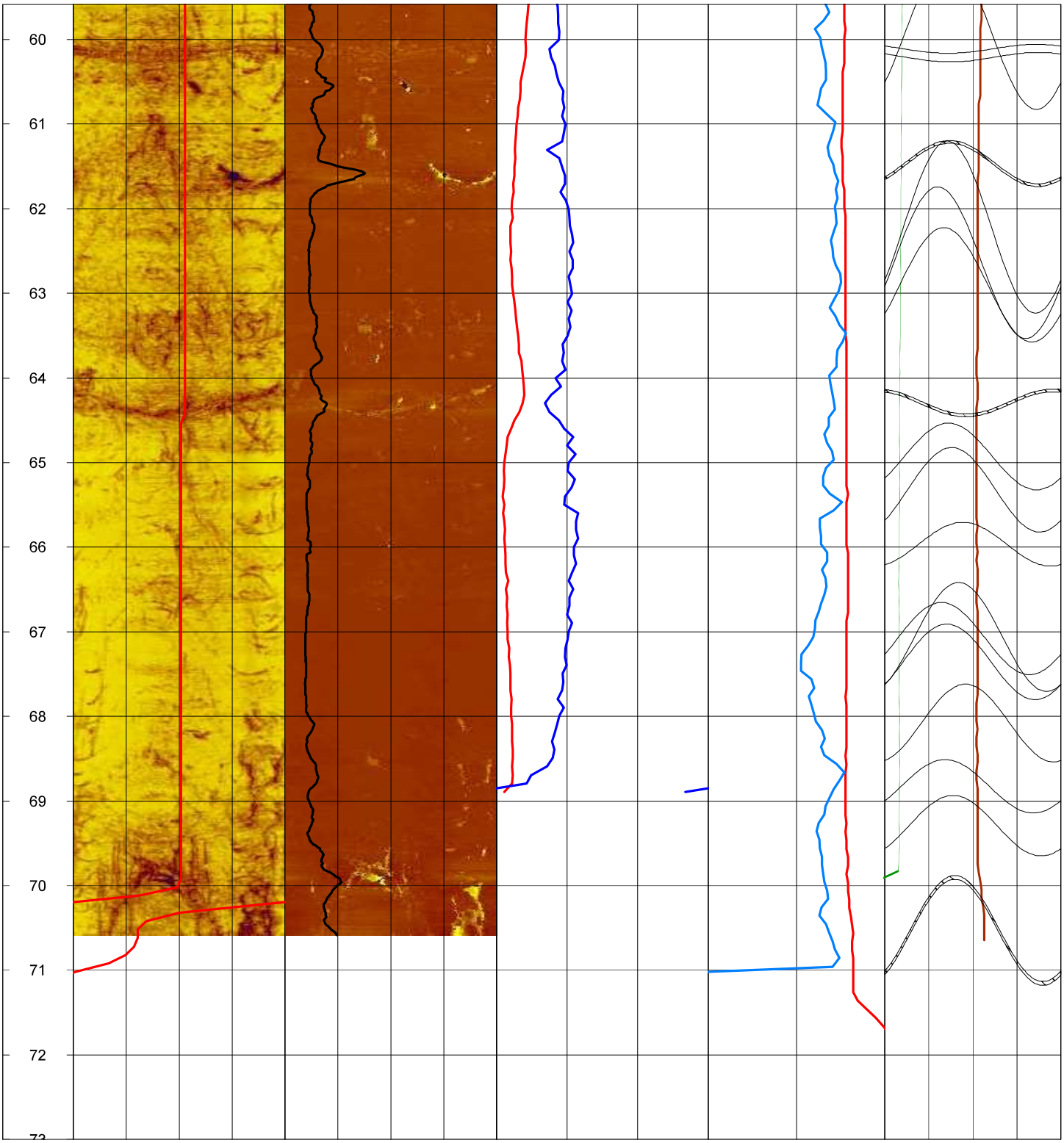
62.0
63.0
64.0
65.0
66.0
67.0
68.0
69.0


Depth
1ft:20ft
Caliper
5.5 in 6.5
ATV - Traveltime
0° 90° 180° 270° 0°
SP
-25 mV 55
Ambient Temperature
22.5 'C 23
Pumping Temperature
20 'C 20.5
ATV - Amplitude
0° 90° 180° 270° 0°
Caliper from ATV
6 in 8
SPR
3000 Ohms 6000
Ambient Conductivity
80 uS/cm 85
Pumping Conductivity
80 uS/cm 85
Fractures
0° 90° 180° 270° 0°
Borehole ID:
PZ - 25
Bottom of Casing
46
47
48
49
50
51
52
53
54
55
56
57
58
59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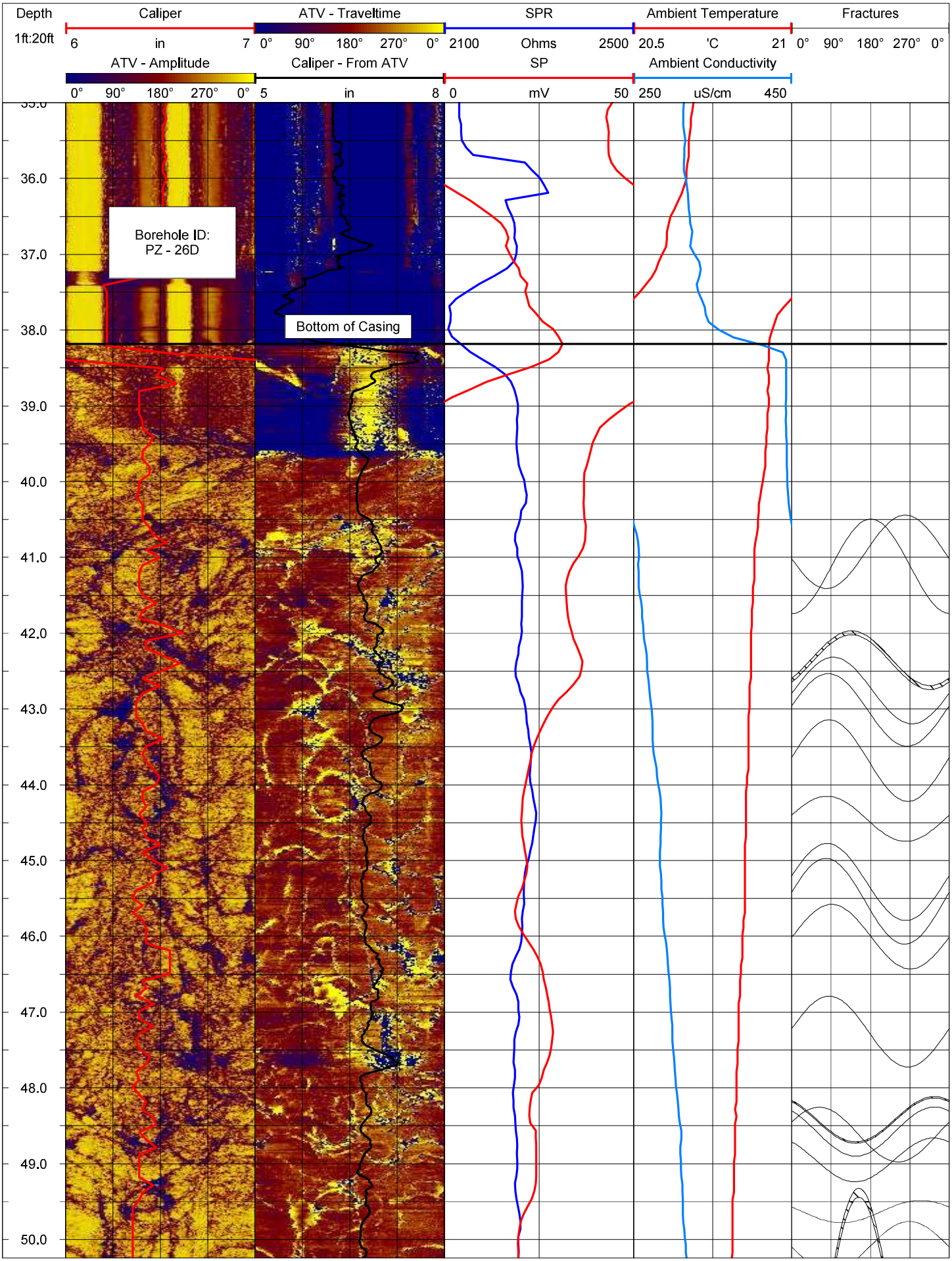
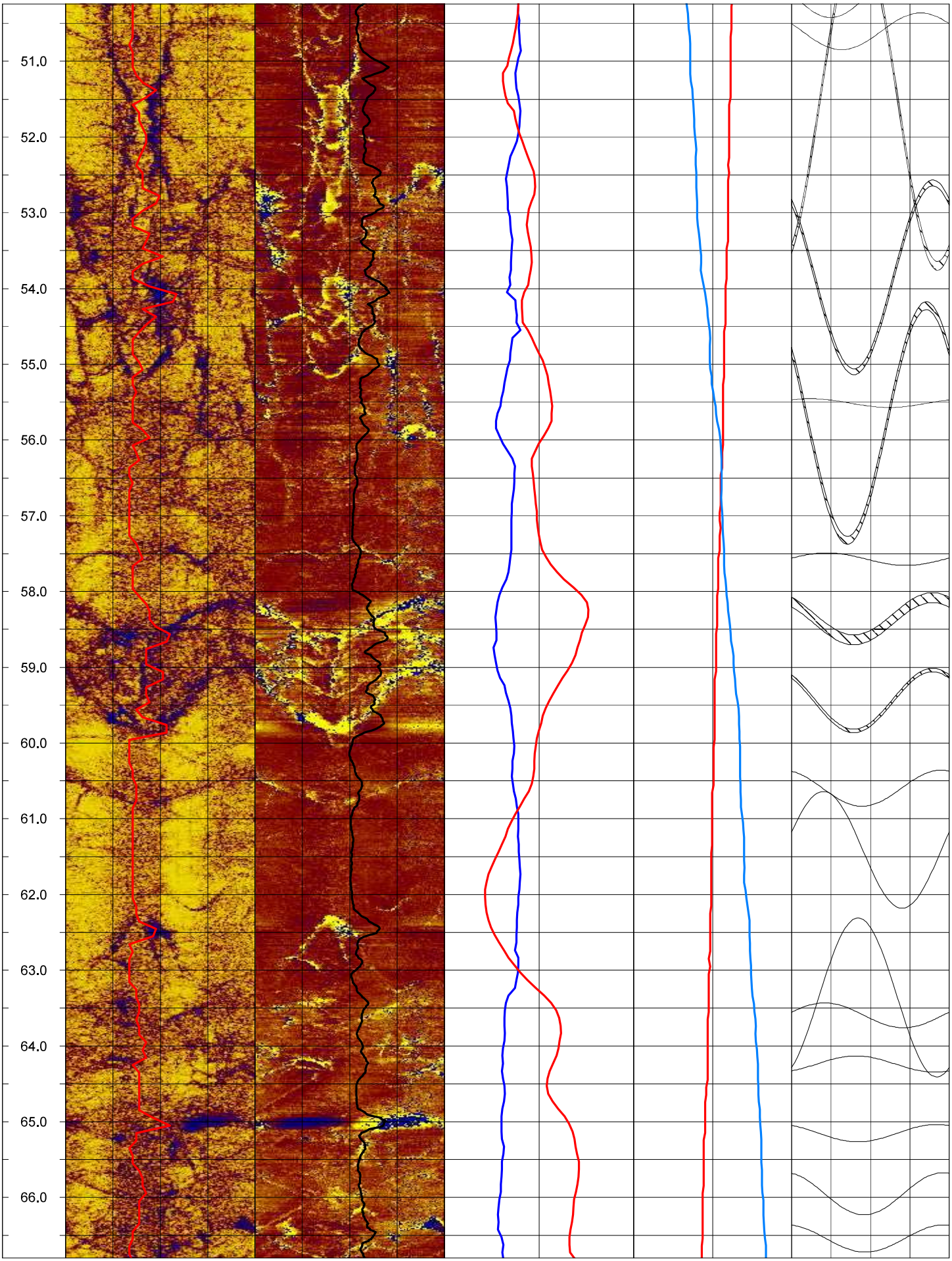
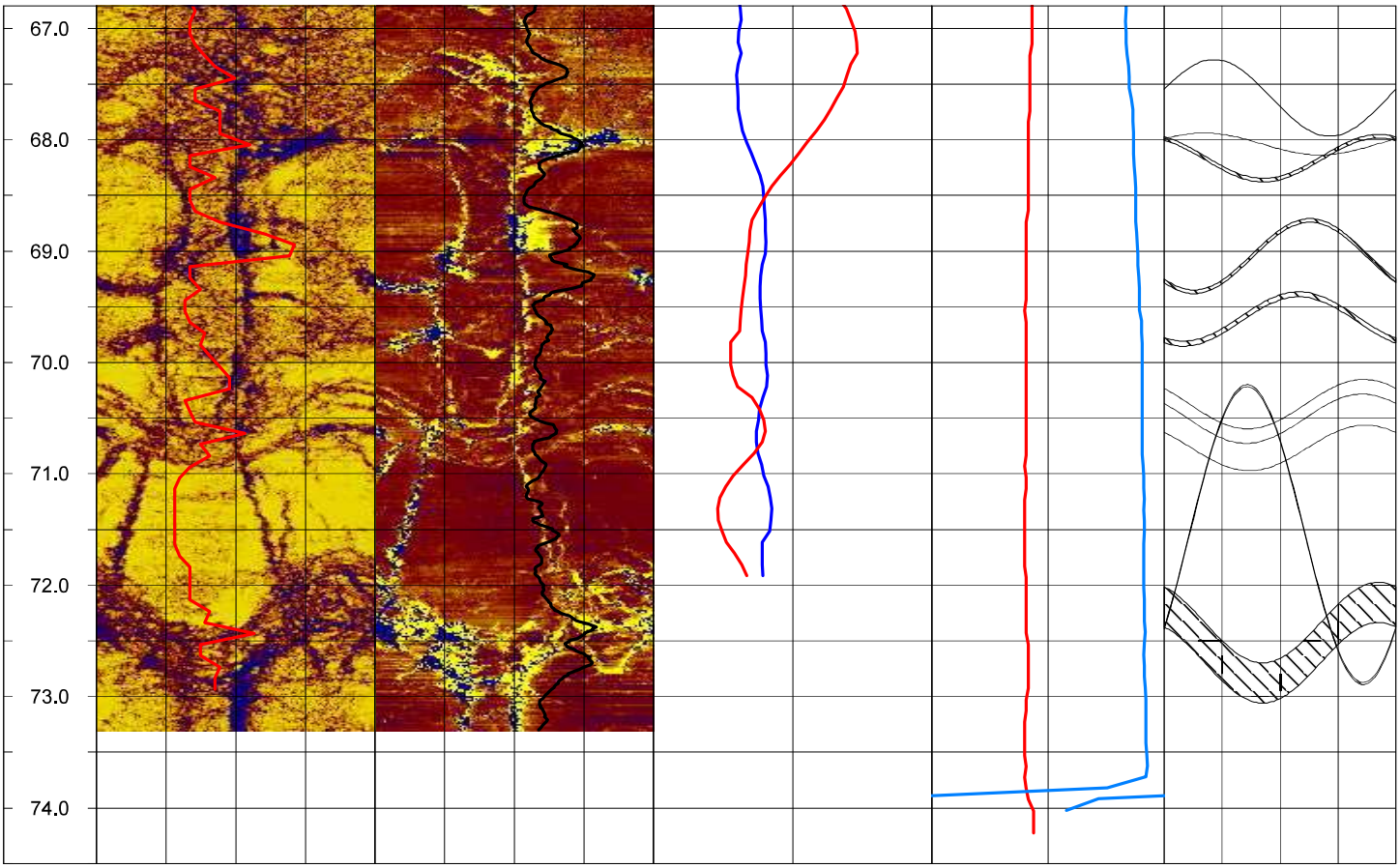
63
64
65
66
67
68
69
70
71
72

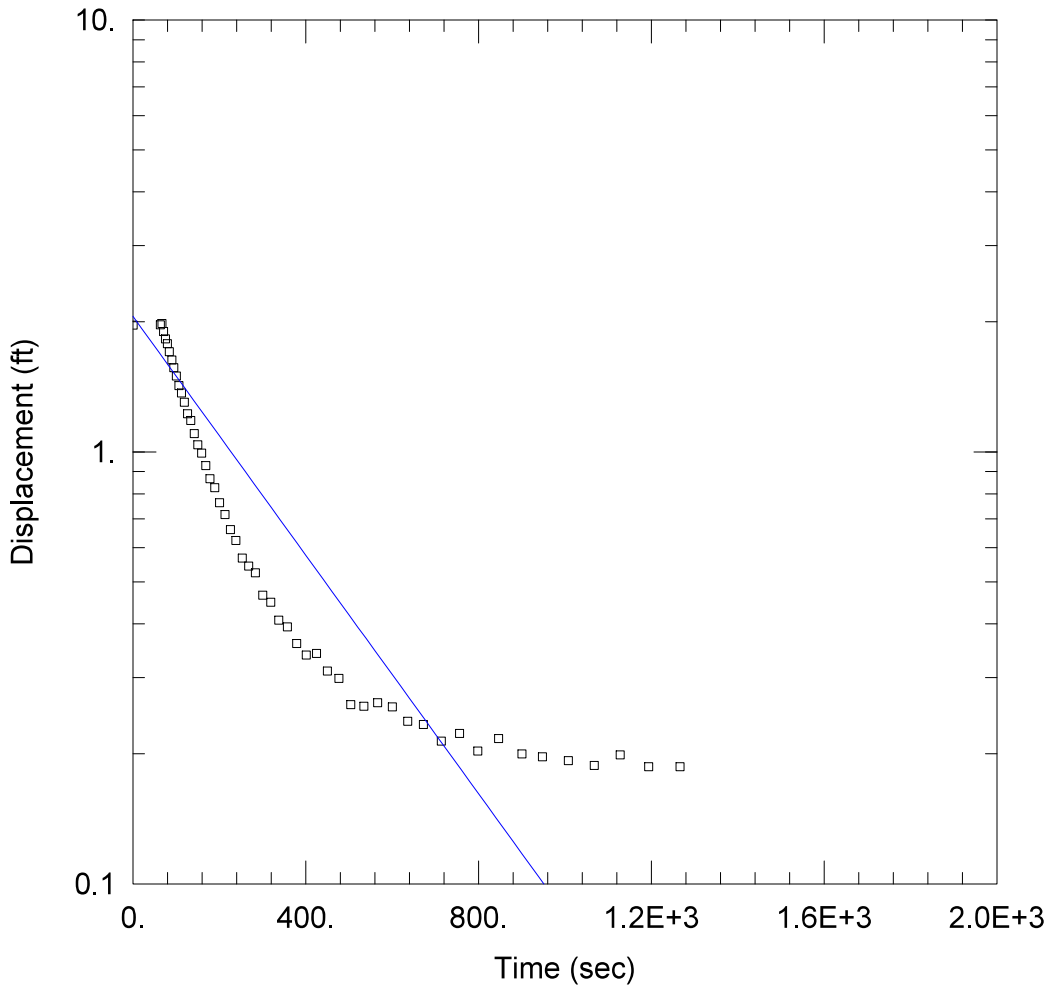

Depth
1ft:20ft
Caliper
6
in
7
ATV - Traveltime
0°
90°
180°
270°
0°
SPR
2100
Ohms
2500
Ambient Temperature
20.5
'C
21
Fractures
0°
90°
180°
270°
0°
ATV - Amplitude
0°
90°
180°
270°
0°
Caliper - From ATV
5
in
8
SP
0
mV
50
Ambient Conductivity
250
uS/cm
450
Borehole ID:
PZ - 26D
Bottom of Casing
36.0
37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
49.0
50.0


51.0
52.0
53.0
54.0
55.0
56.0
57.0
58.0
59.0
60.0
61.0
62.0
63.0
64.0
65.0
66.0


67.0
68.0
69.0
70.0
71.0
72.0
73.0
74.0

APPENDIX E

Hydraulic Conductivity Testing Results



WELL TEST ANALYSIS

Data Set: N:\...\APA-2 Falling.aqt
Date: 11/08/19 Time: 08:00:32

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APA-2
Test Date: 1/27/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

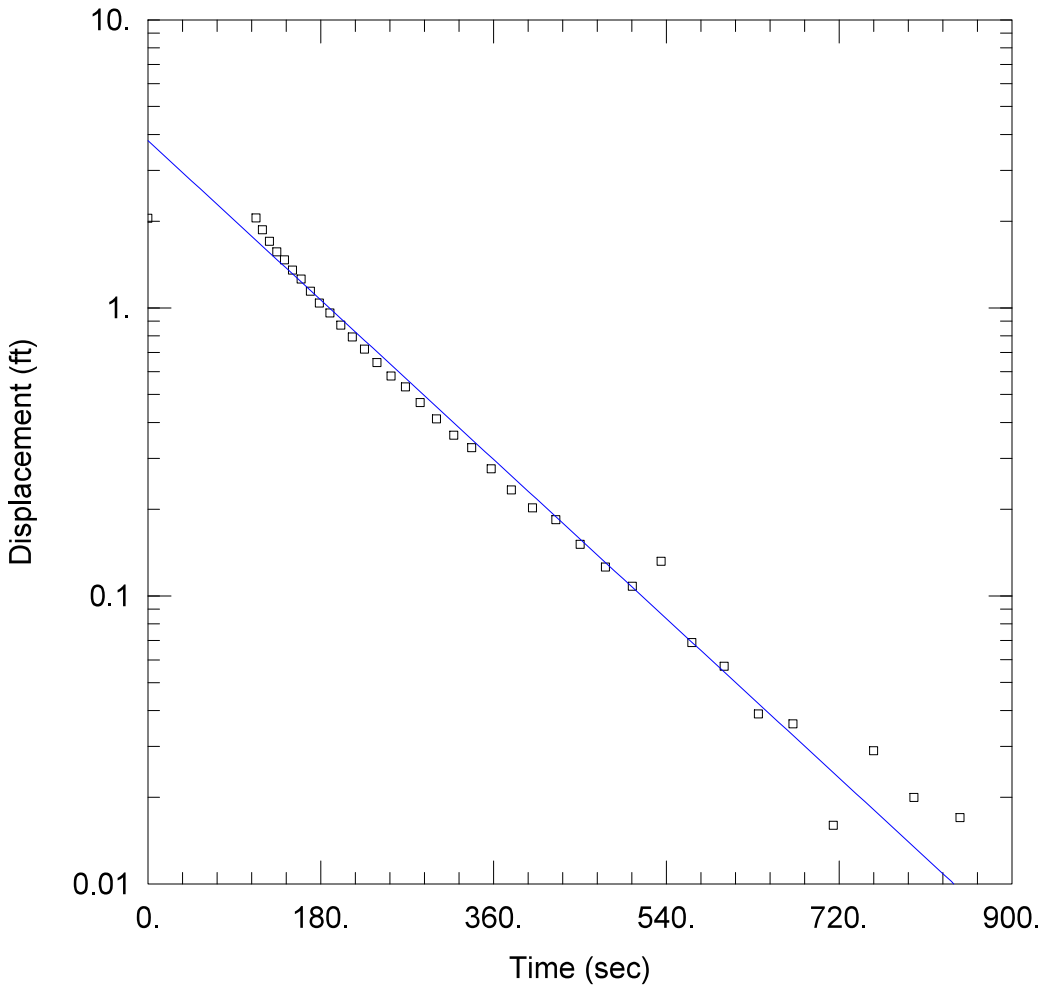
WELL DATA (APA-2 Falling)

Initial Displacement: 1.968 ft
Total Well Penetration Depth: 95.2 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0001231 cm/sec y0 = 2.058 ft



WELL TEST ANALYSIS

Data Set: N:\...\APA-2 Rising.aqt
Date: 11/08/19 Time: 08:05:19

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APA-2
Test Date: 1/27/16

AQUIFER DATA

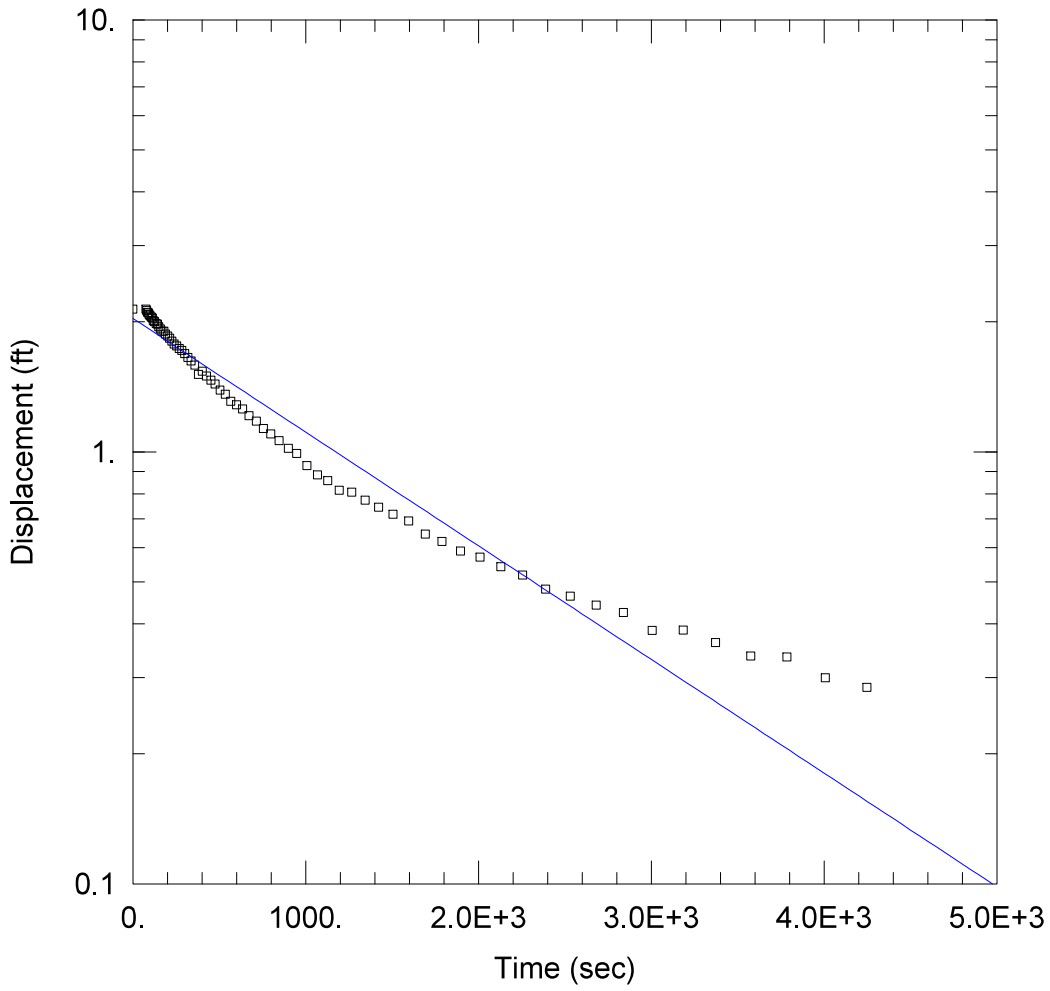
Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (APA-2 Rising)

Initial Displacement: 2.05 ft
Total Well Penetration Depth: 95.2 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002739 cm/sec
y0 = 3.806 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-1 Rising.aqt
Date: 11/08/19 Time: 08:06:07

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-1
Test Date: 1/28/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

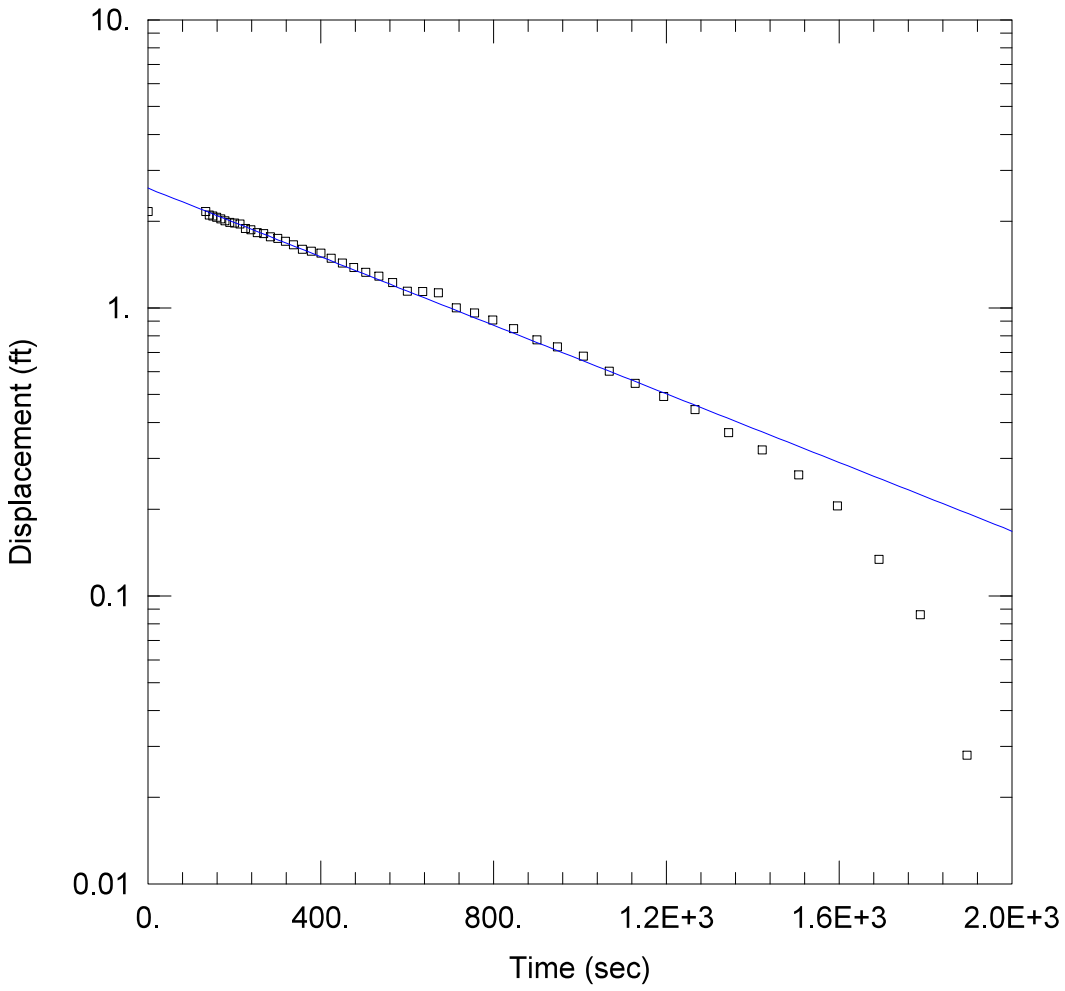
WELL DATA (APC-1 Rising)

Initial Displacement: 2.141 ft
Total Well Penetration Depth: 58.58 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.216E-5 cm/sec y0 = 2.037 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-3 Falling.aqt
Date: 11/08/19 Time: 08:07:57

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-3
Test Date: 1/26/16

AQUIFER DATA

Saturated Thickness: 140. ft Anisotropy Ratio (Kz/Kr): 1.

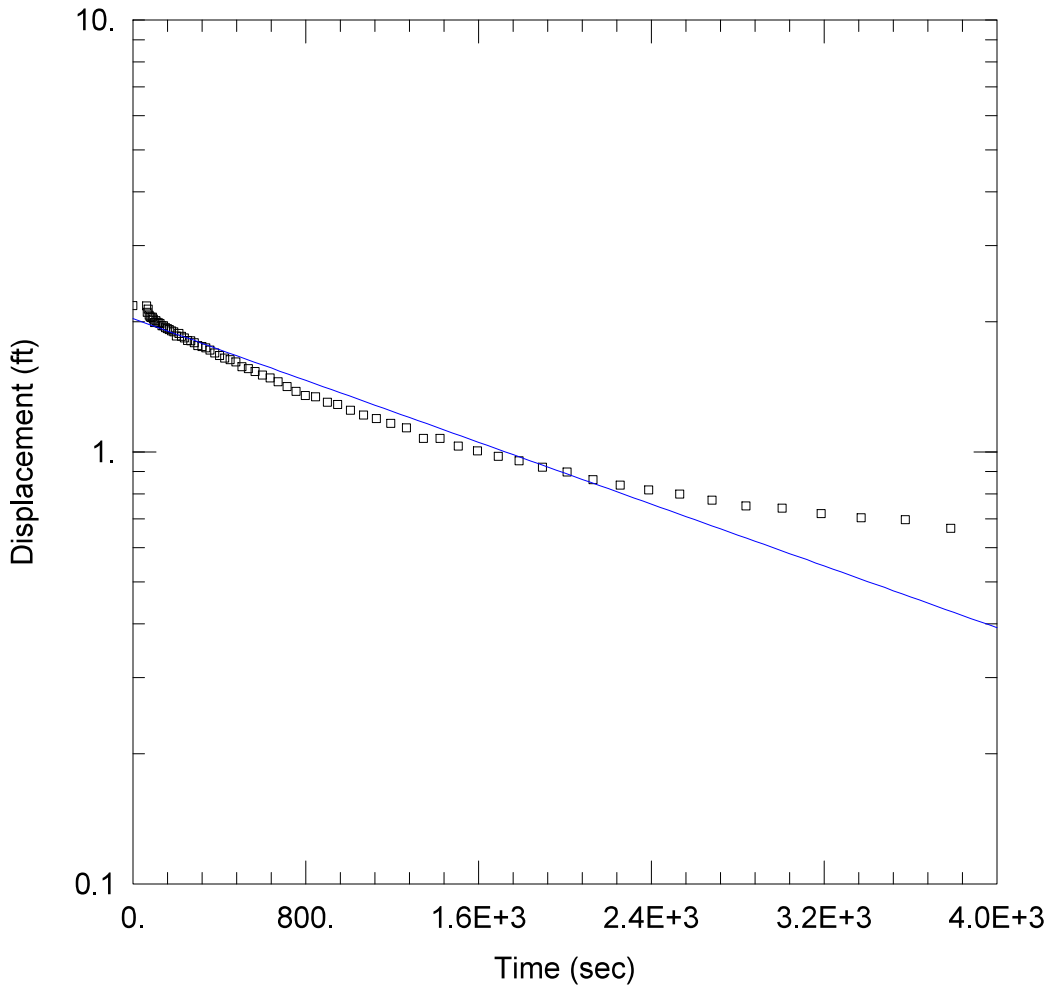
WELL DATA (APC-3 Falling)

Initial Displacement: 2.161 ft
Total Well Penetration Depth: 132.4 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 5.665E-5 cm/sec y0 = 2.605 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-3 Rising.aqt
Date: 11/08/19 Time: 08:08:38

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-3
Test Date: 1/27/16

AQUIFER DATA

Saturated Thickness: 140. ft Anisotropy Ratio (Kz/Kr): 1.

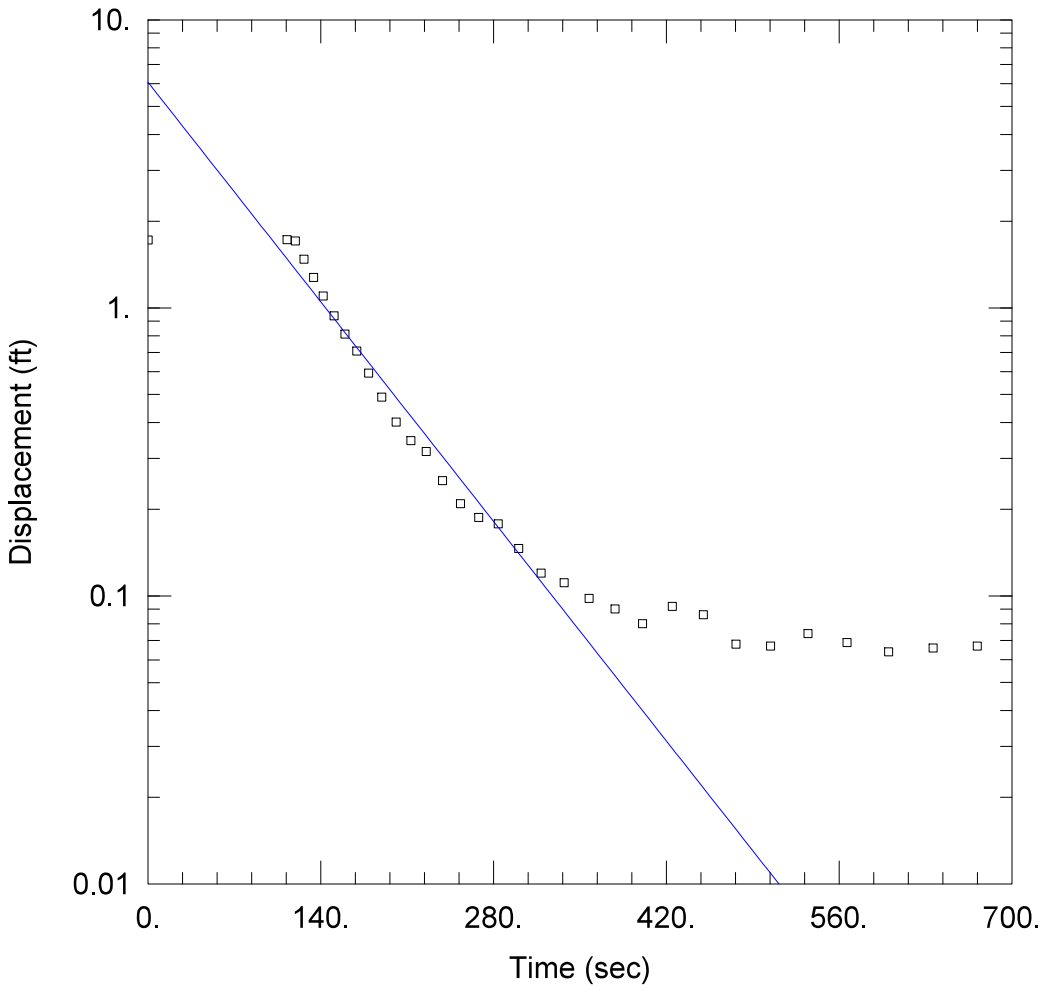
WELL DATA (APC-3 Rising)

Initial Displacement: 2.179 ft
Total Well Penetration Depth: 132.4 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.703E-5 cm/sec y0 = 2.036 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-4 Falling.aqt
Date: 11/08/19 Time: 08:08:57

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-4
Test Date: 1/28/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

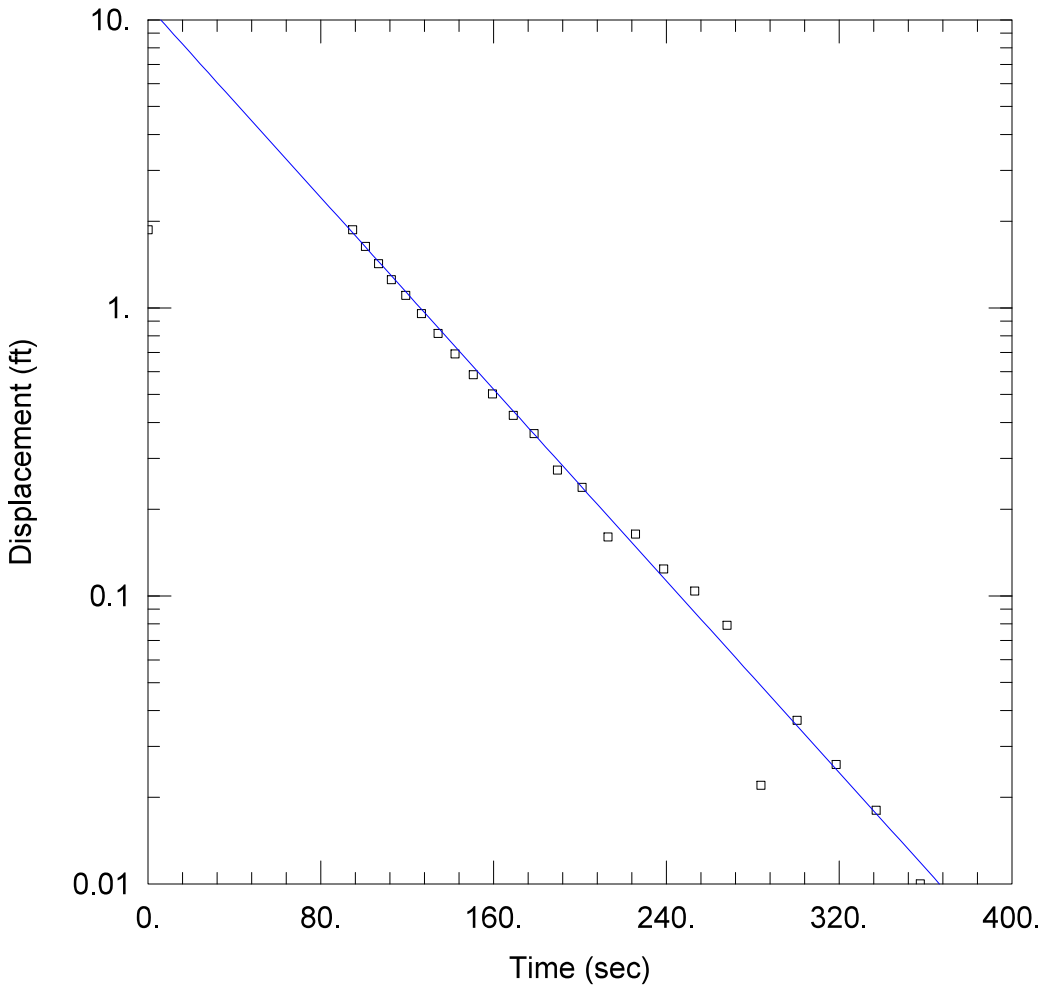
WELL DATA (APC-4 Falling)

Initial Displacement: 1.723 ft
Total Well Penetration Depth: 54.12 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.000455 cm/sec y0 = 6.08 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-4 Rising.aqt
Date: 11/08/19 Time: 08:09:16

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-4
Test Date: 1/28/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

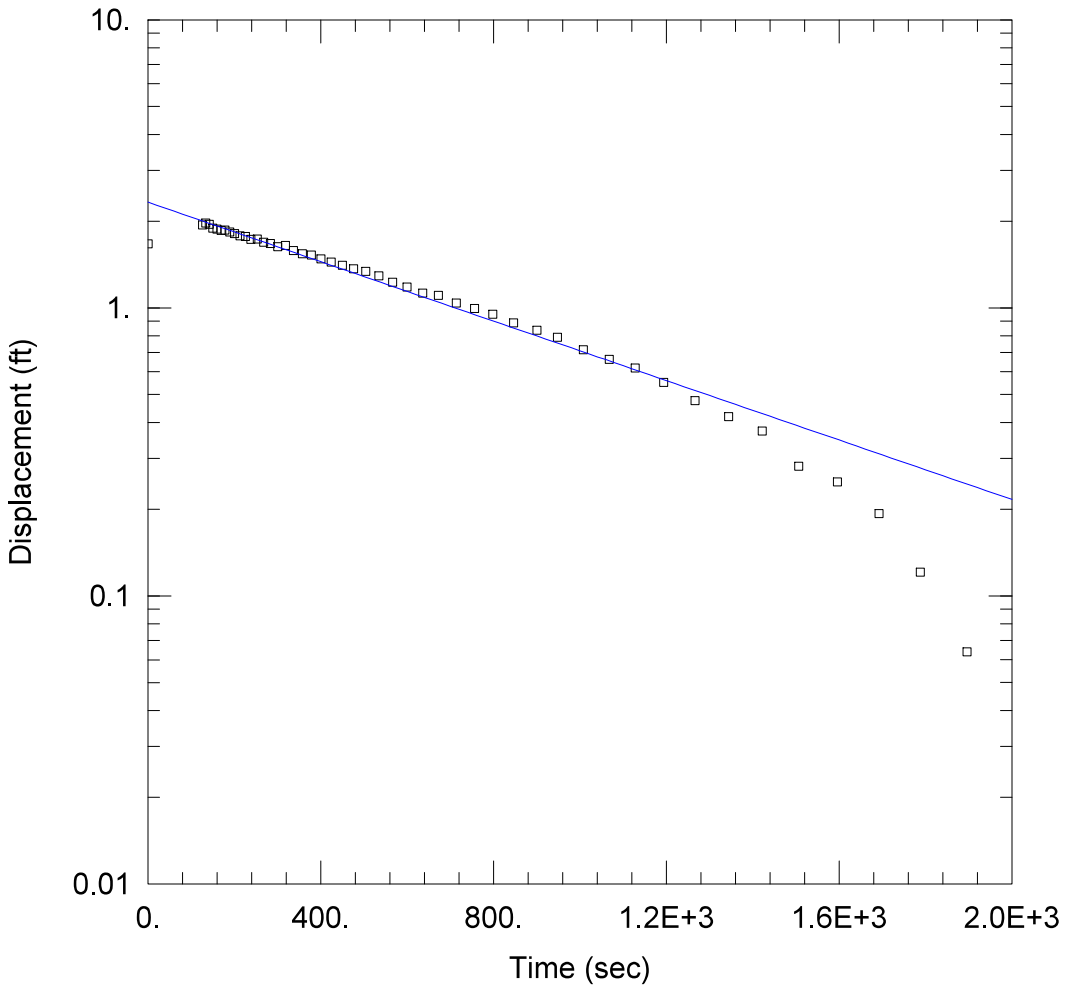
WELL DATA (APC-4 Rising)

Initial Displacement: 1.865 ft
Total Well Penetration Depth: 54.12 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.000695 cm/sec y0 = 11.19 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-5D Falling.aqt
Date: 11/08/19 Time: 08:10:06

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-5D
Test Date: 1/28/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

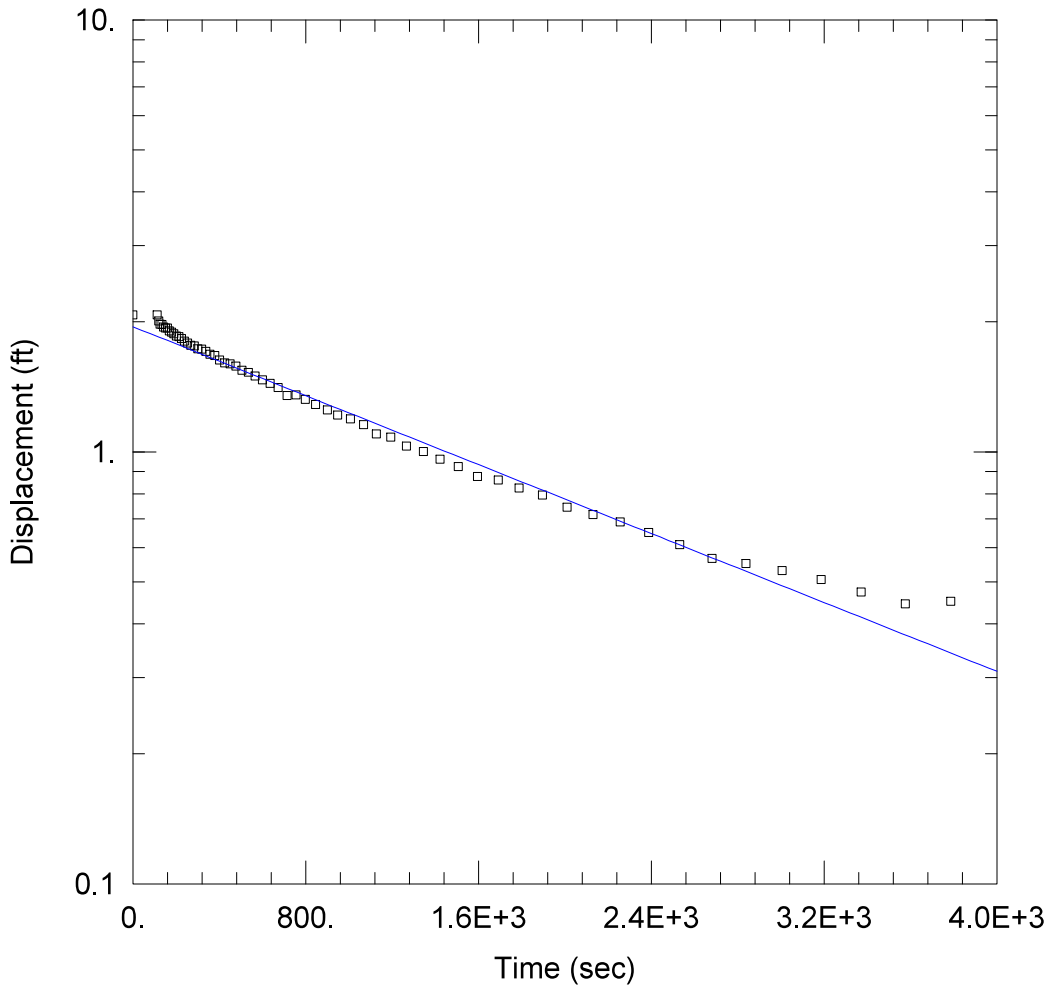
WELL DATA (APC-5D Falling)

Initial Displacement: 1.671 ft
Total Well Penetration Depth: 85.69 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 20. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.47E-5 cm/sec y0 = 2.329 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-5D Rising.aqt
Date: 11/08/19 Time: 08:10:24

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-5D
Test Date: 1/28/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

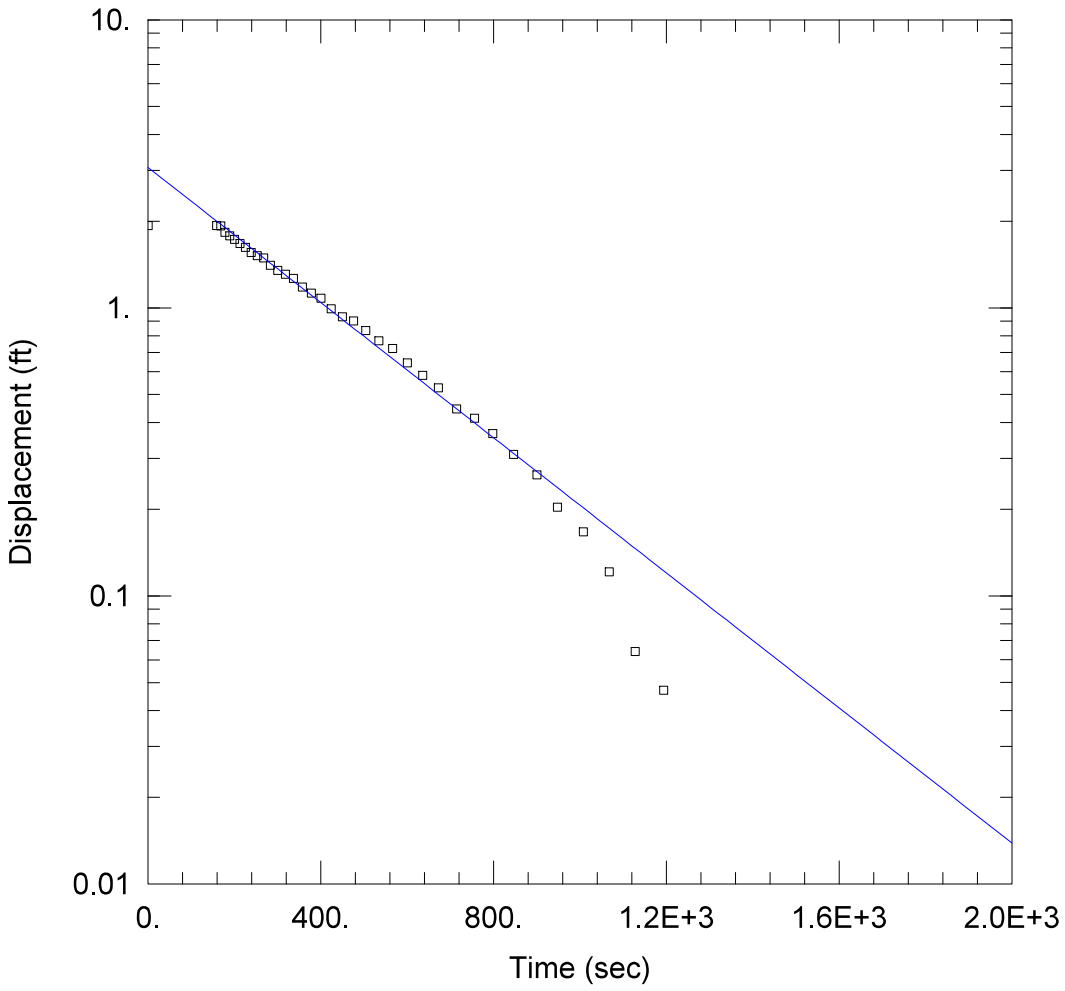
WELL DATA (APC-5D rising)

Initial Displacement: 2.076 ft
Total Well Penetration Depth: 85.69 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 20. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 9.547E-6 cm/sec y0 = 1.949 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-5S Falling.aqt
Date: 11/08/19 Time: 08:10:46

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-5S
Test Date: 1/28/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

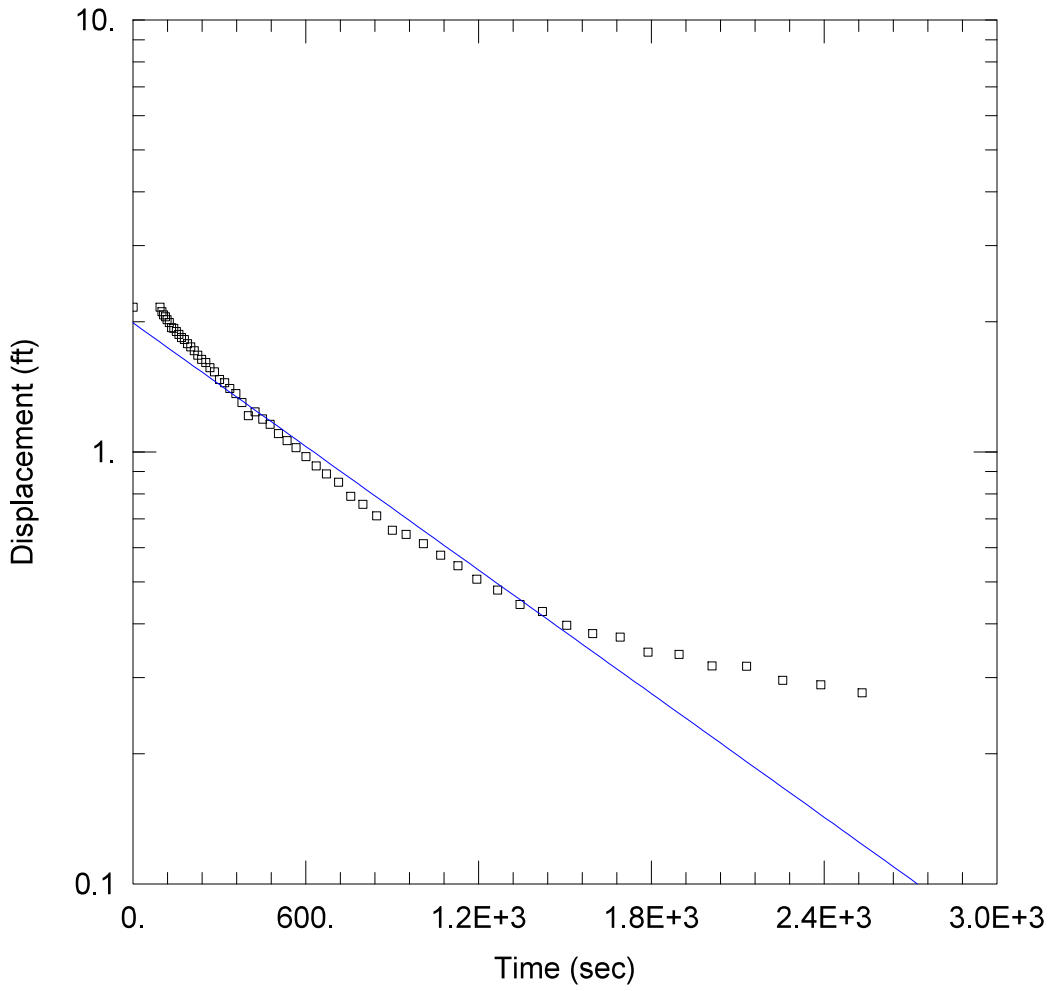
WELL DATA (APC-5S Falling)

Initial Displacement: 1.929 ft
Total Well Penetration Depth: 45.53 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 9.622E-5 cm/sec y0 = 3.075 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-5S Rising.aqt
Date: 11/08/19 Time: 08:11:08

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-5S
Test Date: 1/28/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

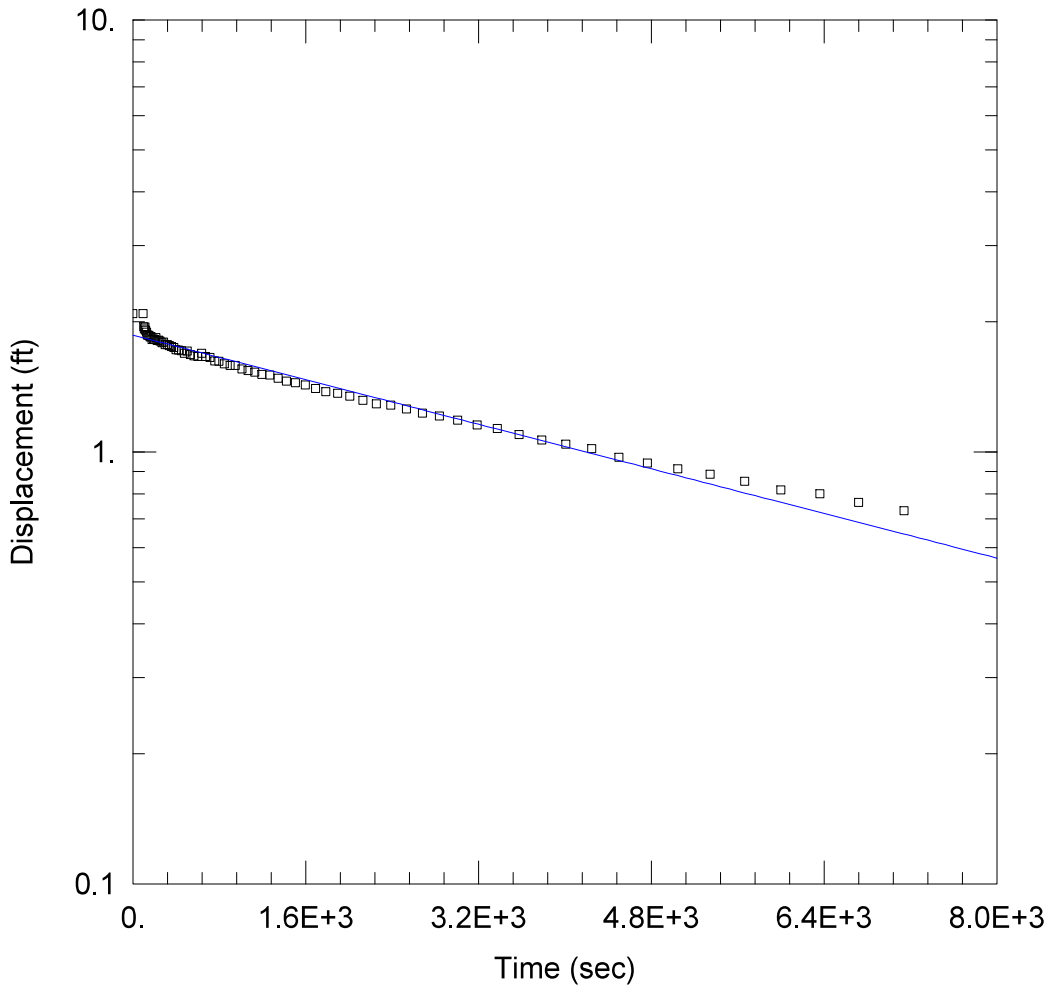
WELL DATA (APC-5S Rising)

Initial Displacement: 2.163 ft
Total Well Penetration Depth: 45.53 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 3.911E-5 cm/sec y0 = 1.991 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-6D Falling.aqt
Date: 11/08/19 Time: 08:11:30

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-6D
Test Date: 1/29/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

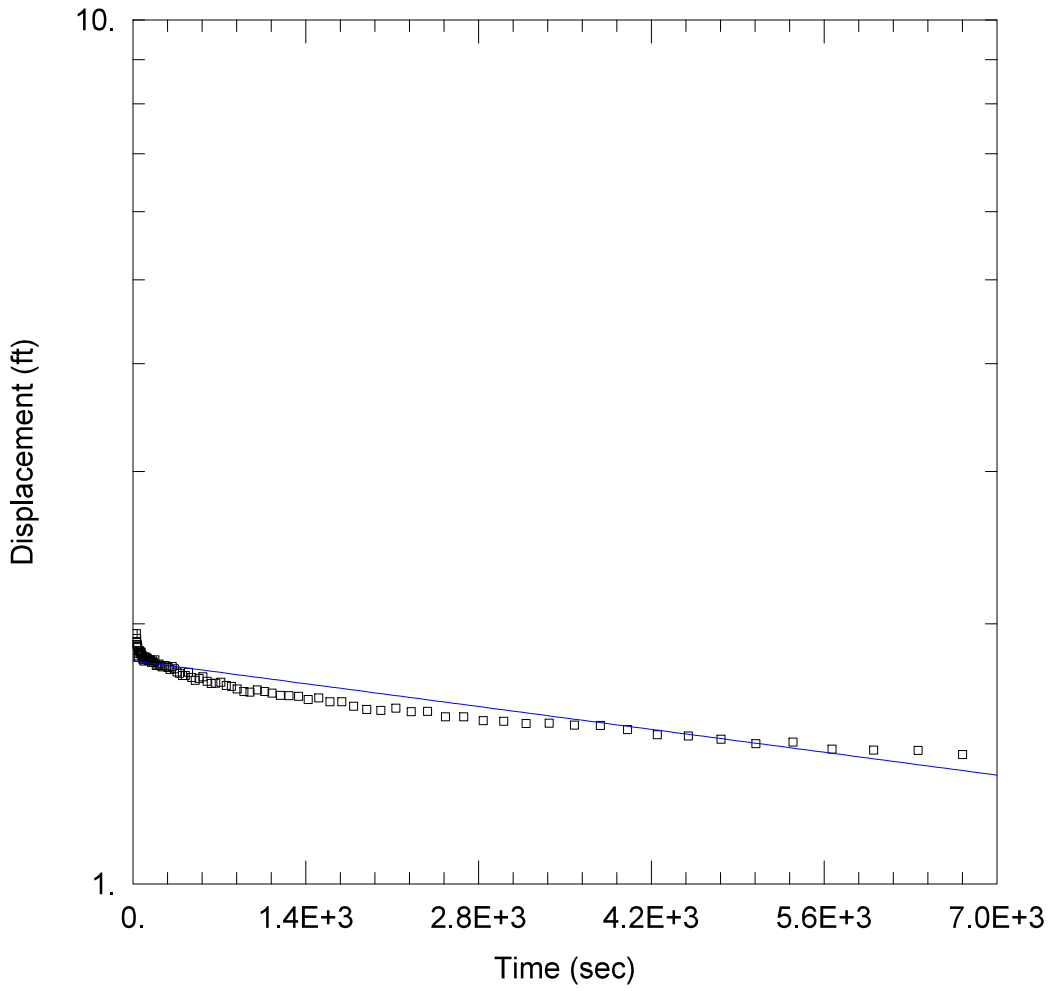
WELL DATA (APC-6D Falling)

Initial Displacement: 2.091 ft
Total Well Penetration Depth: 50.94 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 5.355E-6 cm/sec y0 = 1.864 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-6D Rising.aqt
Date: 11/08/19 Time: 08:11:55

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-6D
Test Date: 1/29/16

AQUIFER DATA

Saturated Thickness: 120. ft Anisotropy Ratio (Kz/Kr): 1.

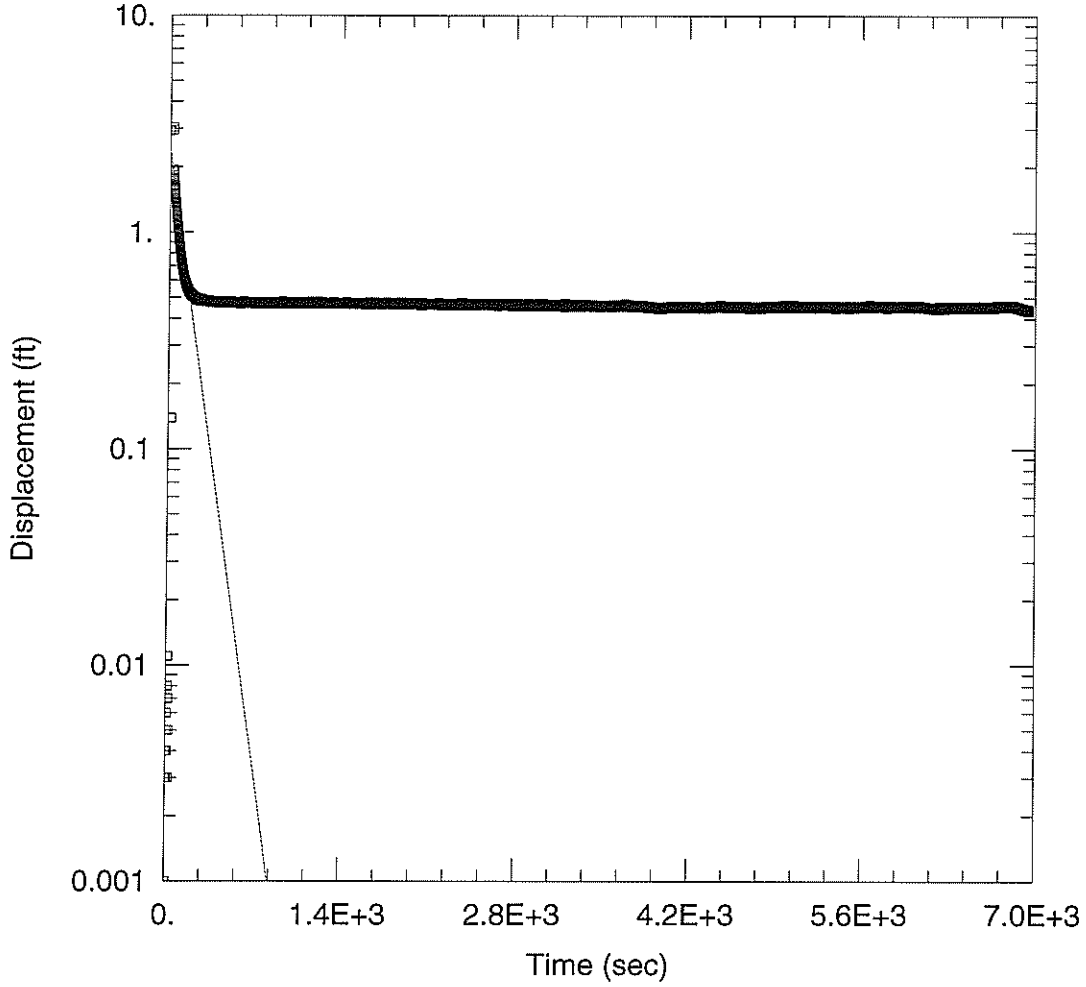
WELL DATA (APC-6D Rising)

Initial Displacement: 1.949 ft
Total Well Penetration Depth: 50.94 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 0. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.568E-6 cm/sec y0 = 1.812 ft



WELL TEST ANALYSIS

Data Set: T:\...\3S-1.aqt
Date: 07/09/15 Time: 13:04:49

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-3

AQUIFER DATA

Saturated Thickness: 11.7 ft Anisotropy Ratio (Kz/Kr): 1.

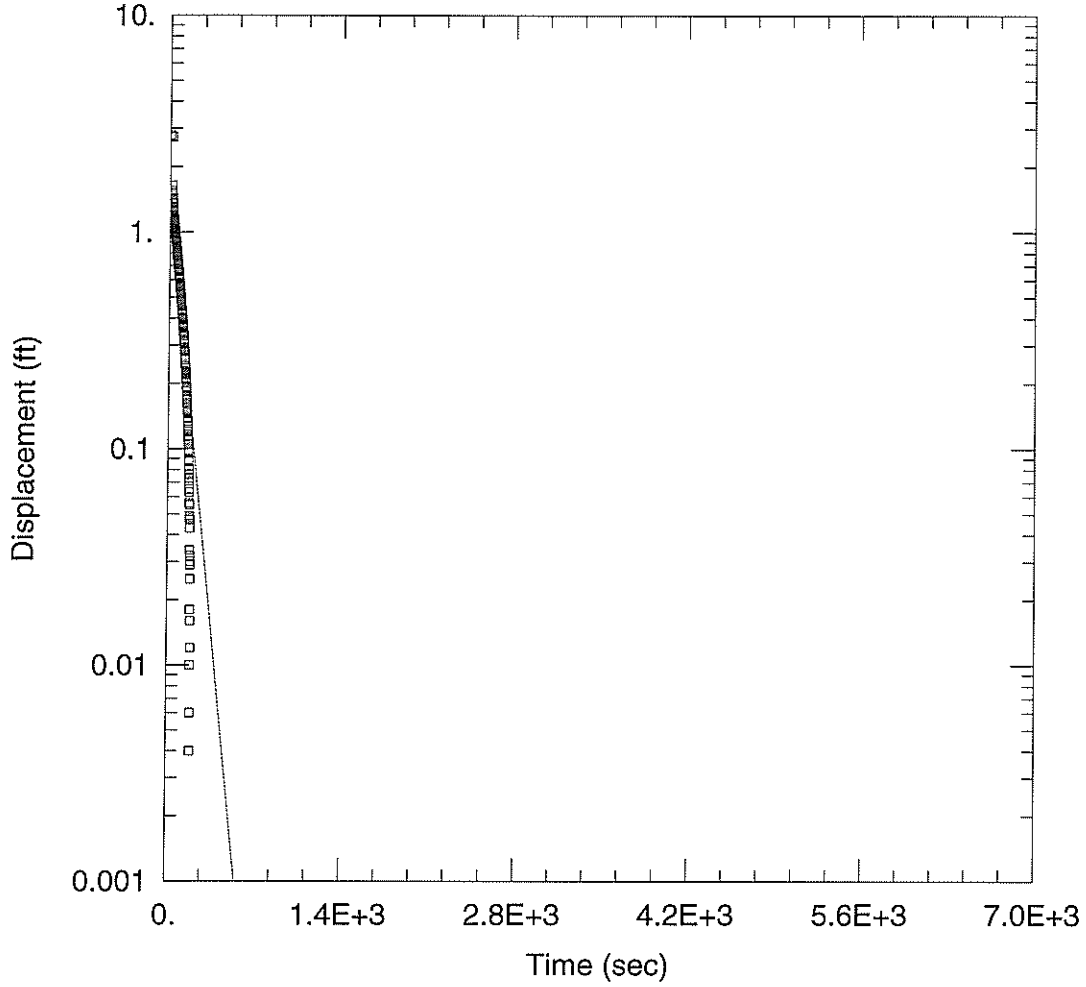
WELL DATA (PZ-3S Test 1)

Initial Displacement: 2.93 ft
Total Well Penetration Depth: 11.03 ft
Casing Radius: 0.167 ft
Static Water Column Height: 11.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.845 ft/day y0 = 2.38 ft



WELL TEST ANALYSIS

Data Set: T:\...\3S-2.aqt
Date: 07/09/15 Time: 13:06:02

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-3

AQUIFER DATA

Saturated Thickness: 11.7 ft Anisotropy Ratio (Kz/Kr): 1.

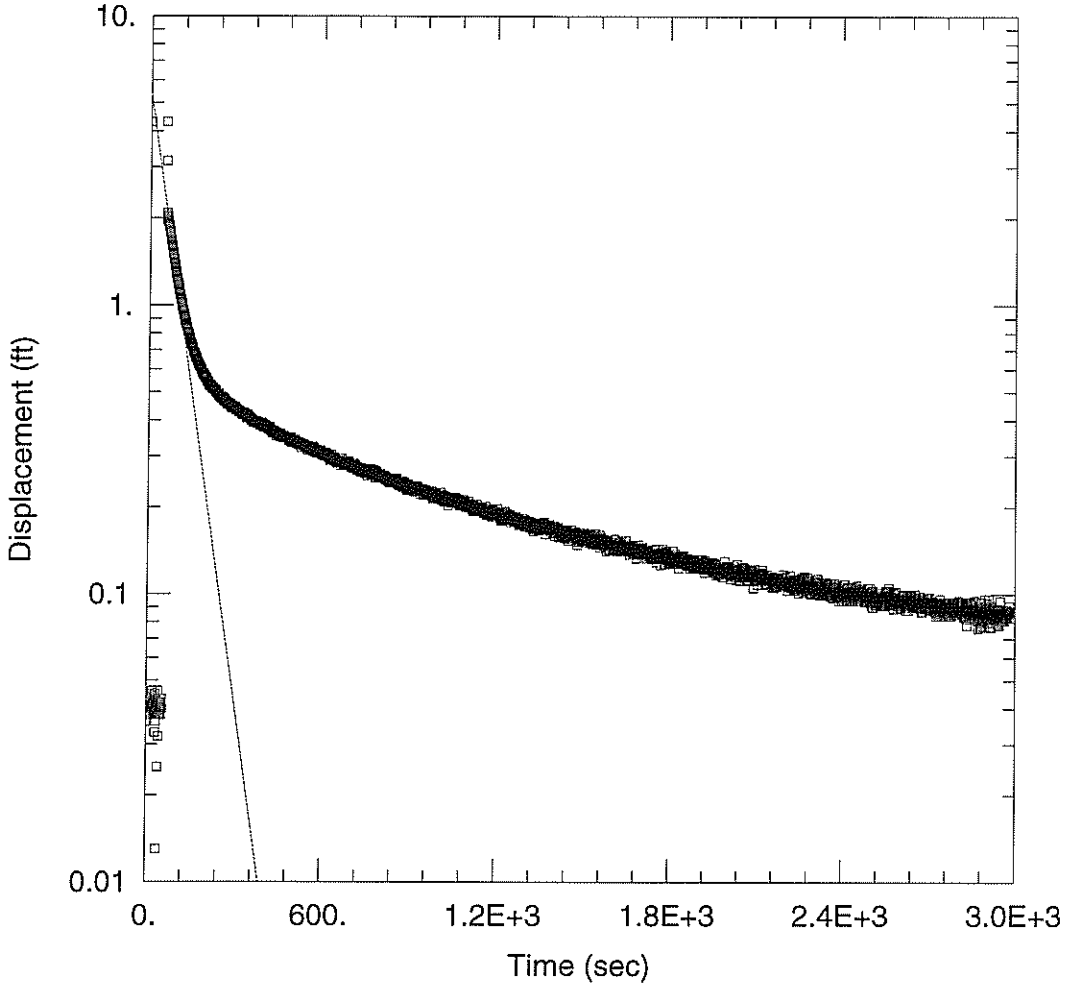
WELL DATA (PZ-3S Test 2)

Initial Displacement: 2.8 ft
Total Well Penetration Depth: 11.03 ft
Casing Radius: 0.167 ft
Static Water Column Height: 11.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 3.974 ft/day y0 = 1.554 ft



WELL TEST ANALYSIS

Data Set: T:\...\3d-1.aqt
Date: 07/09/15 Time: 13:07:05

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-3D

AQUIFER DATA

Saturated Thickness: 90.6 ft Anisotropy Ratio (Kz/Kr): 1.

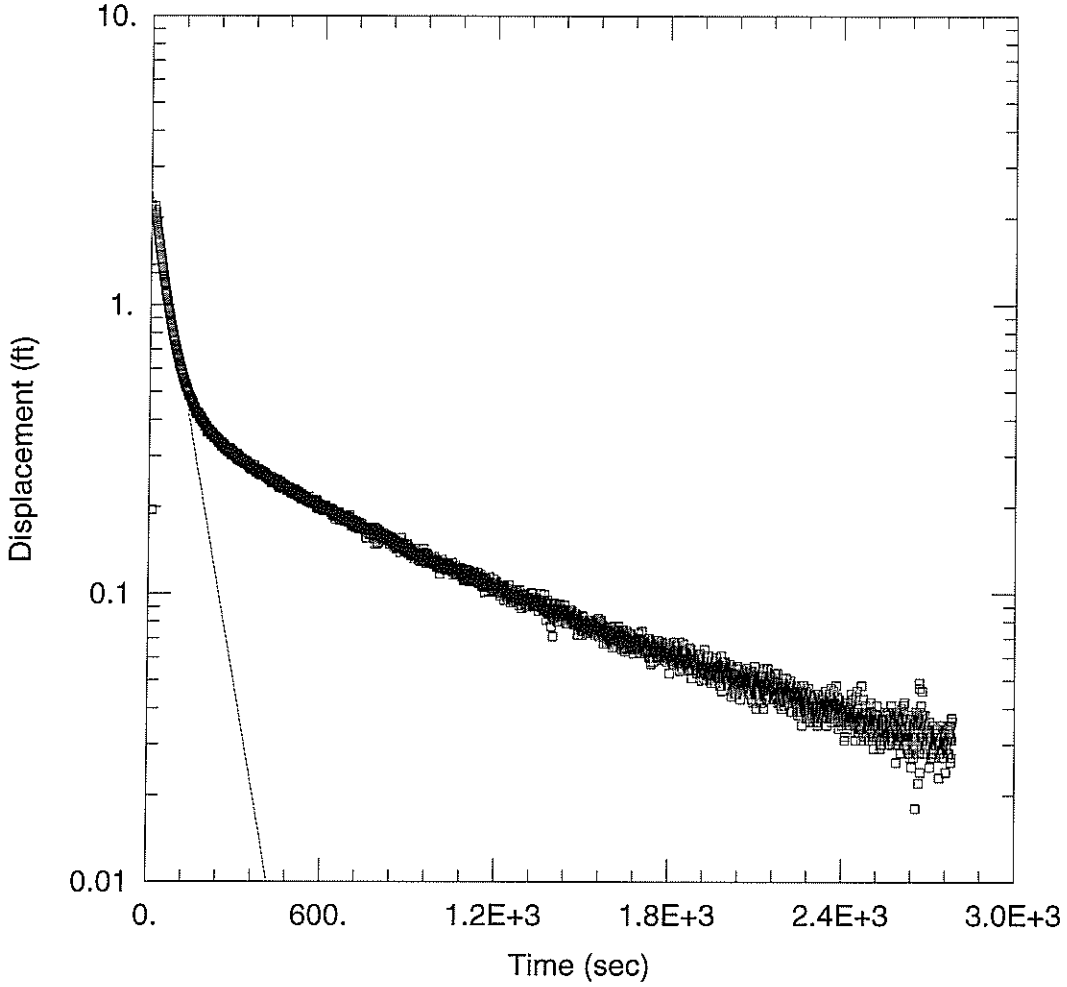
WELL DATA (PZ-3D Test 1)

Initial Displacement: 4.3 ft
Total Well Penetration Depth: 81.69 ft
Casing Radius: 0.167 ft
Static Water Column Height: 12.31 ft
Screen Length: 20. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 3.418 ft/day y0 = 5.39 ft



WELL TEST ANALYSIS

Data Set: T:\...\3d-2.aqt
Date: 07/09/15 Time: 13:15:05

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-3D

AQUIFER DATA

Saturated Thickness: 90.6 ft Anisotropy Ratio (Kz/Kr): 1.

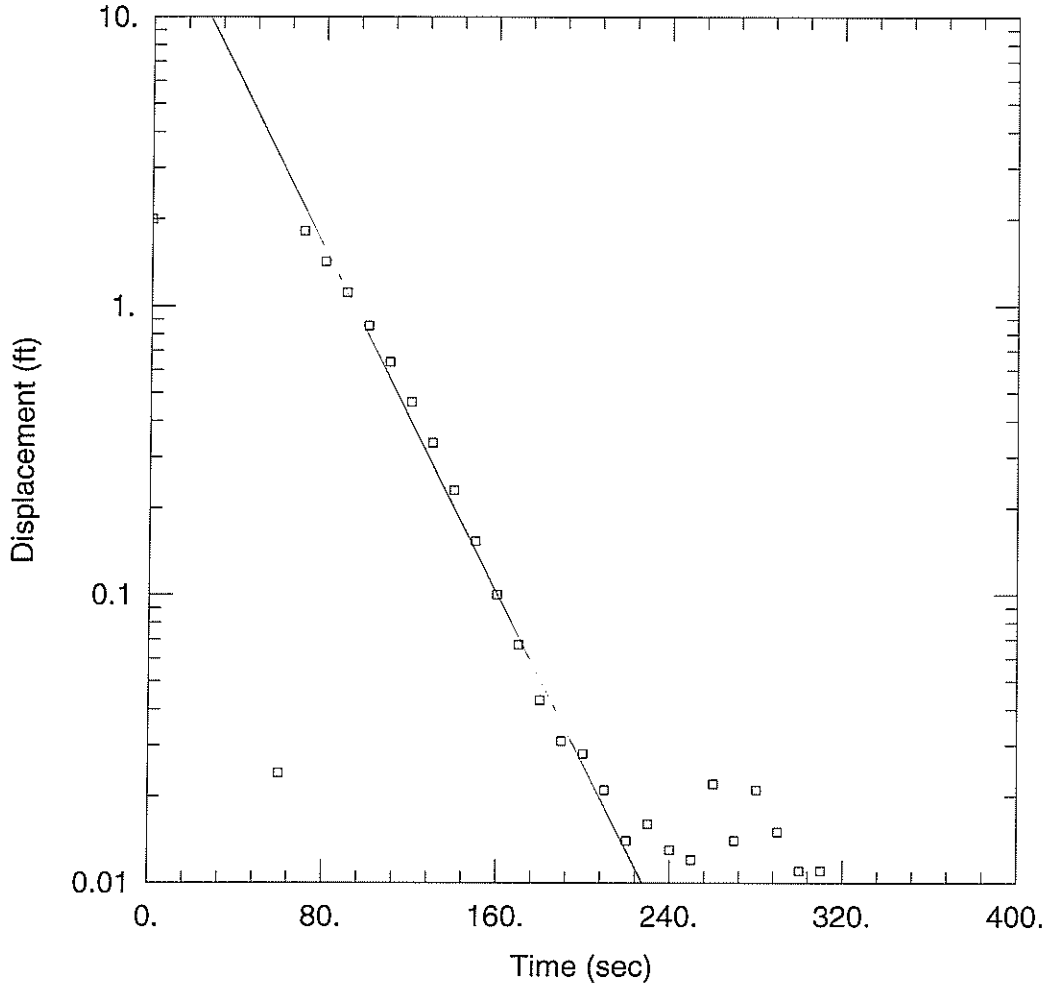
WELL DATA (PZ-3D Test 2)

Initial Displacement: 2.2 ft
Total Well Penetration Depth: 81.69 ft
Casing Radius: 0.167 ft
Static Water Column Height: 12.31 ft
Screen Length: 20. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.788 ft/day y0 = 2.494 ft



WELL TEST ANALYSIS

Data Set: T:\...\5-1.aqt
Date: 07/09/15 Time: 13:16:57

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-5

AQUIFER DATA

Saturated Thickness: 17.34 ft Anisotropy Ratio (Kz/Kr): 1.

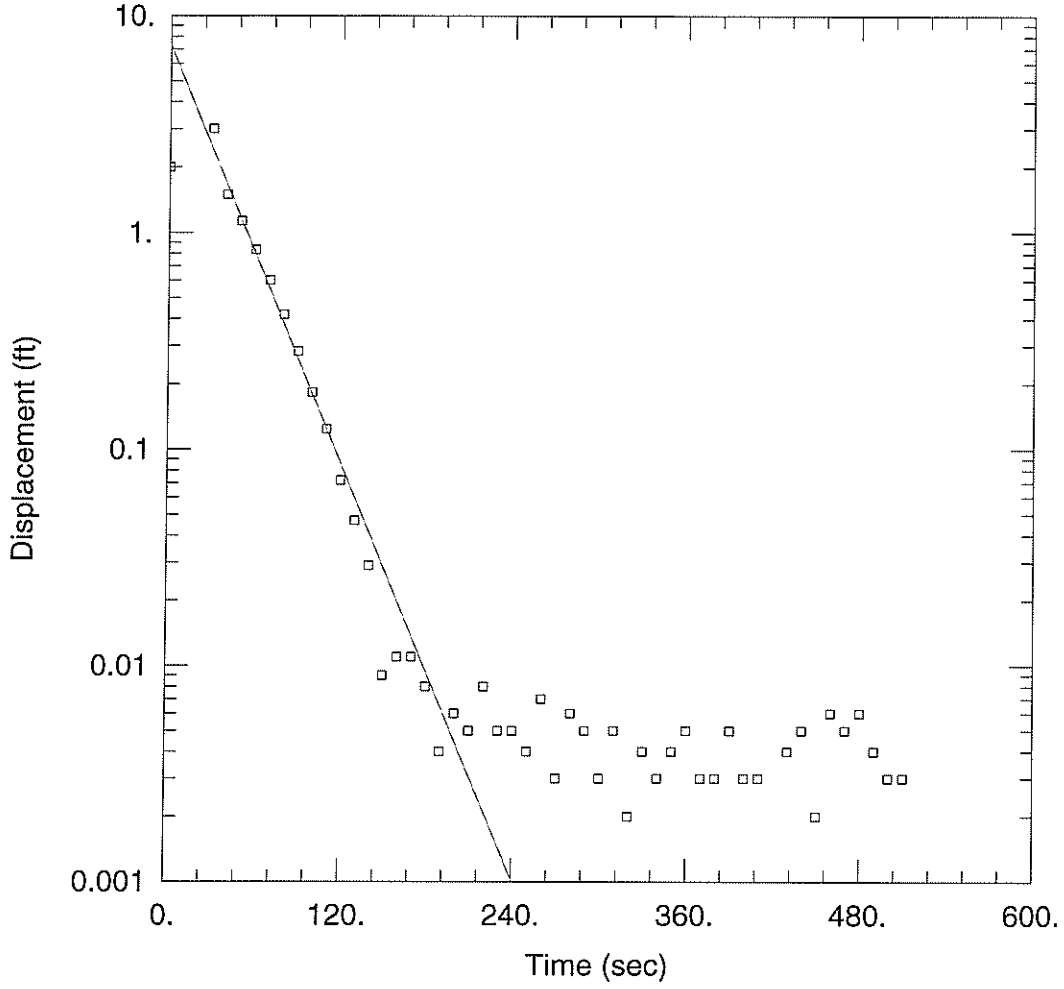
WELL DATA (PZ-5S Test 1)

Initial Displacement: 2. ft
Total Well Penetration Depth: 13.15 ft
Casing Radius: 0.167 ft
Static Water Column Height: 17.34 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 10.25 ft/day y0 = 24.3 ft



WELL TEST ANALYSIS

Data Set: T:\...\5-2.aqt
Date: 07/09/15 Time: 13:18:07

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-5

AQUIFER DATA

Saturated Thickness: 17.34 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-5S Test 2)

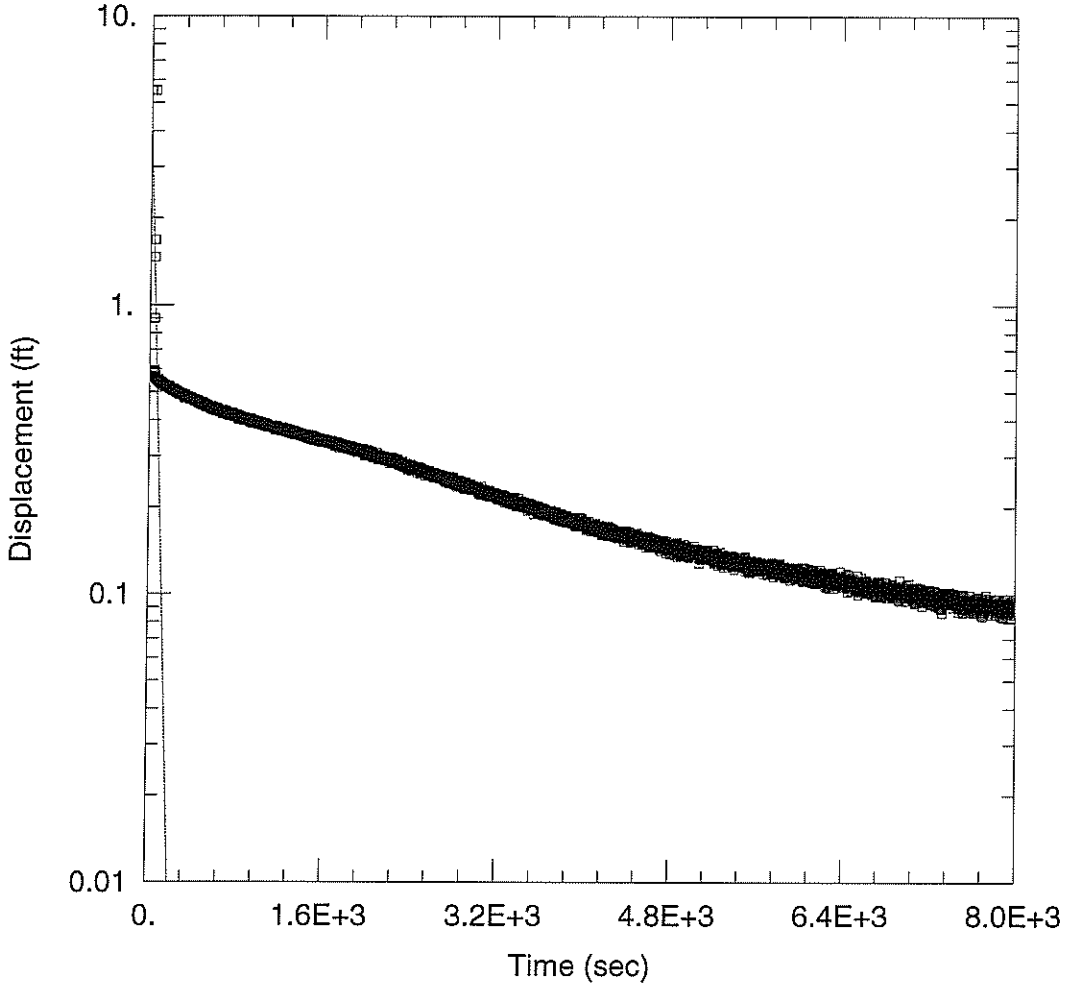
Initial Displacement: 2. ft
Total Well Penetration Depth: 13.15 ft
Casing Radius: 0.167 ft

Static Water Column Height: 17.34 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 11.06 ft/day y0 = 7.324 ft



WELL TEST ANALYSIS

Data Set: T:\...\6-1.aqt
Date: 07/09/15 Time: 15:04:15

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-6

AQUIFER DATA

Saturated Thickness: 8.69 ft Anisotropy Ratio (Kz/Kr): 1.

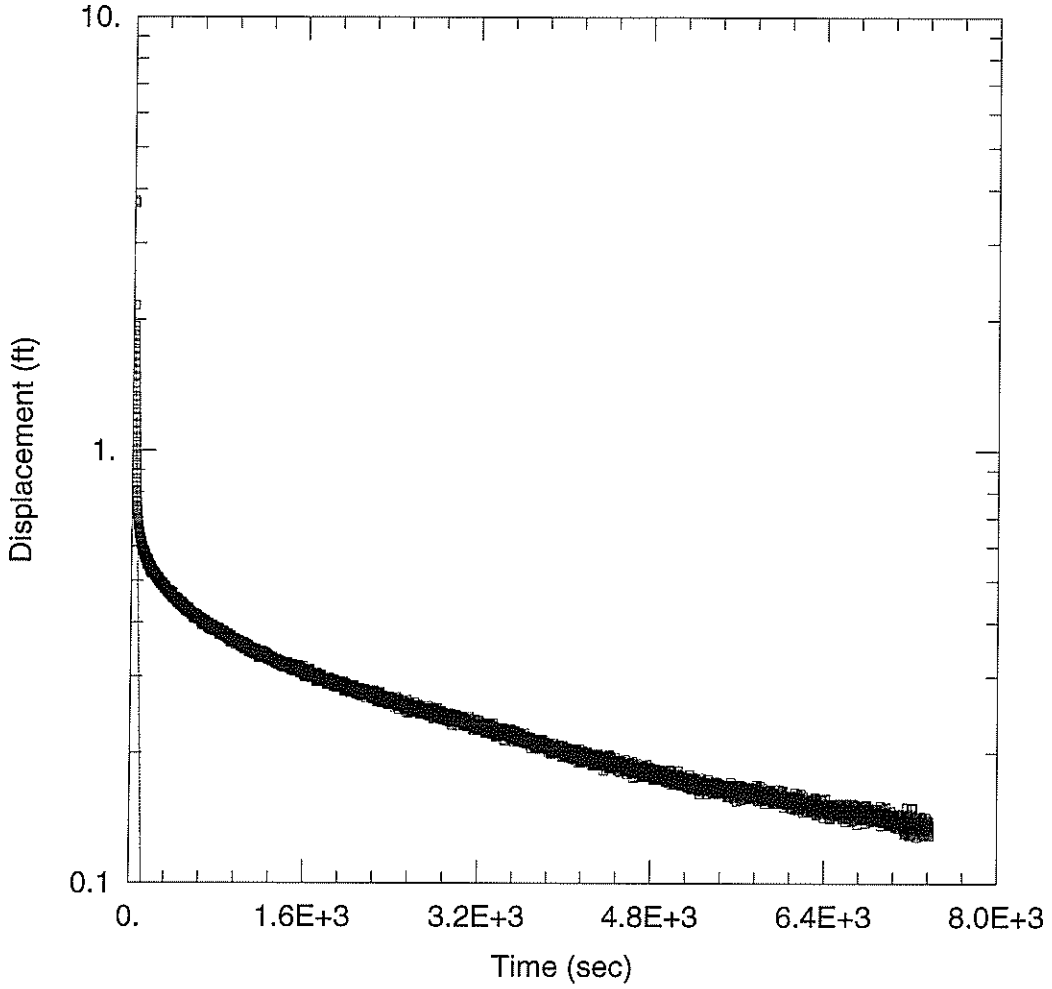
WELL DATA (PZ-6S Test 1)

Initial Displacement: 5.54 ft
Total Well Penetration Depth: 12.24 ft
Casing Radius: 0.167 ft
Static Water Column Height: 8.69 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 11.24 ft/day y0 = 4.354 ft



WELL TEST ANALYSIS

Data Set: T:\...\6-2.aqt
Date: 07/09/15 Time: 15:04:45

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-6

AQUIFER DATA

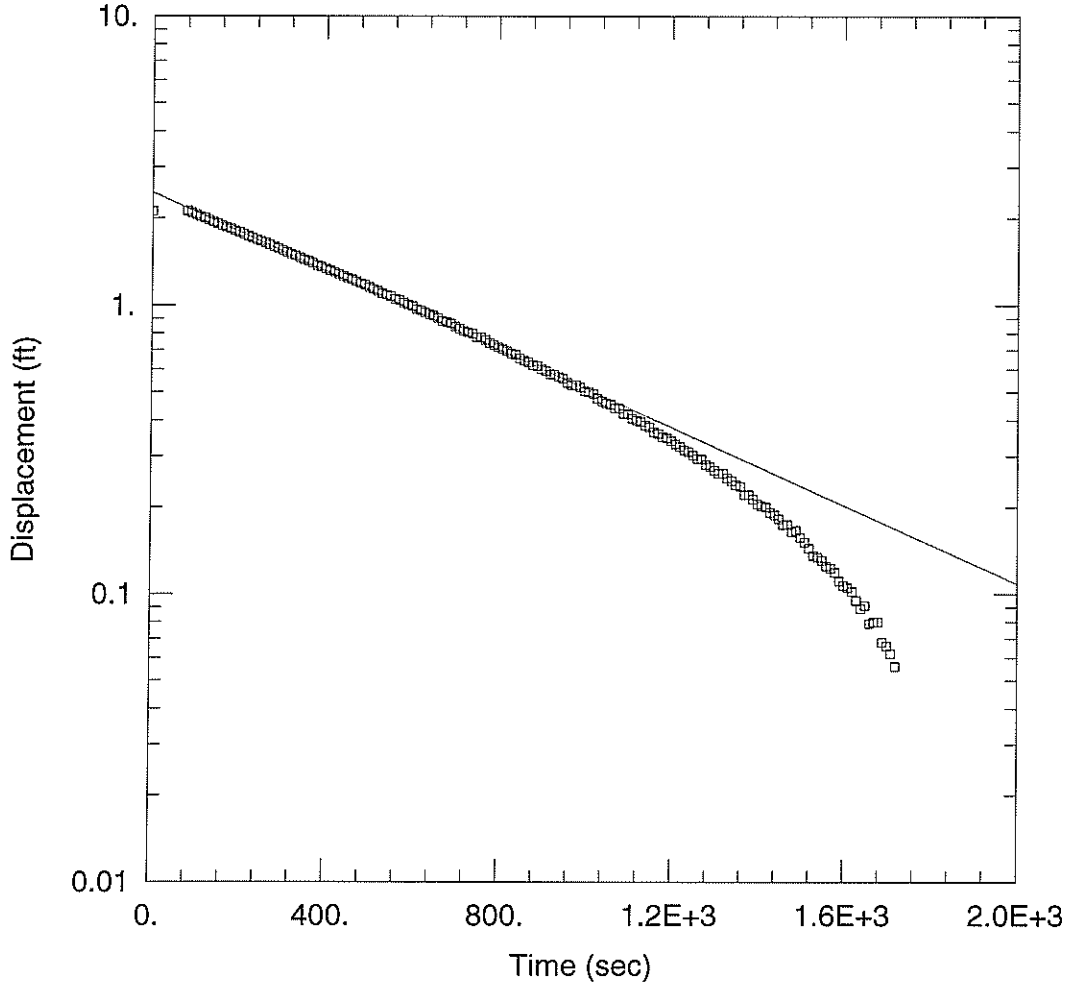
Saturated Thickness: 8.69 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-6STest 2)

Initial Displacement: 3.76 ft
Total Well Penetration Depth: 12.24 ft
Casing Radius: 0.167 ft
Static Water Column Height: 8.69 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 10.74 ft/day
y0 = 2.828 ft



WELL TEST ANALYSIS

Data Set: T:\...\7-1.aqt
Date: 07/09/15 Time: 13:30:53

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-7

AQUIFER DATA

Saturated Thickness: 22.89 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-7S Test 1)

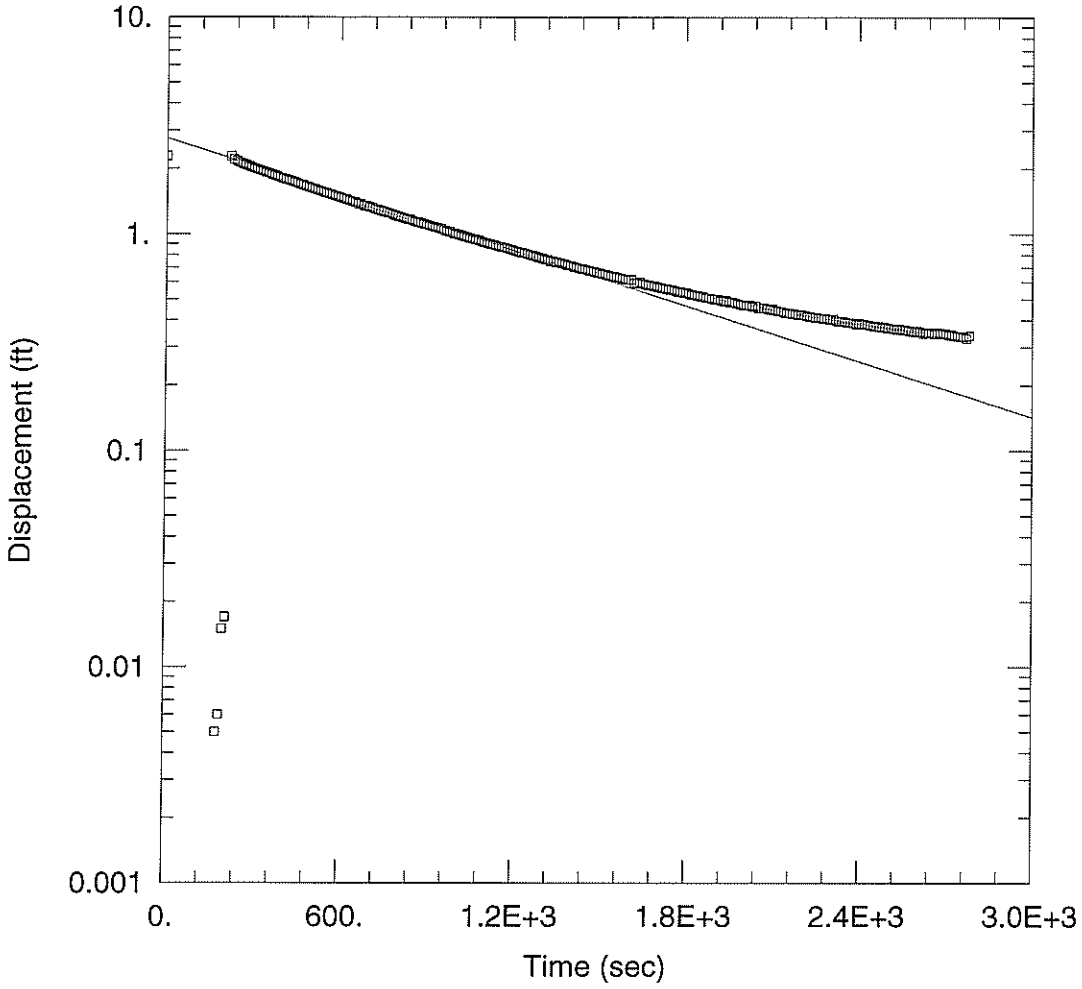
Initial Displacement: 2.11 ft
Total Well Penetration Depth: 17.11 ft
Casing Radius: 0.167 ft

Static Water Column Height: 22.89 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.4836 ft/day y0 = 2.45 ft



WELL TEST ANALYSIS

Data Set: T:\...\7-2.aqt
Date: 07/09/15 Time: 13:30:44

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-7

AQUIFER DATA

Saturated Thickness: 22.89 ft Anisotropy Ratio (Kz/Kr): 1.

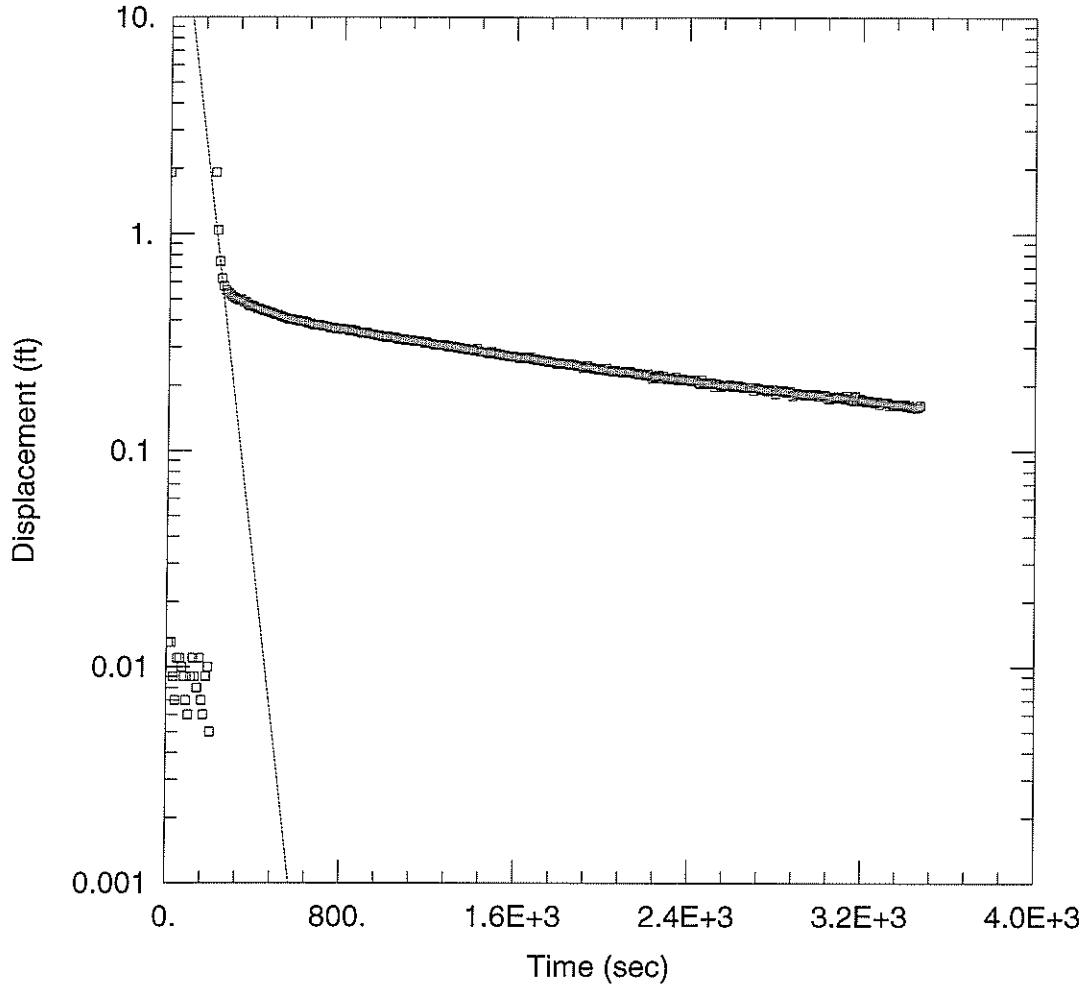
WELL DATA (PZ-7S Test 2)

Initial Displacement: 2.29 ft
Total Well Penetration Depth: 17.11 ft
Casing Radius: 0.167 ft
Static Water Column Height: 22.89 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3065 ft/day y0 = 2.756 ft



WELL TEST ANALYSIS

Data Set: T:\...\8-1.aqt
Date: 07/09/15 Time: 13:40:14

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-8

AQUIFER DATA

Saturated Thickness: 10.57 ft Anisotropy Ratio (Kz/Kr): 1.

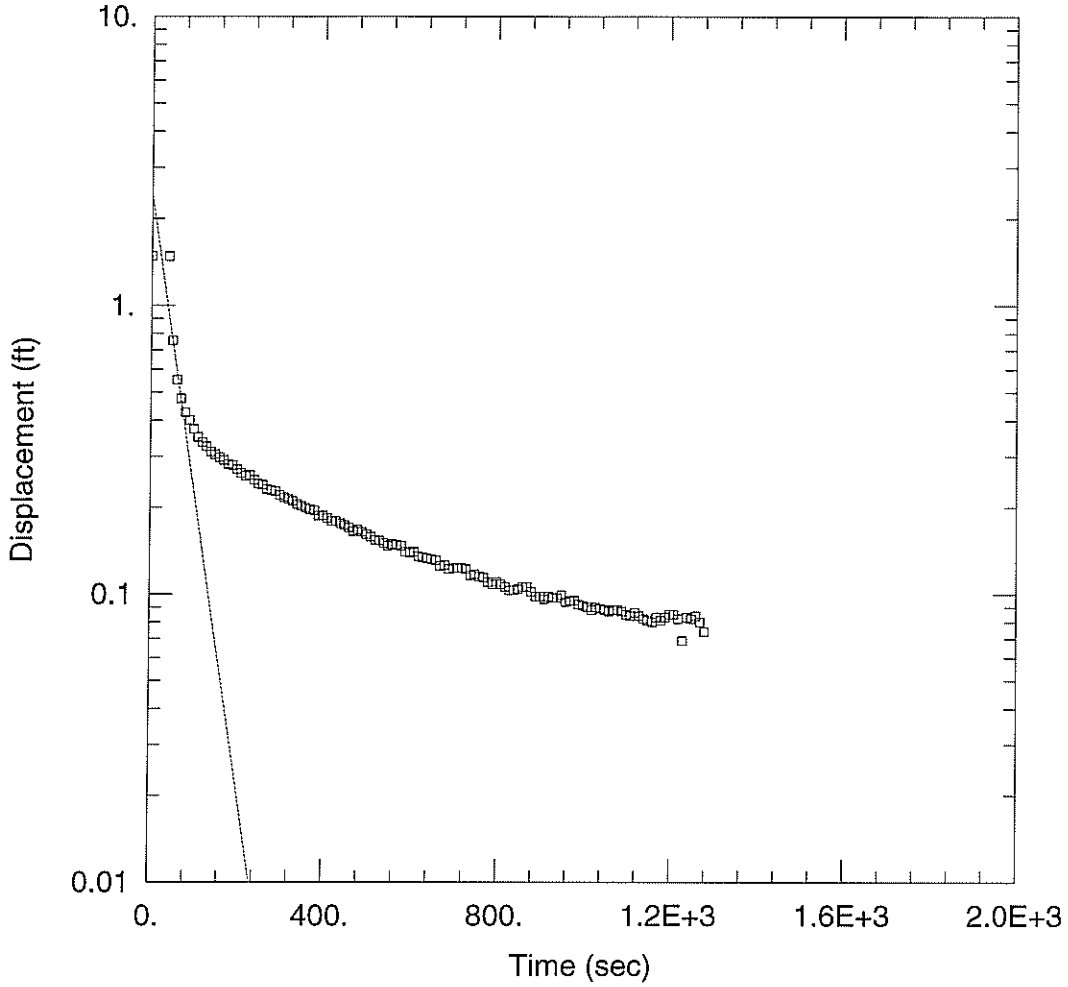
WELL DATA (PZ-8S Test 1)

Initial Displacement: 1.92 ft
Total Well Penetration Depth: 10.67 ft
Casing Radius: 0.167 ft
Static Water Column Height: 10.57 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 6.266 ft/day y0 = 65.27 ft



WELL TEST ANALYSIS

Data Set: T:\...\8-2.aqt
Date: 07/09/15 Time: 13:40:28

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-8

AQUIFER DATA

Saturated Thickness: 10.57 ft Anisotropy Ratio (Kz/Kr): 1.

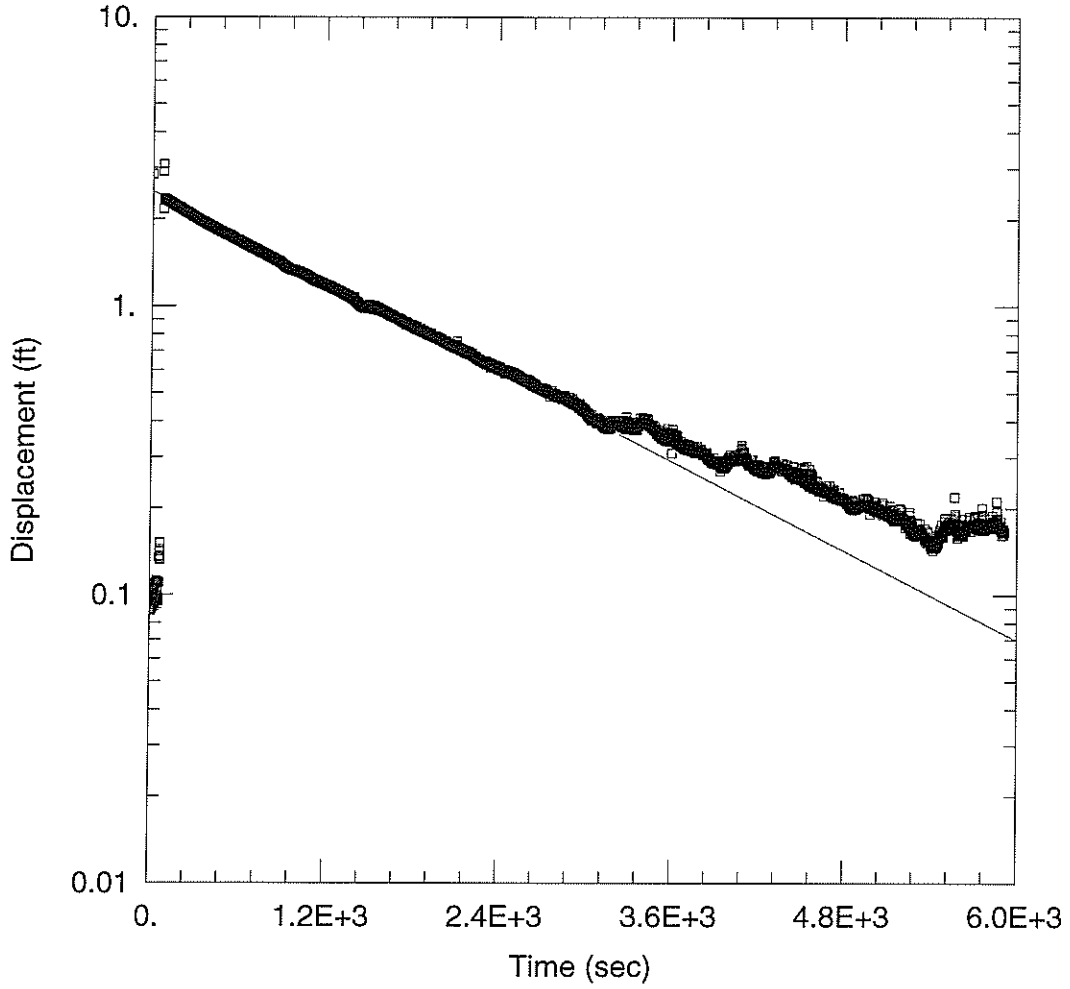
WELL DATA (PZ-8S Test 2)

Initial Displacement: 1.48 ft
Total Well Penetration Depth: 10.67 ft
Casing Radius: 0.167 ft
Static Water Column Height: 10.57 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 7.534 ft/day y0 = 2.416 ft



WELL TEST ANALYSIS

Data Set: T:\...\9-1.aqt
Date: 07/09/15 Time: 13:52:30

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-9

AQUIFER DATA

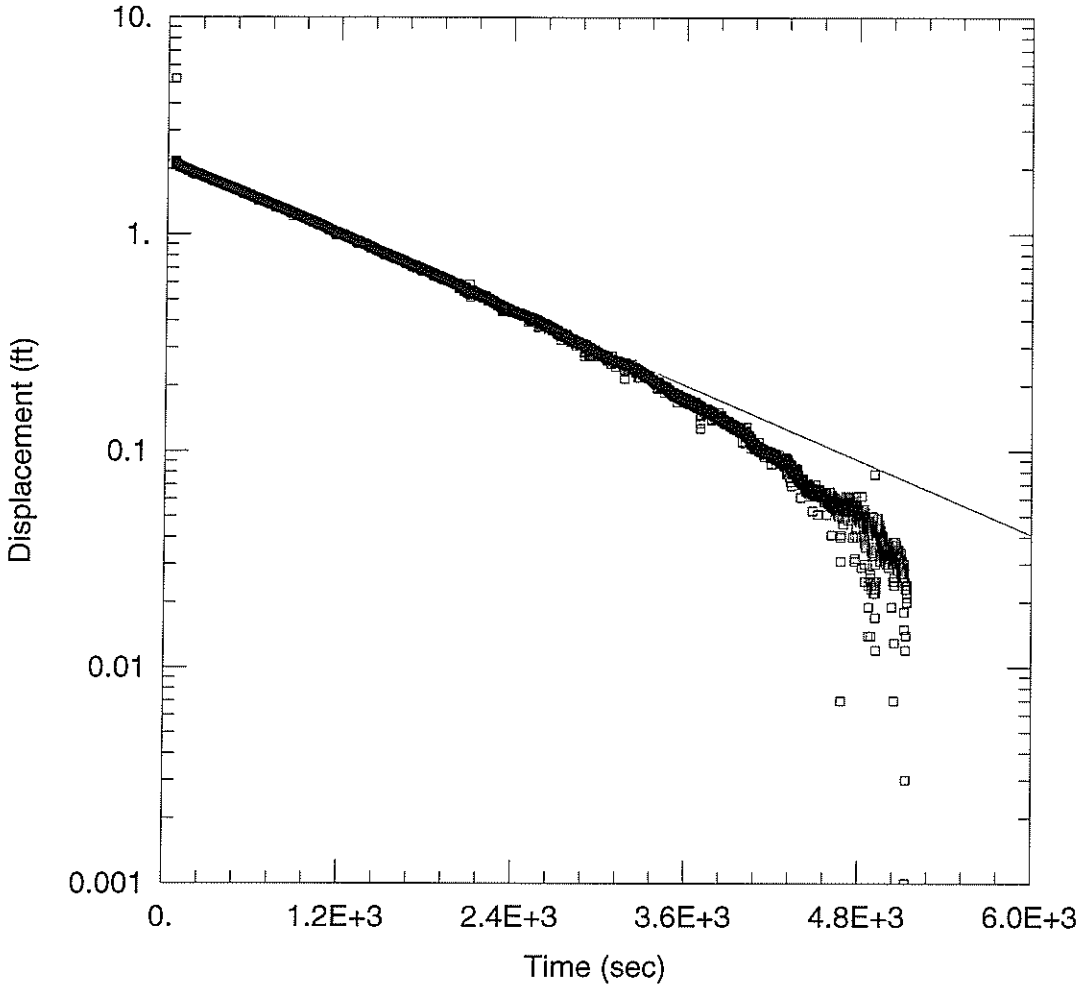
Saturated Thickness: 51.1 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-9S Test 1)

Initial Displacement: 2.85 ft
Total Well Penetration Depth: 11.1 ft
Casing Radius: 0.167 ft
Static Water Column Height: 51.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1621 ft/day
y0 = 2.489 ft



WELL TEST ANALYSIS

Data Set: T:\...\9-2.aqt
Date: 07/09/15 Time: 13:53:09

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-9

AQUIFER DATA

Saturated Thickness: 51.1 ft Anisotropy Ratio (Kz/Kr): 1.

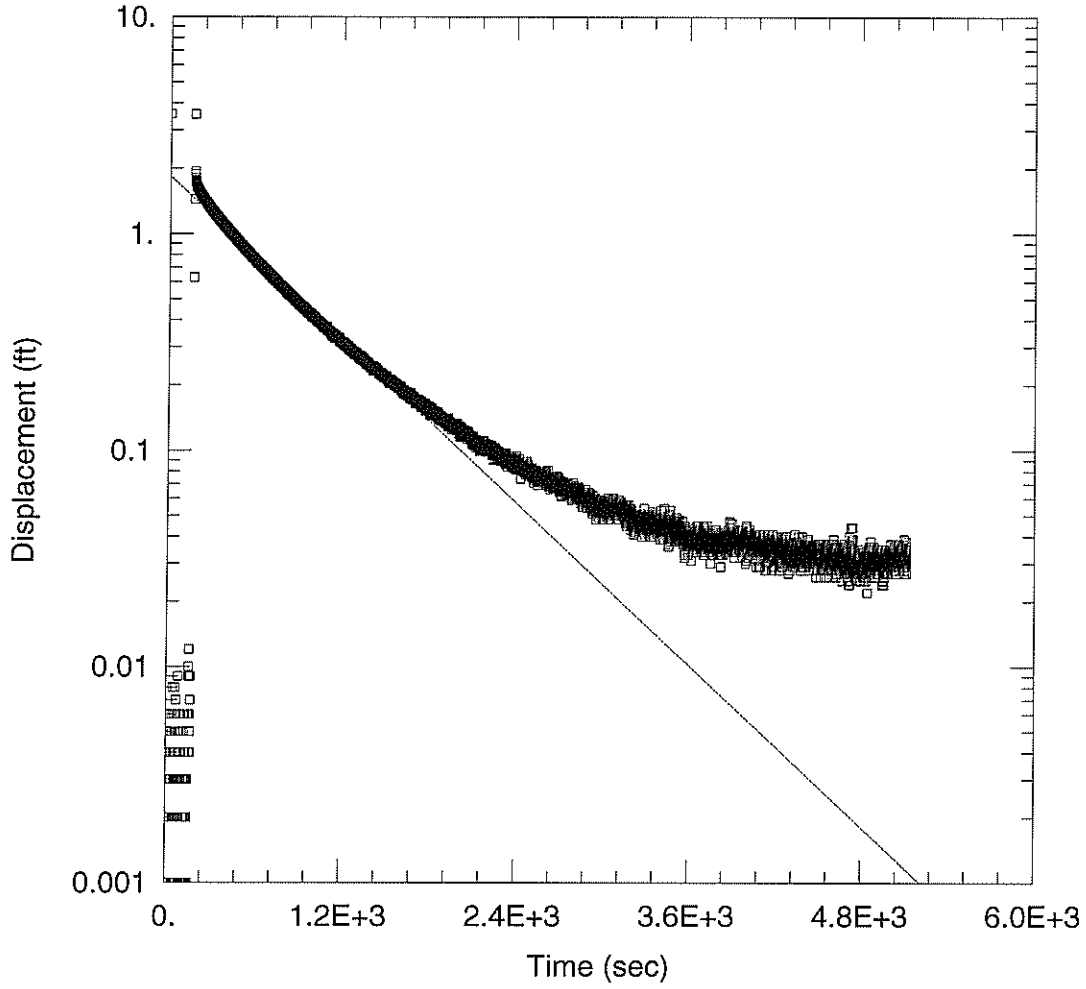
WELL DATA (PZ-9S Test 2)

Initial Displacement: 2.1 ft
Total Well Penetration Depth: 11.1 ft
Casing Radius: 0.167 ft
Static Water Column Height: 51.1 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1798 ft/day y0 = 2.163 ft



WELL TEST ANALYSIS

Data Set: T:\...\11-1.aqt
Date: 07/09/15 Time: 14:00:34

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-11

AQUIFER DATA

Saturated Thickness: 13.15 ft Anisotropy Ratio (Kz/Kr): 1.

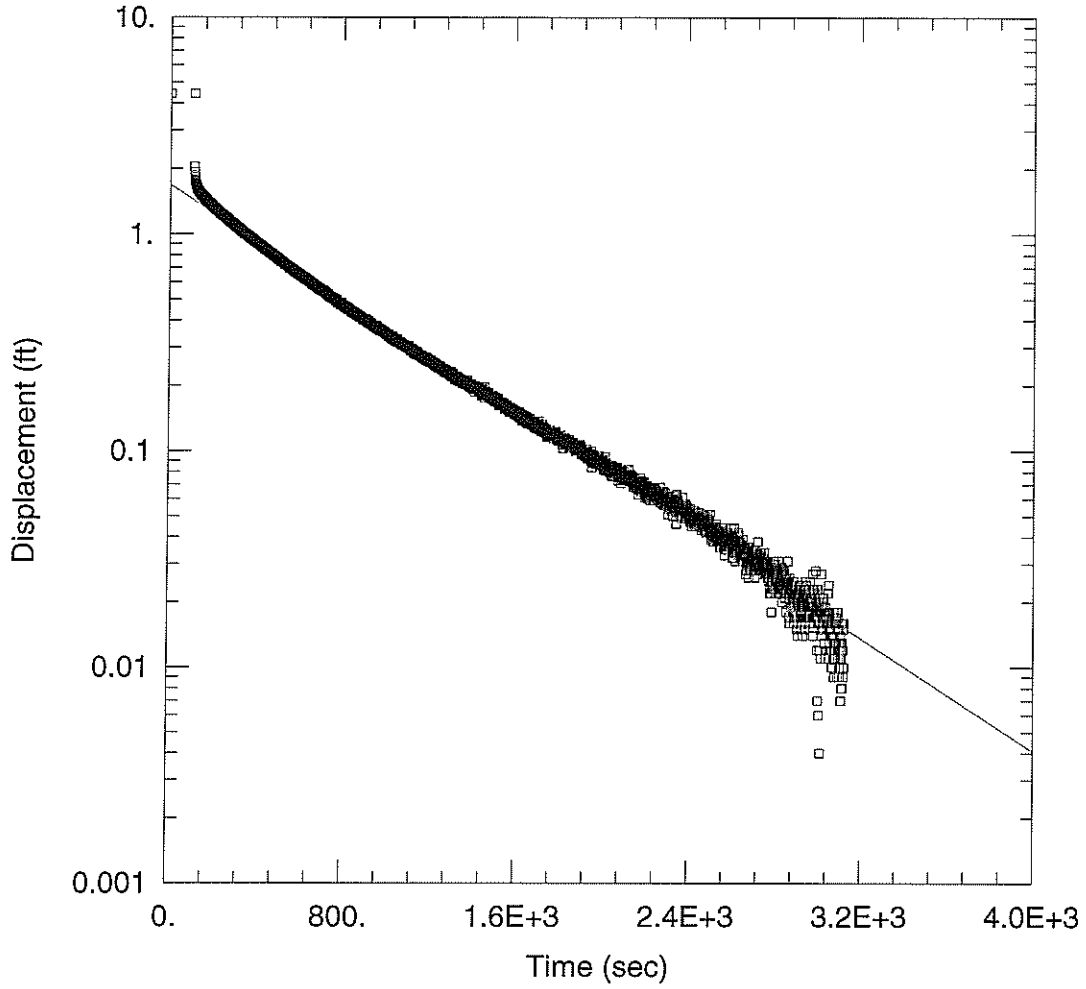
WELL DATA (PZ-11S Test 1)

Initial Displacement: 3.56 ft
Total Well Penetration Depth: 13.04 ft
Casing Radius: 0.167 ft
Static Water Column Height: 13.15 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.4824 ft/day y0 = 1.841 ft



WELL TEST ANALYSIS

Data Set: T:\...\11-2.aqt
Date: 07/09/15 Time: 14:01:27

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-11

AQUIFER DATA

Saturated Thickness: 13.15 ft Anisotropy Ratio (Kz/Kr): 1.

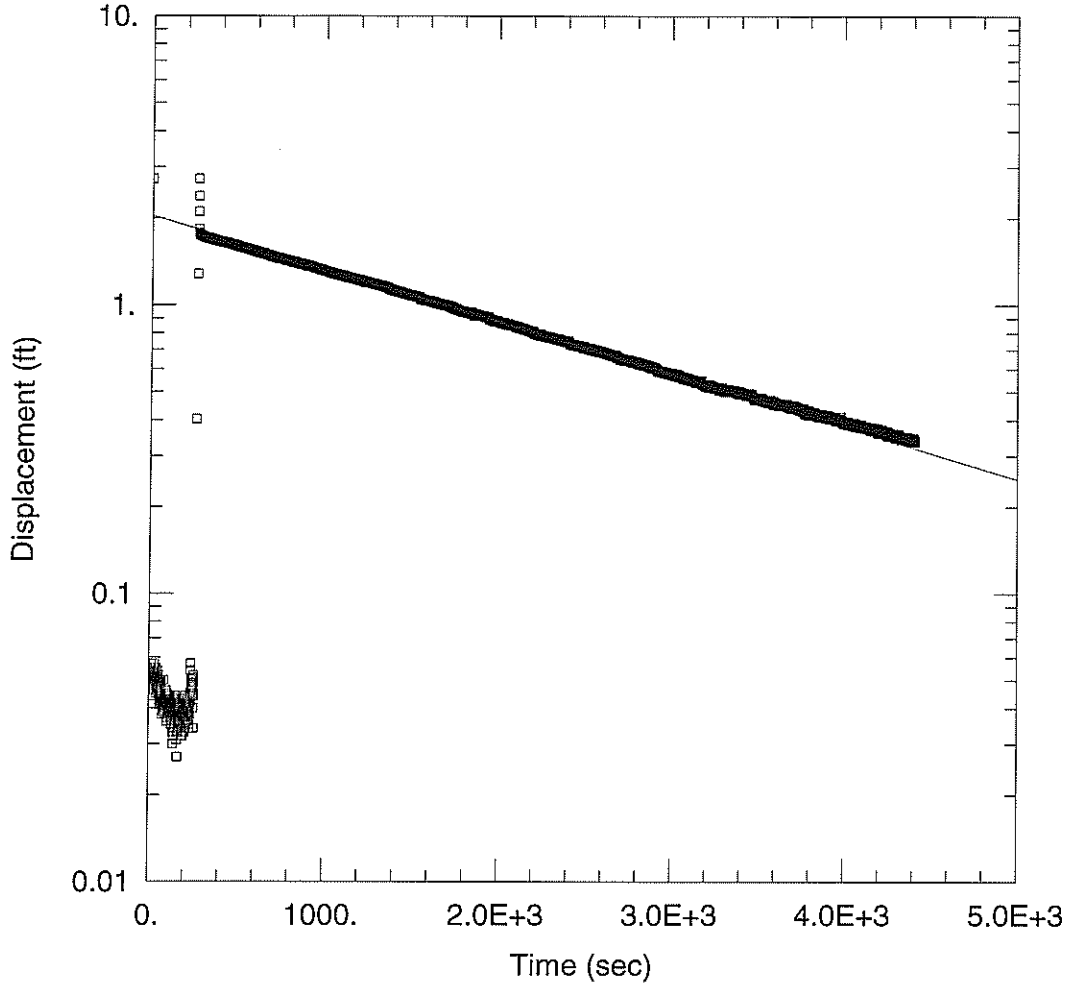
WELL DATA (PZ-11S Test 2)

Initial Displacement: 4.44 ft
Total Well Penetration Depth: 13.04 ft
Casing Radius: 0.167 ft
Static Water Column Height: 13.15 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.5037 ft/day y0 = 1.684 ft



WELL TEST ANALYSIS

Data Set: T:\...\13-1.aqt
Date: 07/09/15 Time: 14:15:17

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-13

AQUIFER DATA

Saturated Thickness: 8.93 ft Anisotropy Ratio (Kz/Kr): 1.

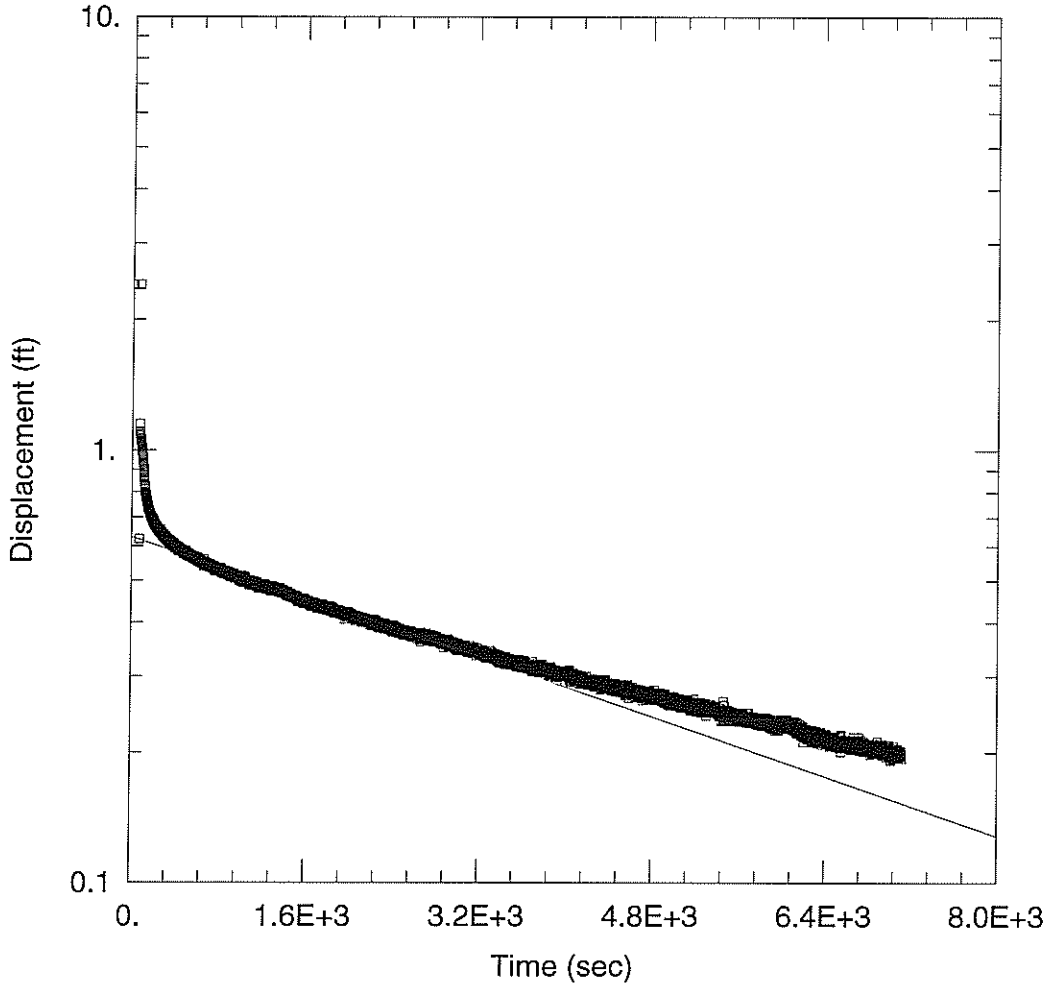
WELL DATA (PZ-13S Test 1)

Initial Displacement: 2.73 ft
Total Well Penetration Depth: 10.1 ft
Casing Radius: 0.167 ft
Static Water Column Height: 8.93 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1488 ft/day y0 = 2.034 ft



WELL TEST ANALYSIS

Data Set: T:\...\13-2.aqt
Date: 07/09/15 Time: 14:19:09

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-13

AQUIFER DATA

Saturated Thickness: 8.93 ft Anisotropy Ratio (Kz/Kr): 1.

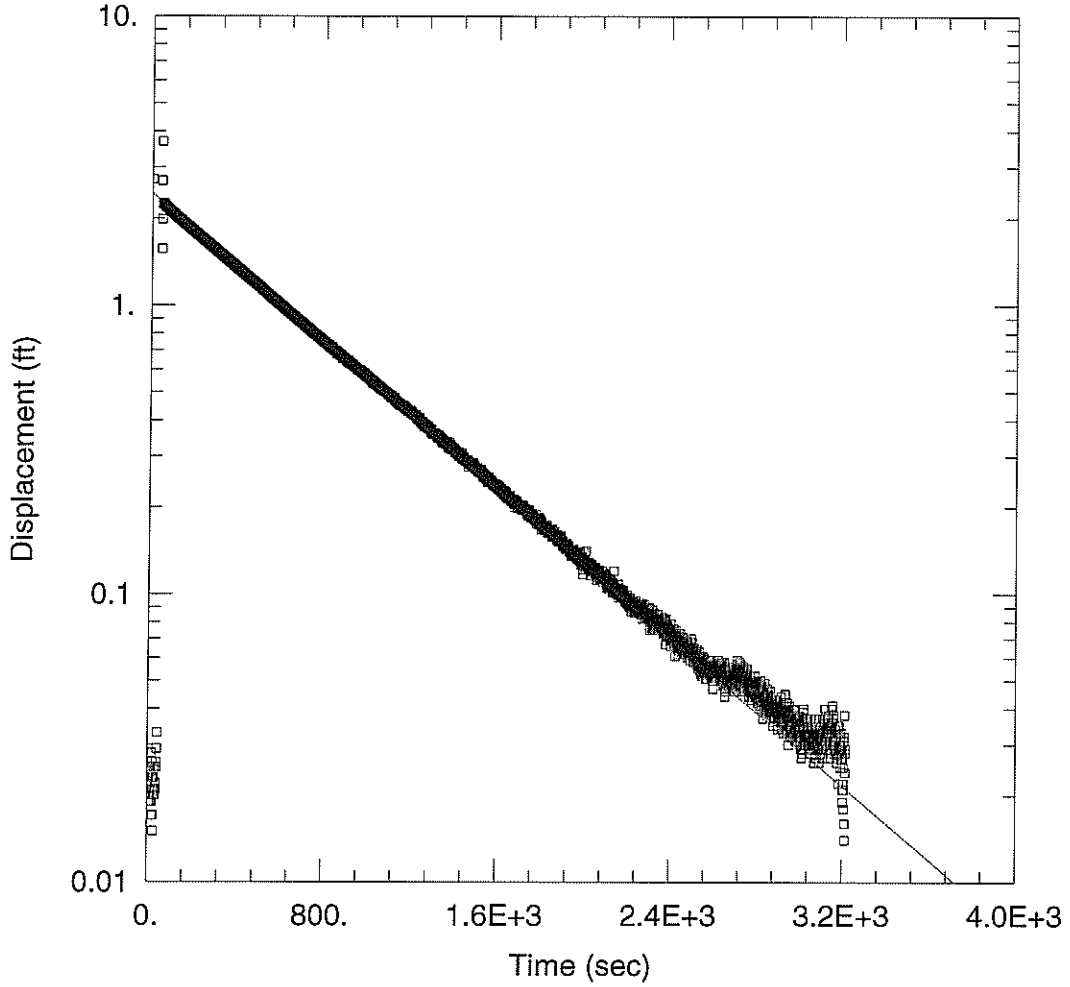
WELL DATA (PZ-13S Test 2)

Initial Displacement: 2.41 ft
Total Well Penetration Depth: 10.1 ft
Casing Radius: 0.167 ft
Static Water Column Height: 8.93 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.07051 ft/day y0 = 0.6306 ft



WELL TEST ANALYSIS

Data Set: T:\...\14-1.aqt
Date: 07/09/15 Time: 14:19:52

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-14

AQUIFER DATA

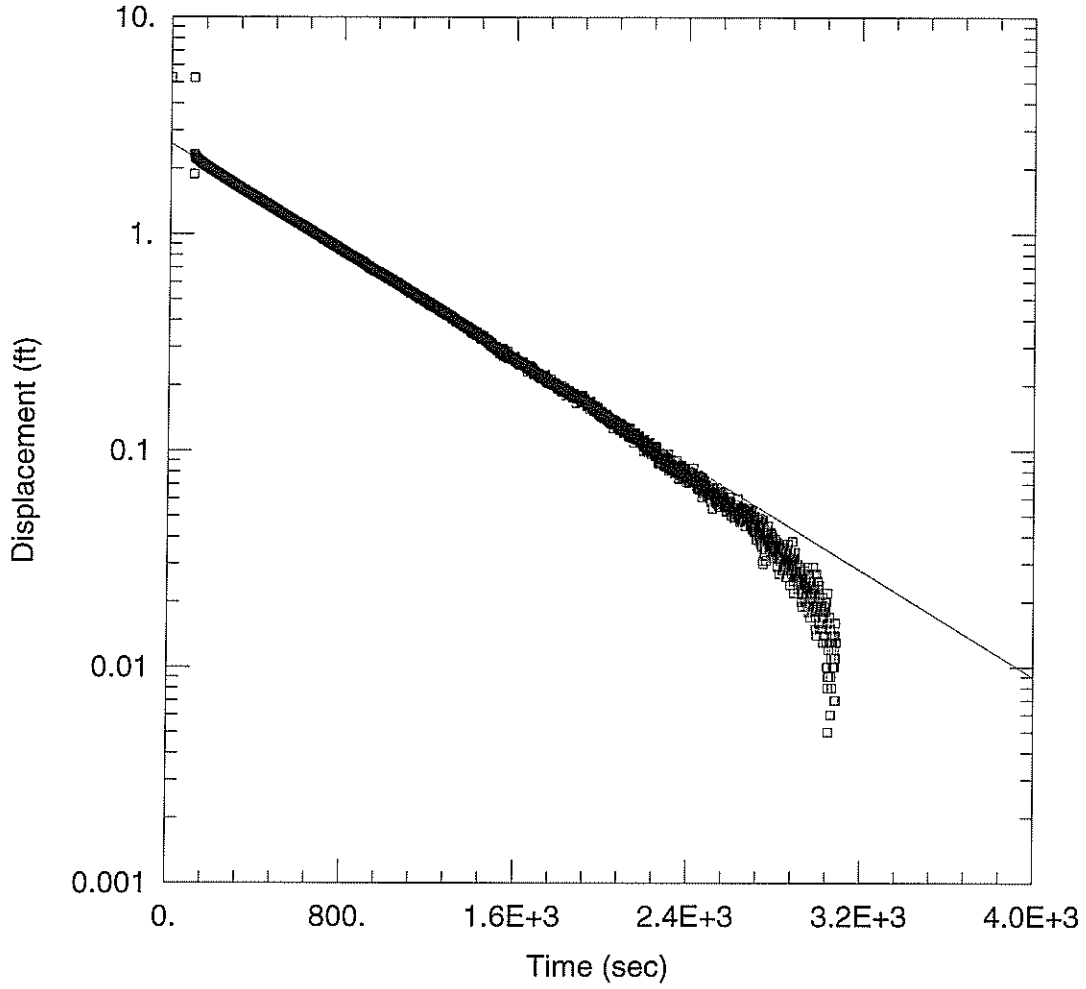
Saturated Thickness: 27.44 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-14S Test 1)

Initial Displacement: 2.73 ft
Total Well Penetration Depth: 14.6 ft
Casing Radius: 0.167 ft
Static Water Column Height: 27.44 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.4357 ft/day
y0 = 2.441 ft



WELL TEST ANALYSIS

Data Set: T:\...\14-2.aqt
Date: 07/09/15 Time: 14:20:33

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-14

AQUIFER DATA

Saturated Thickness: 27.44 ft Anisotropy Ratio (Kz/Kr): 1.

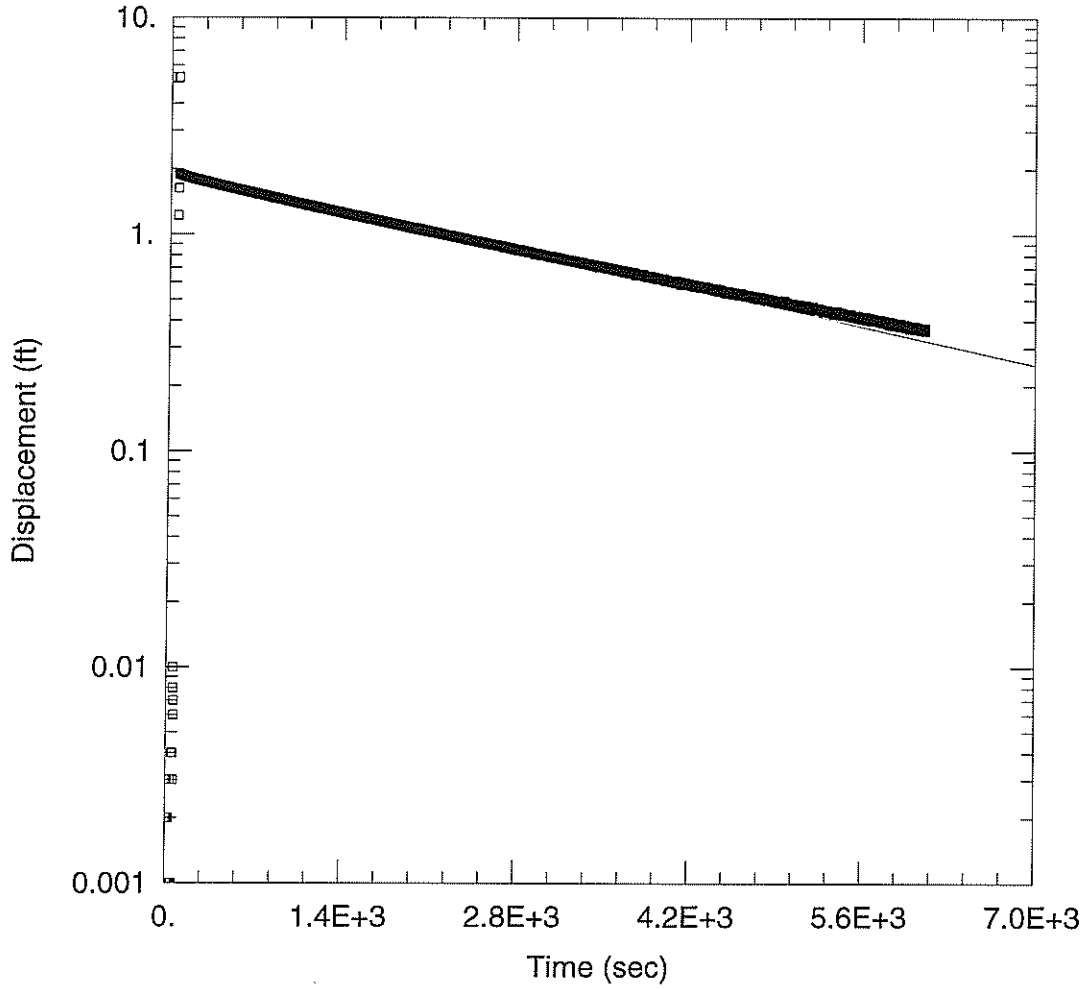
WELL DATA (PZ-14S Test 2)

Initial Displacement: 5.26 ft
Total Well Penetration Depth: 14.6 ft
Casing Radius: 0.167 ft
Static Water Column Height: 27.44 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.4183 ft/day y0 = 2.614 ft



WELL TEST ANALYSIS

Data Set: T:\...\15-1.aqt
Date: 07/09/15 Time: 14:23:39

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-15

AQUIFER DATA

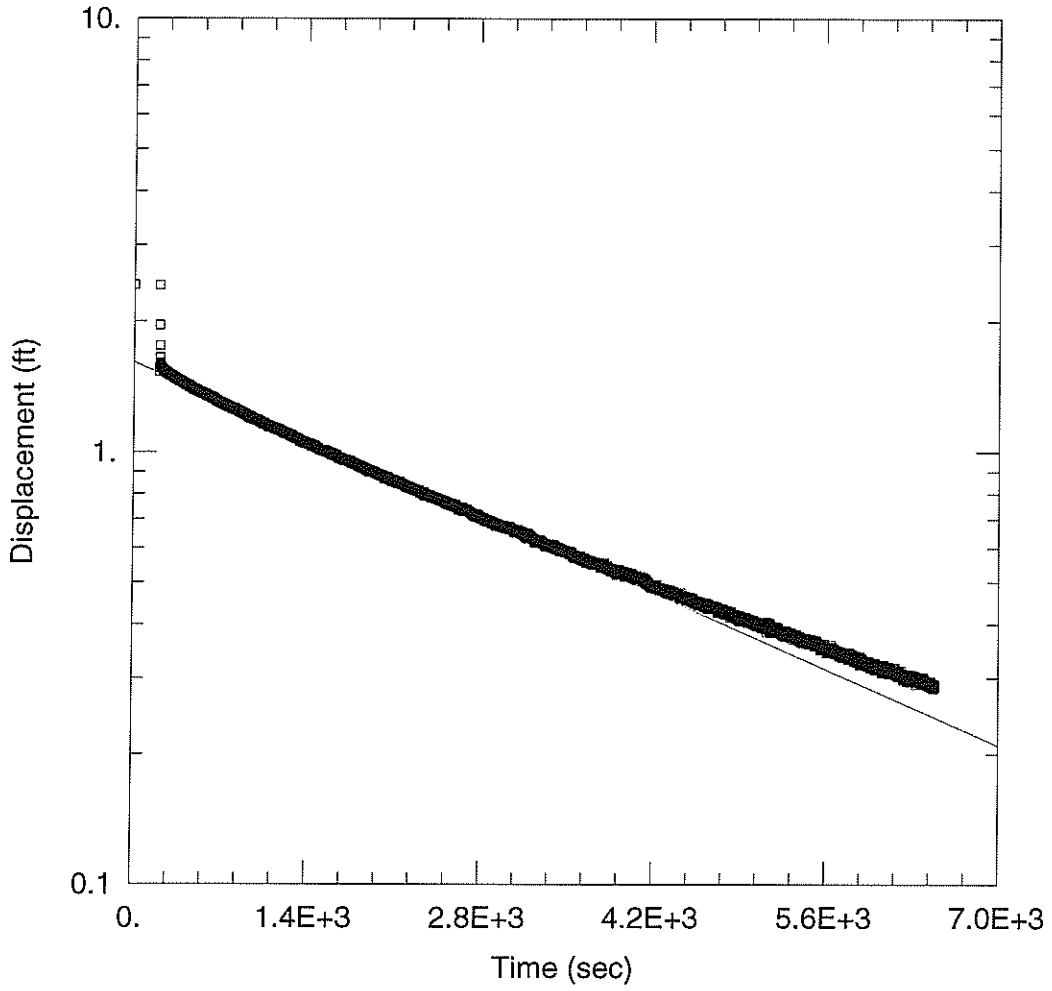
Saturated Thickness: 16.28 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-15S Test 1)

Initial Displacement: 5.27 ft
Total Well Penetration Depth: 25.53 ft
Casing Radius: 0.167 ft
Static Water Column Height: 16.28 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1121 ft/day
y0 = 1.941 ft



WELL TEST ANALYSIS

Data Set: T:\...\15-2.aqt
Date: 07/09/15 Time: 14:23:08

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-15

AQUIFER DATA

Saturated Thickness: 16.28 ft Anisotropy Ratio (Kz/Kr): 1.

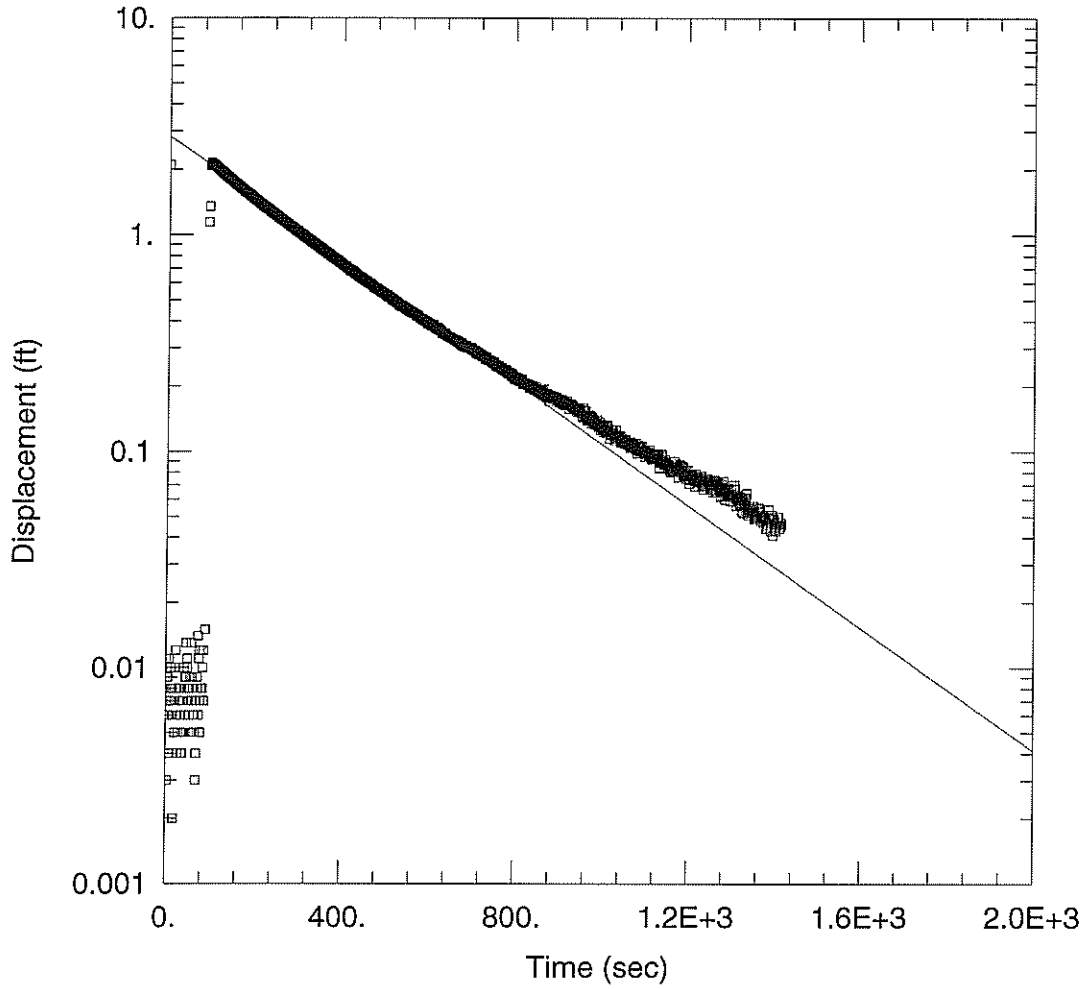
WELL DATA (PZ-15S Test 2)

Initial Displacement: 2.43 ft
Total Well Penetration Depth: 25.53 ft
Casing Radius: 0.167 ft
Static Water Column Height: 16.28 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1116 ft/day y0 = 1.611 ft



WELL TEST ANALYSIS

Data Set: T:\...\16-1.aqt
Date: 07/09/15 Time: 14:27:20

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-16

AQUIFER DATA

Saturated Thickness: 14.73 ft Anisotropy Ratio (Kz/Kr): 1.

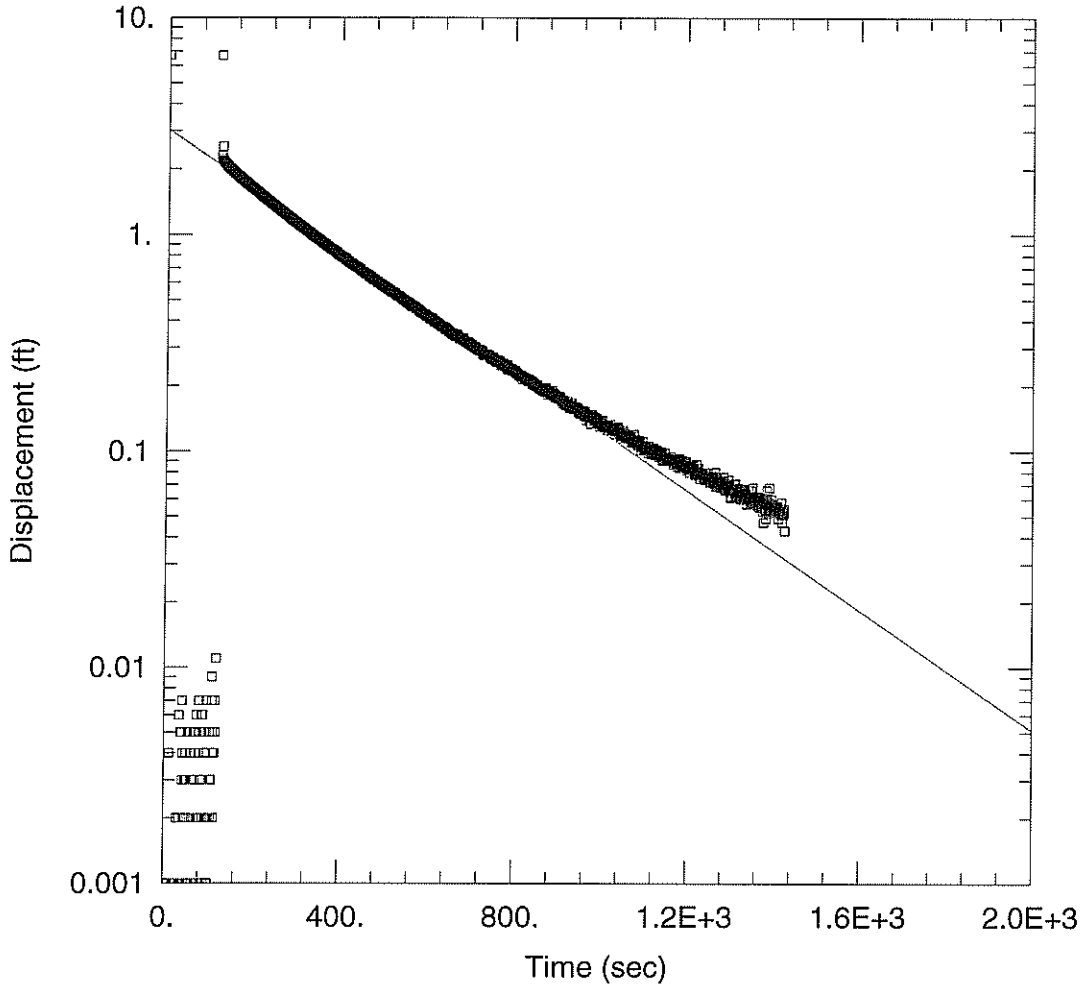
WELL DATA (PZ-16S Test 1)

Initial Displacement: 2.1 ft
Total Well Penetration Depth: 13.8 ft
Casing Radius: 0.167 ft
Static Water Column Height: 14.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.032 ft/day y0 = 2.839 ft



WELL TEST ANALYSIS

Data Set: T:\...\16-2.aqt
Date: 07/09/15 Time: 14:28:06

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-16

AQUIFER DATA

Saturated Thickness: 14.73 ft Anisotropy Ratio (Kz/Kr): 1.

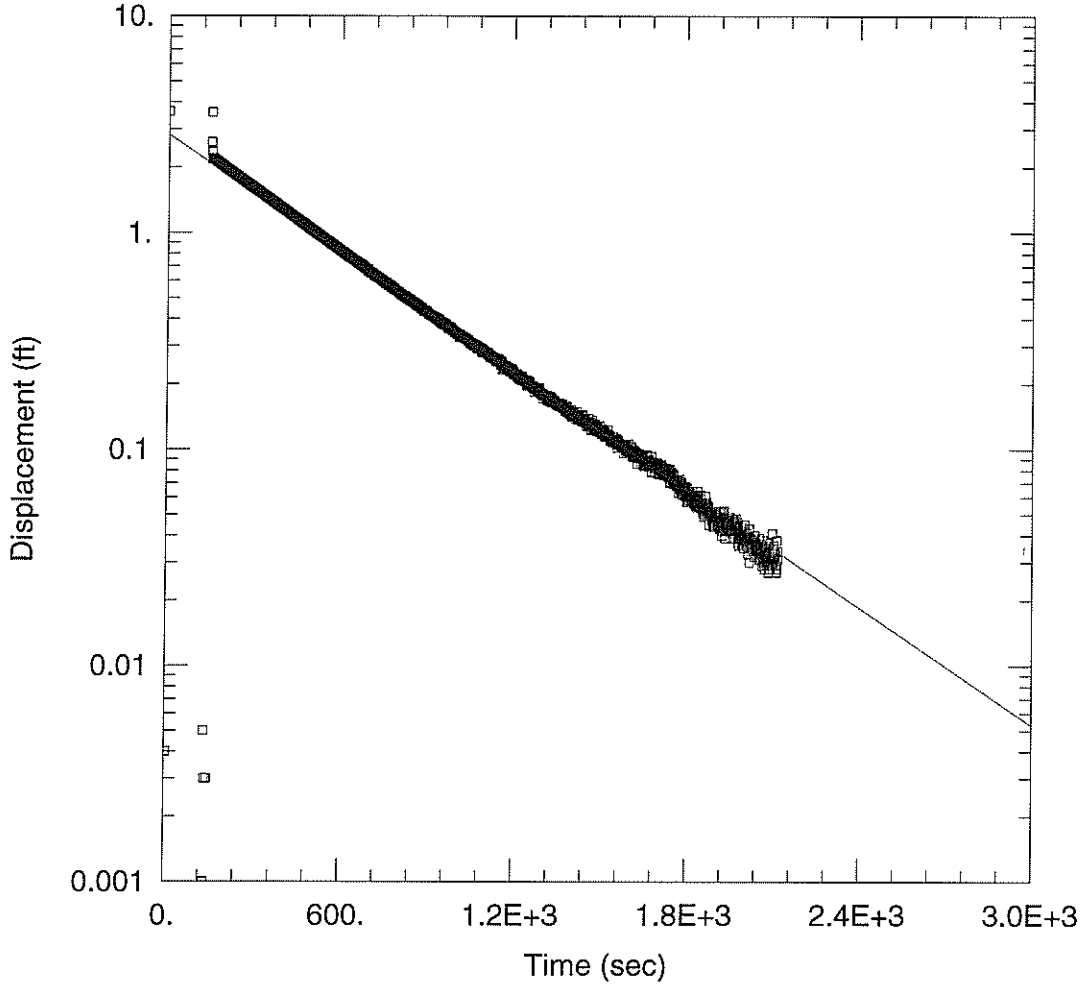
WELL DATA (PZ-16S Test 2)

Initial Displacement: 6.7 ft
Total Well Penetration Depth: 13.8 ft
Casing Radius: 0.167 ft
Static Water Column Height: 14.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.009 ft/day y0 = 3.038 ft



WELL TEST ANALYSIS

Data Set: T:\...\18-1.aqt
Date: 07/09/15 Time: 14:30:54

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-18

AQUIFER DATA

Saturated Thickness: 20.96 ft Anisotropy Ratio (Kz/Kr): 1.

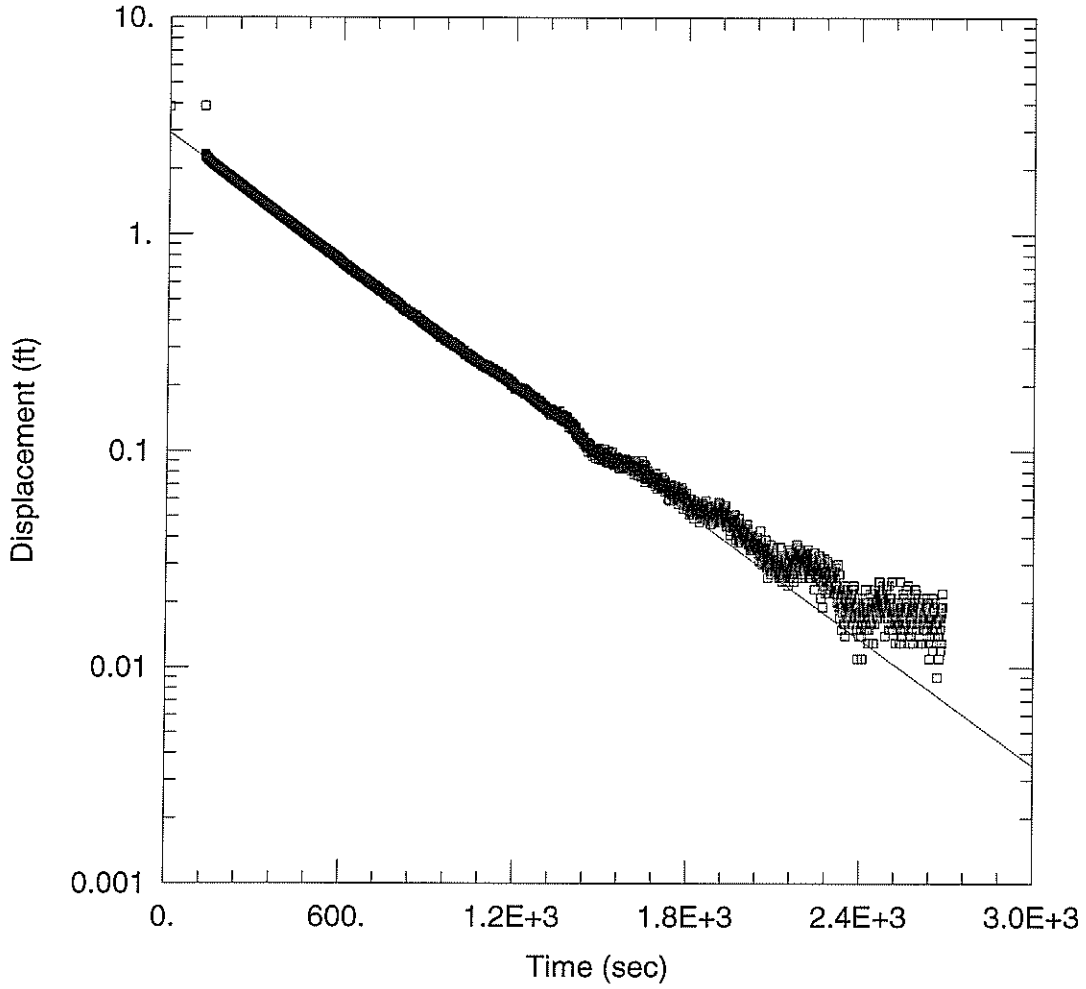
WELL DATA (PZ-18S Test 1)

Initial Displacement: 3.63 ft
Total Well Penetration Depth: 21.17 ft
Casing Radius: 0.167 ft
Static Water Column Height: 20.96 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.7753 ft/day y0 = 2.826 ft



WELL TEST ANALYSIS

Data Set: T:\...\18-2.aqt
Date: 07/09/15 Time: 14:31:33

PROJECT INFORMATION

Company: SCS
Location: WANSLEY
Test Well: PZ-18

AQUIFER DATA

Saturated Thickness: 20.96 ft Anisotropy Ratio (Kz/Kr): 1.

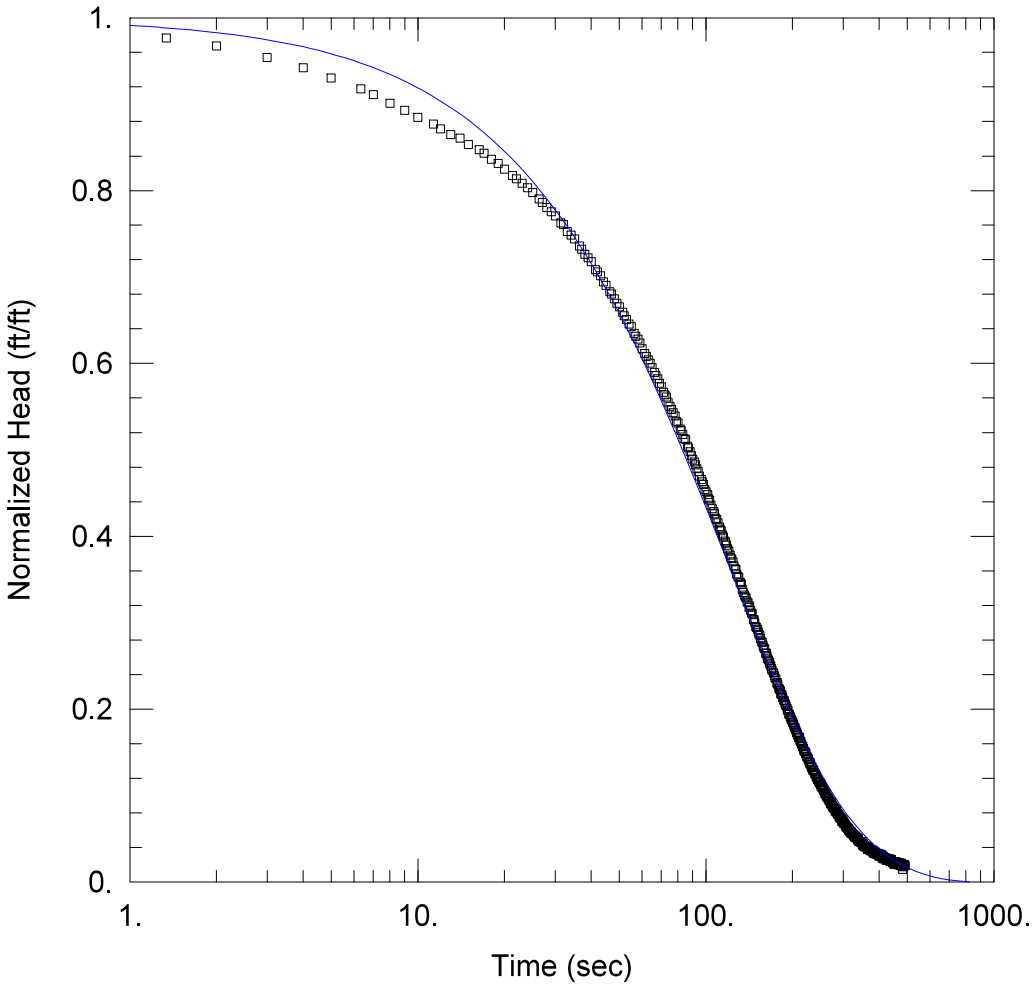
WELL DATA (PZ-18S Test 2)

Initial Displacement: 3.87 ft
Total Well Penetration Depth: 21.17 ft
Casing Radius: 0.167 ft
Static Water Column Height: 20.96 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.8317 ft/day y0 = 2.945 ft



PLANT WANSLEY MARCH 2017 ISO-FLOW PACKER TESTING

Data Set: N:\...\PB-1 (152-157) KGS.aqt
Date: 05/19/17 Time: 16:38:15

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-1-(152-157)
Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 132. ft

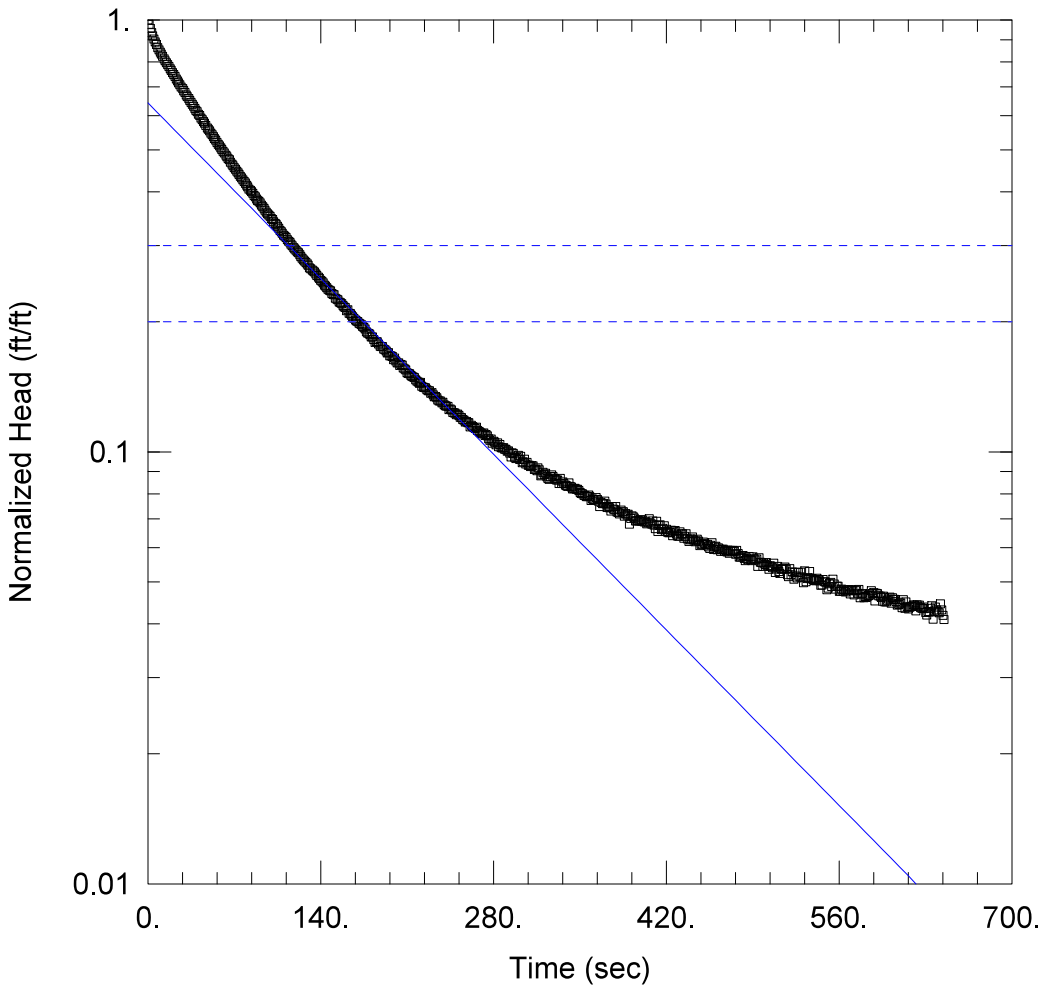
WELL DATA (PB-1)

Initial Displacement: 18.35 ft
Total Well Penetration Depth: 132. ft
Casing Radius: 0.0833 ft
Static Water Column Height: 132. ft
Screen Length: 5. ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 2.136 ft/day
Kz/Kr = 0.1
Ss = 1.83E-9 ft^{-1}



PLANT WANSLEY MARCH 2017 ISO-FLOW PACKER TESTING

Data Set: N:\...\PB-1 (160-165) Bouwer-Rice.aqt
Date: 05/19/17 Time: 16:42:03

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-1-(160-165)
Test Date: 3/7/2017

AQUIFER DATA

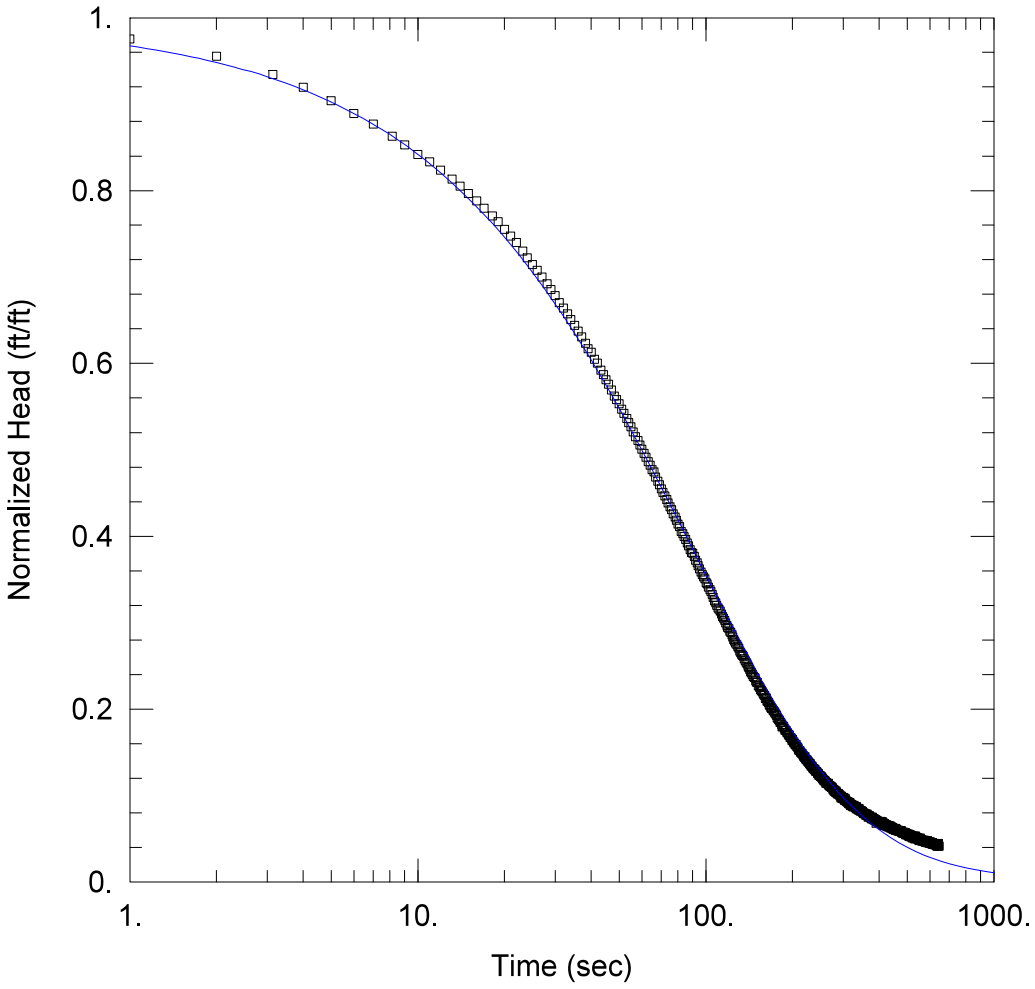
Saturated Thickness: 140. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PB-1)

Initial Displacement: 13.39 ft Static Water Column Height: 140. ft
Total Well Penetration Depth: 140. ft Screen Length: 5. ft
Casing Radius: 0.0833 ft Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 1.763 ft/day y0 = 8.604 ft



PLANT WANSLEY MARCH 2017 ISO-FLOW PACKER TESTING

Data Set: N:\...\PB-1 (160-165) KGS.aqt
Date: 05/19/17 Time: 16:45:23

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-1-(160-165)
Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 140. ft

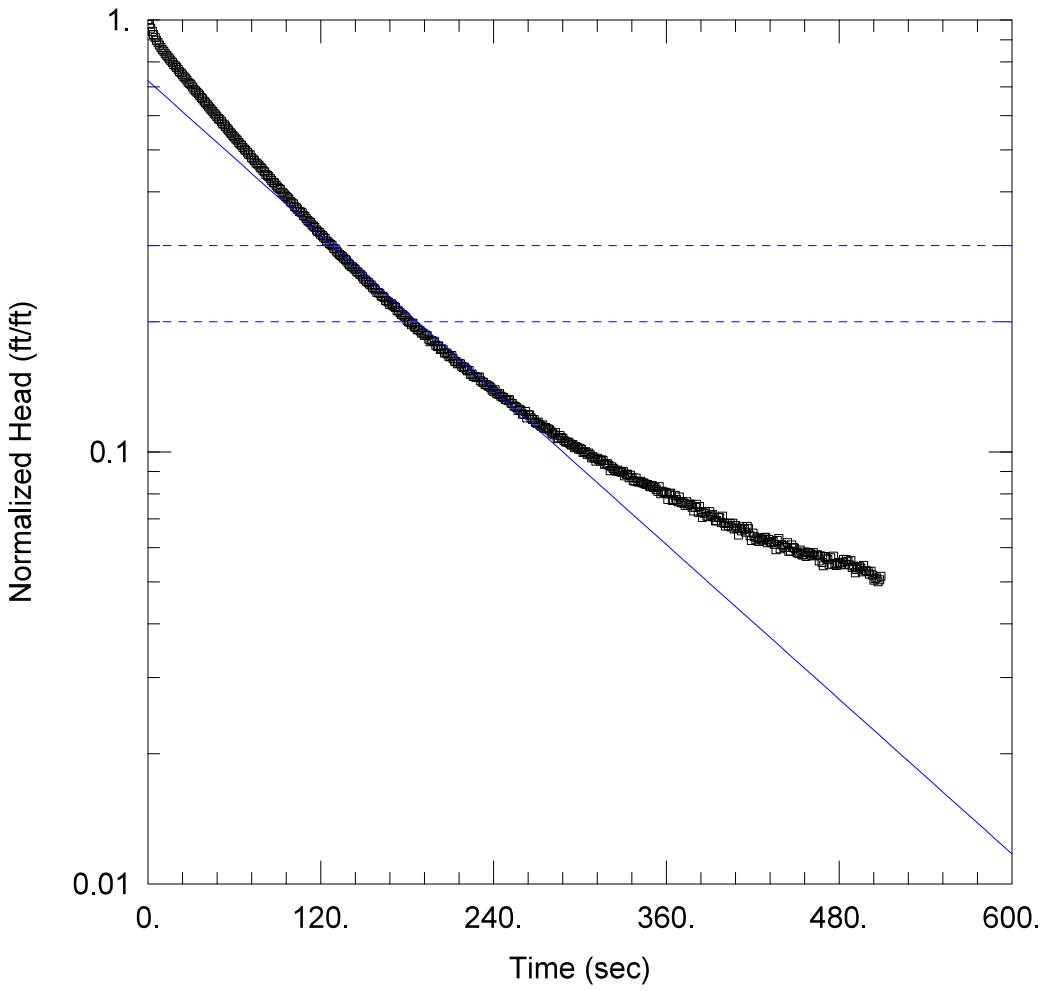
WELL DATA (PB-1)

Initial Displacement: 13.39 ft
Total Well Penetration Depth: 140. ft
Casing Radius: 0.0833 ft
Static Water Column Height: 140. ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.706 ft/day
Kz/Kr = 1.
Ss = 0.0007143 ft^{-1}



PLANT WANSLEY MARCH 2017 ISO-FLOW PACKER TESTING

Data Set: N:\...\PB-1 (179-184) Bouwer-Rice.aqt
Date: 05/19/17 Time: 16:50:56

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-1-(179-184)
Test Date: 3/7/2017

AQUIFER DATA

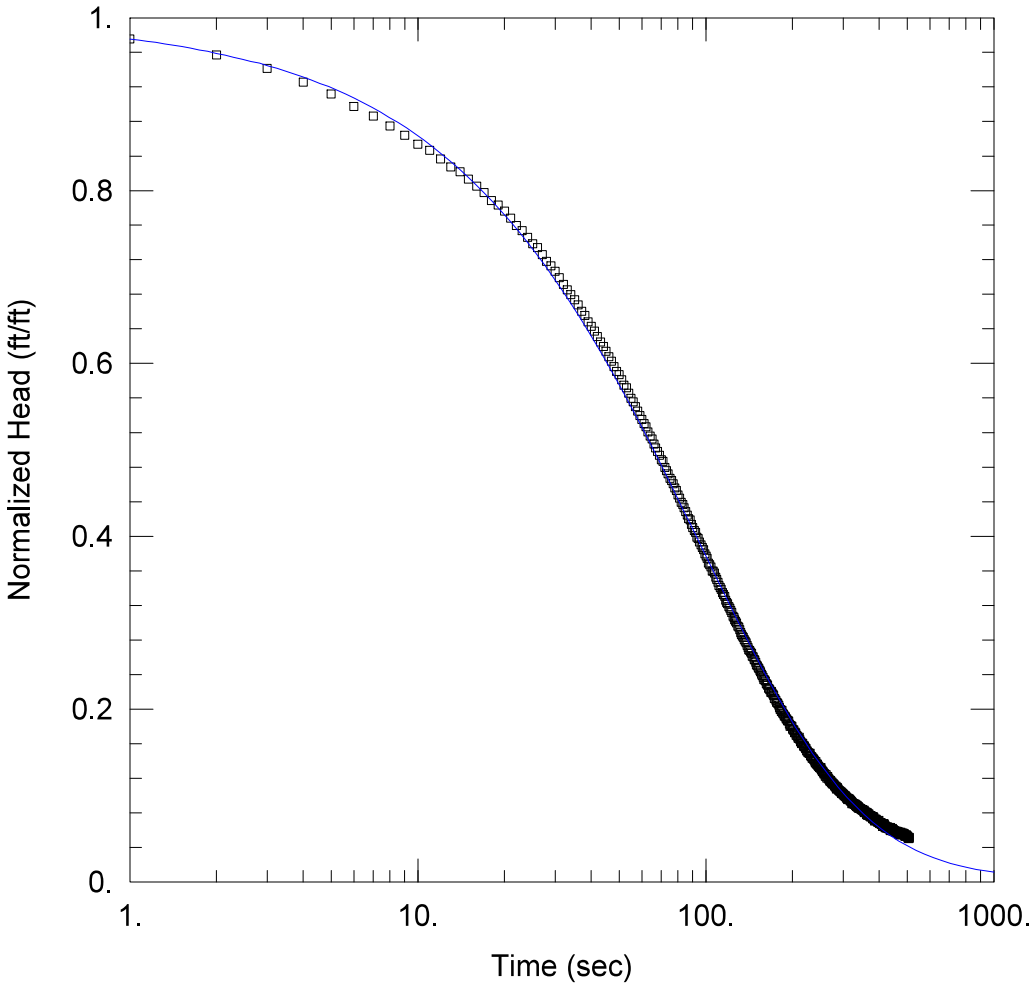
Saturated Thickness: 159. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-1)

Initial Displacement: 13.76 ft
Total Well Penetration Depth: 159. ft
Casing Radius: 0.0833 ft
Static Water Column Height: 159. ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.218 ft/day
y0 = 9.949 ft



PLANT WANSLEY MARCH 2017 ISO-FLOW PACKER TESTING

Data Set: N:\...\PB-1 (179-184) KGS.aqt
Date: 05/19/17 Time: 16:51:56

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-1-(179-184)
Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 159. ft

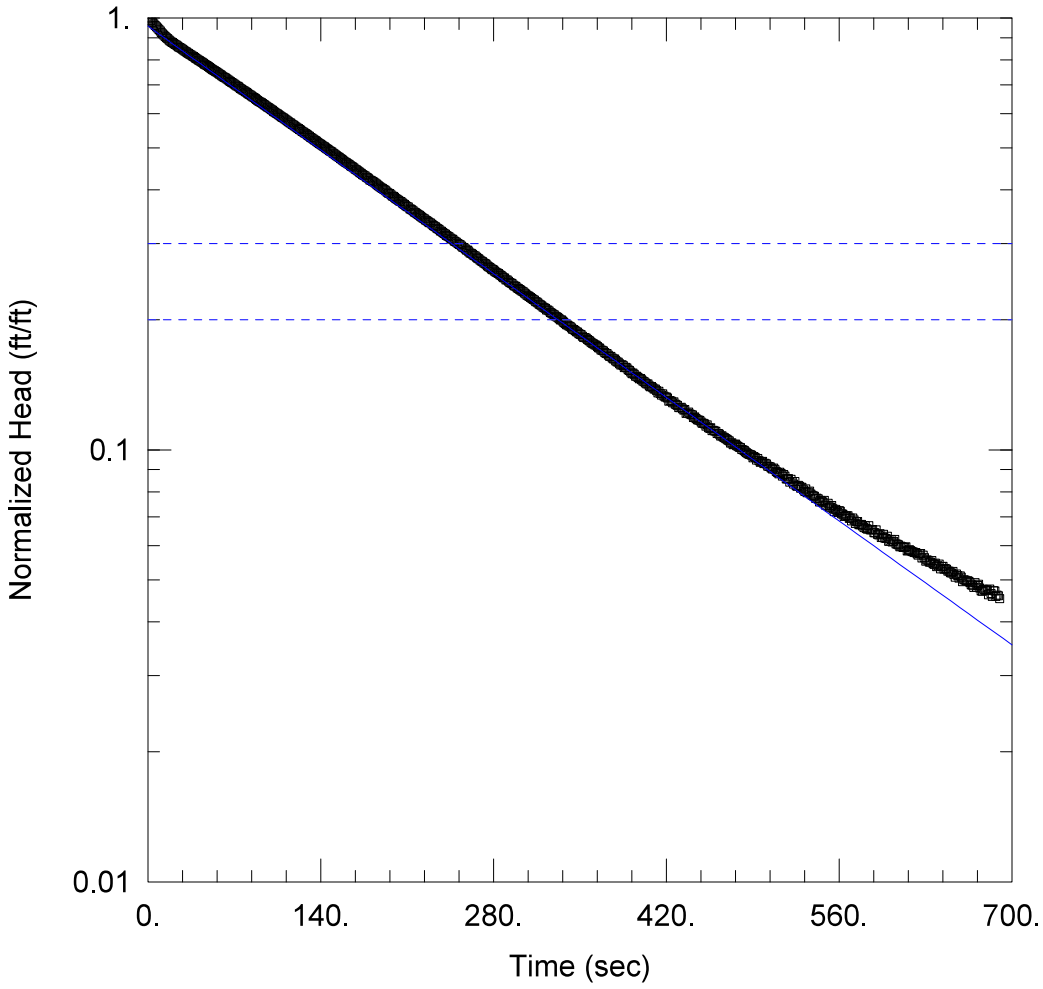
WELL DATA (PB-1)

Initial Displacement: 13.76 ft
Total Well Penetration Depth: 159. ft
Casing Radius: 0.0833 ft
Static Water Column Height: 159. ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 2.012 ft/day
Kz/Kr = 0.1
Ss = 0.0001668 ft^{-1}



PLANT WANSLEY MARCH 2017 ISO-FLOW PACKER TESTING

Data Set: N:\...\PB-1 (186-191) Bouwer-Rice.aqt
Date: 05/19/17 Time: 16:53:29

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-1-(186-191)
Test Date: 3/7/2017

AQUIFER DATA

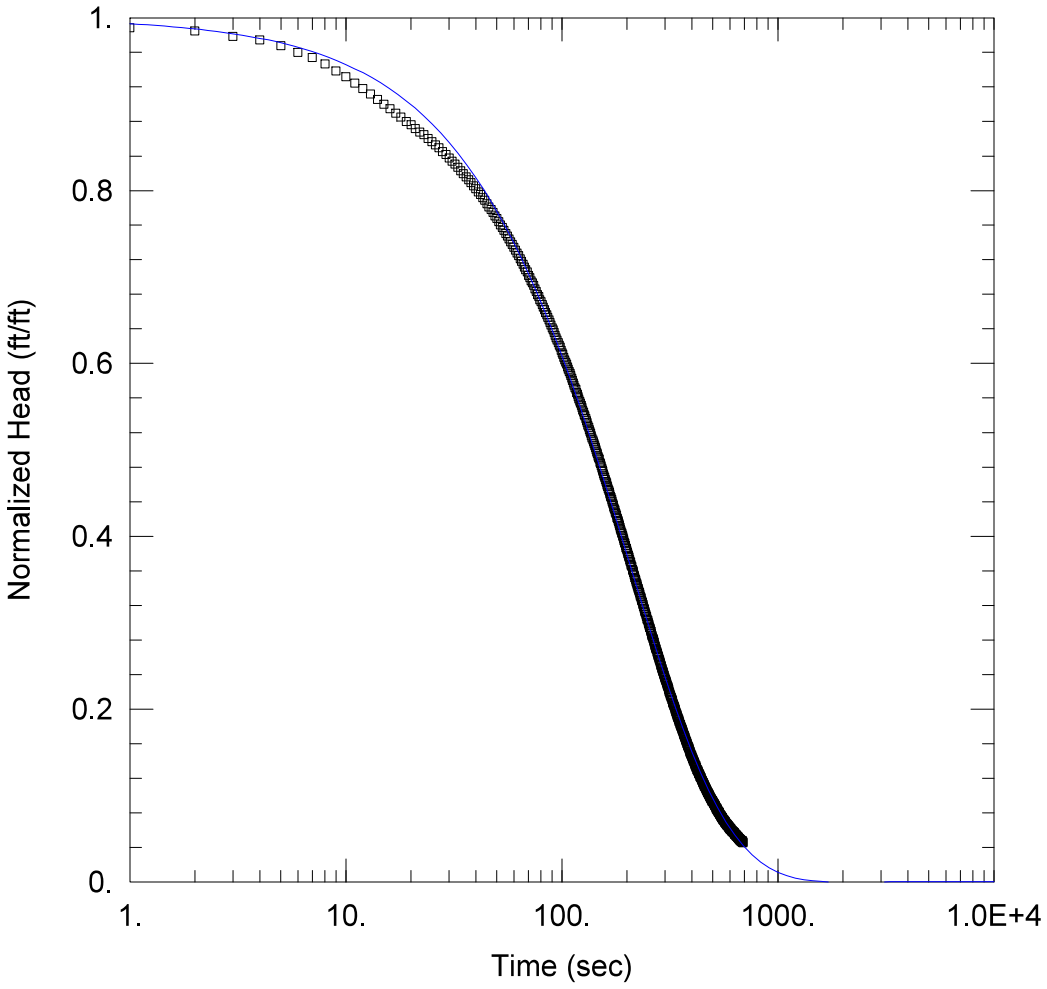
Saturated Thickness: 166. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-1)

Initial Displacement: 34.08 ft
Total Well Penetration Depth: 166. ft
Casing Radius: 0.0833 ft
Static Water Column Height: 166. ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.527 ft/day
y0 = 32.61 ft



PLANT WANSLEY MARCH 2017 ISO-FLOW PACKER TESTING

Data Set: N:\...\PB-1 (186-191) KGS.aqt
Date: 05/19/17 Time: 16:55:25

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-1-(186-191)
Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 166. ft

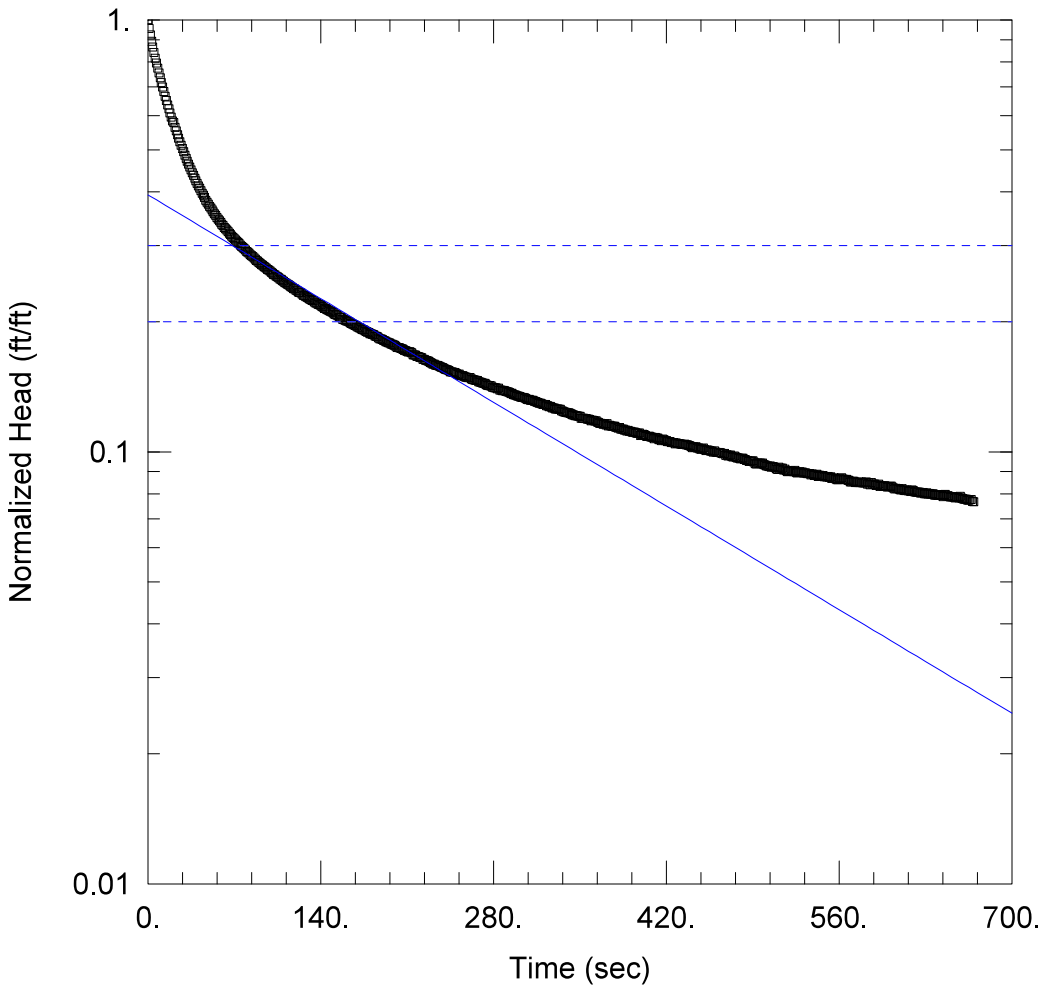
WELL DATA (PB-1)

Initial Displacement: 34.08 ft
Total Well Penetration Depth: 166. ft
Casing Radius: 0.0833 ft
Static Water Column Height: 166. ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.385 ft/day
Kz/Kr = 0.1
Ss = 4.993E-7 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-D Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 12:11:35

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-D-Test 1
Test Date: 4/26/2017

AQUIFER DATA

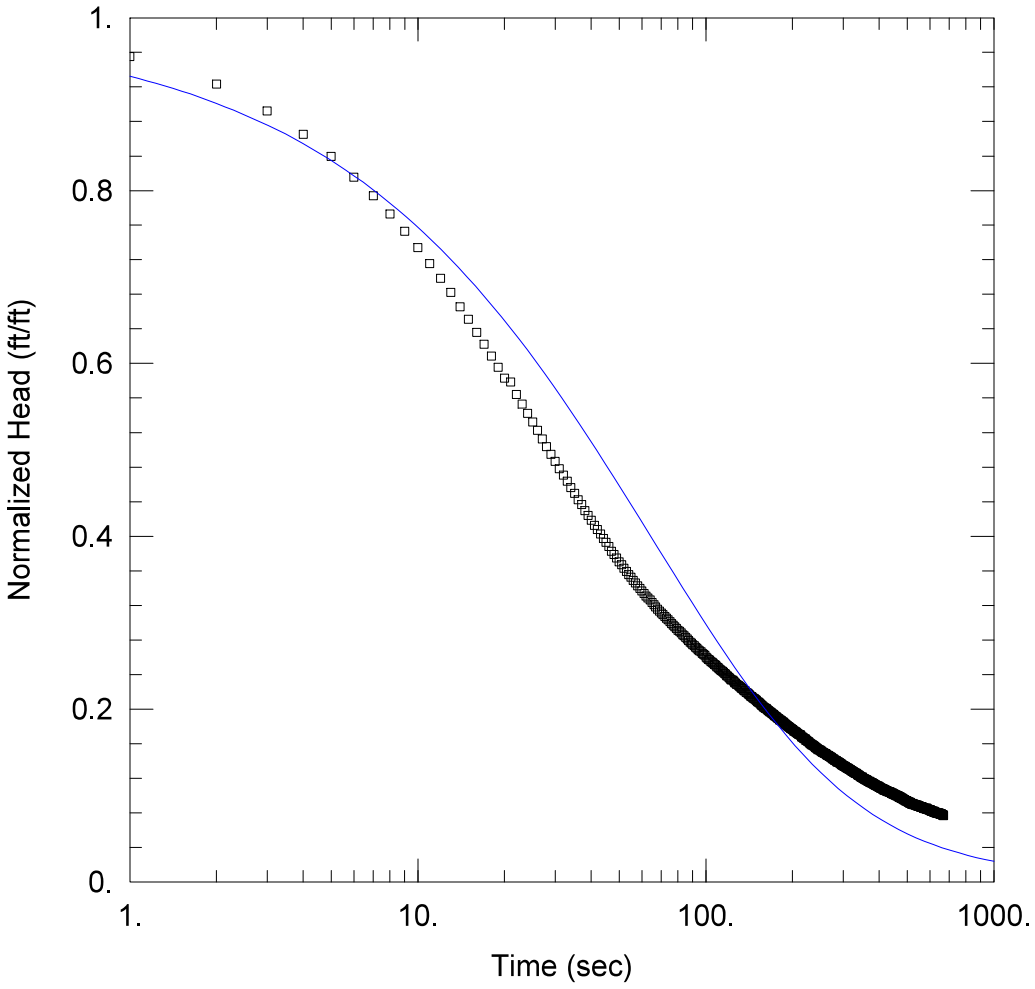
Saturated Thickness: 38.48 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-3-D)

Initial Displacement: 9.89 ft
Total Well Penetration Depth: 38.48 ft
Casing Radius: 0.042 ft
Static Water Column Height: 38.48 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.09589 ft/day
y0 = 3.893 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-D Test 1 KGS.aqt
Date: 05/19/17 Time: 12:24:28

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-D-Test 1
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 38.48 ft

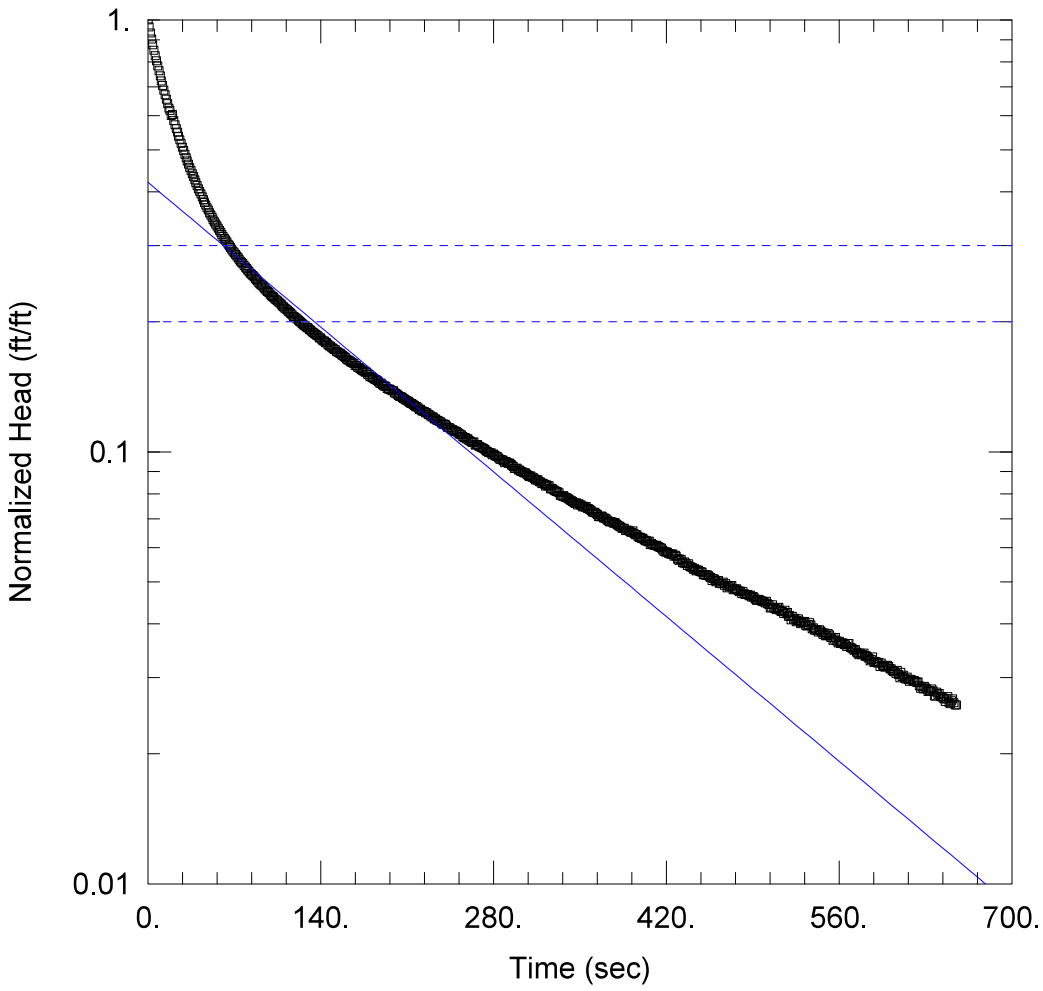
WELL DATA (PB-3-D)

Initial Displacement: 9.89 ft
Total Well Penetration Depth: 38.48 ft
Casing Radius: 0.042 ft
Static Water Column Height: 38.48 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.09511 ft/day
Kz/Kr = 0.1
Ss = 0.002599 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-D Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 12:20:23

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-D-Test 2
Test Date: 4/26/2017

AQUIFER DATA

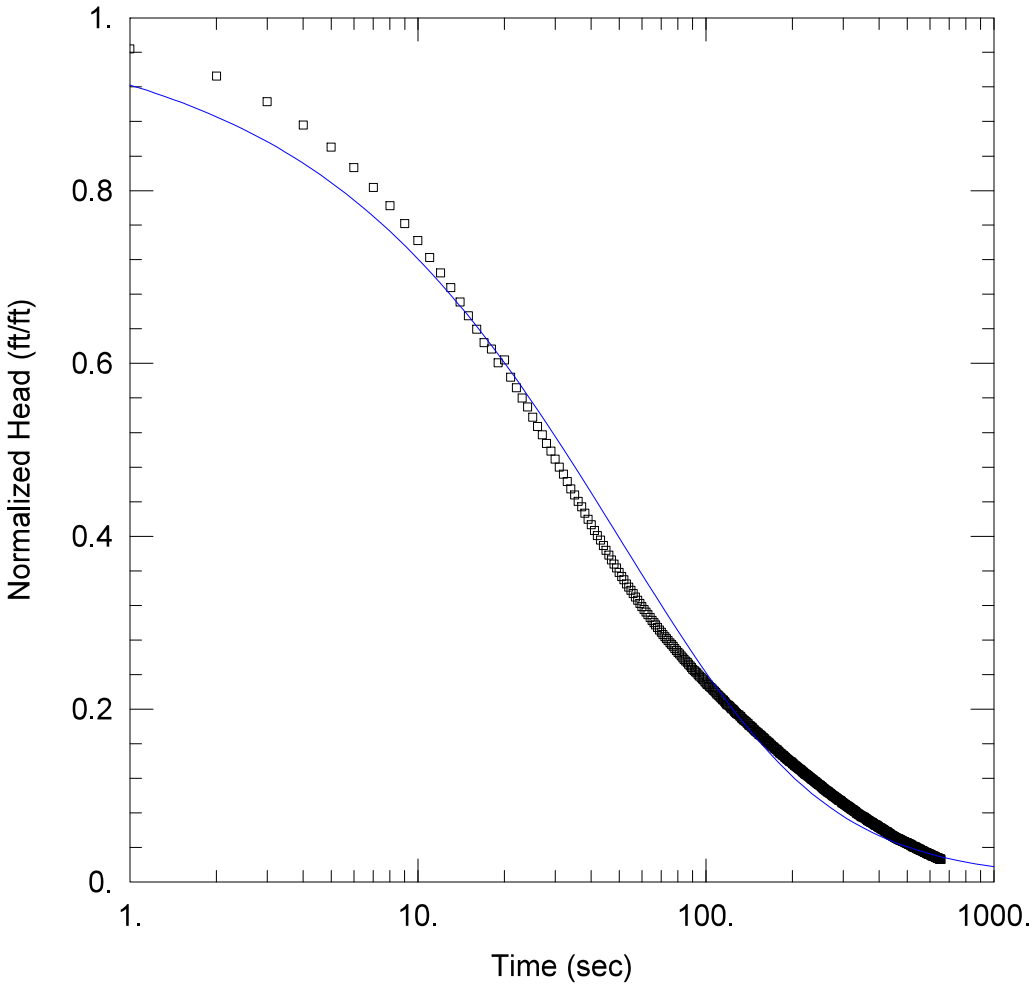
Saturated Thickness: 38.48 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-3-D)

Initial Displacement: 10.29 ft
Total Well Penetration Depth: 38.48 ft
Casing Radius: 0.042 ft
Static Water Column Height: 38.48 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1339 ft/day
y0 = 4.332 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-D Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 12:22:38

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-D-Test 2
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 38.48 ft

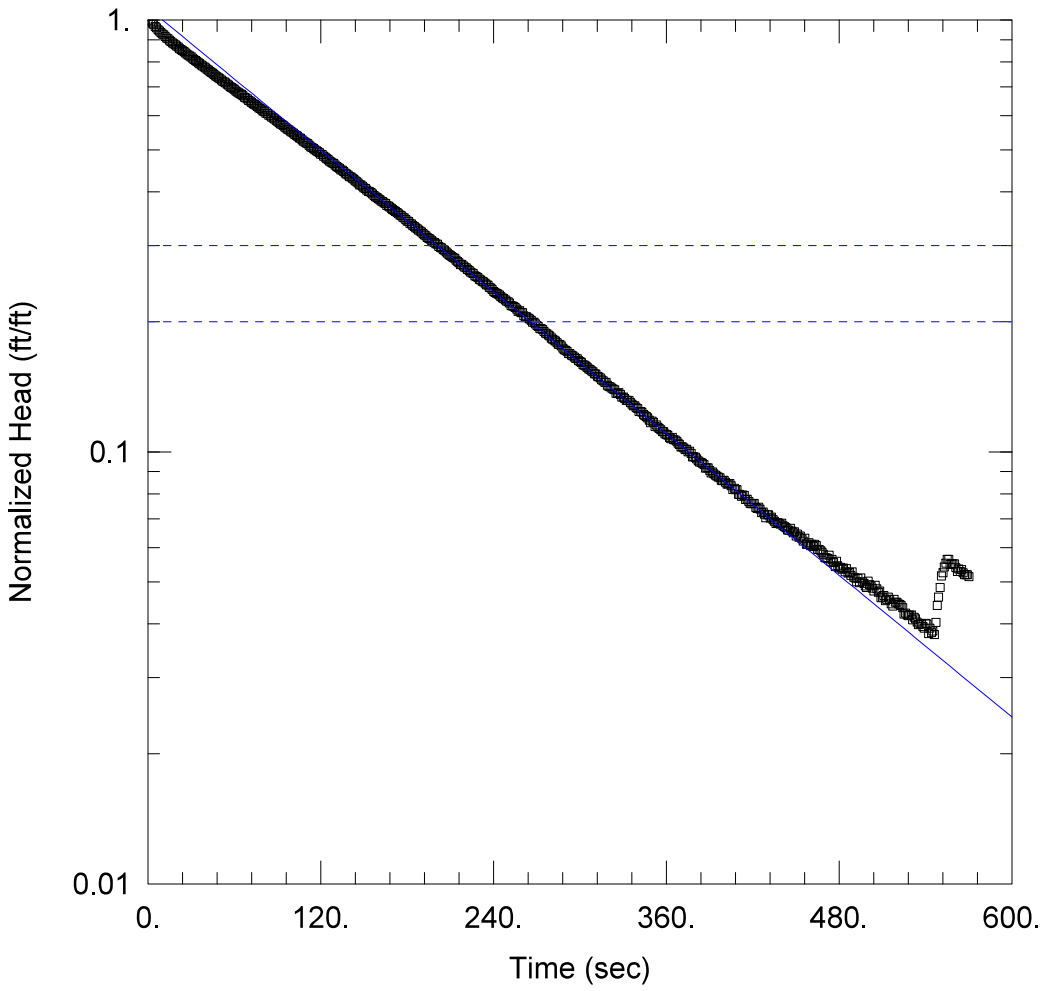
WELL DATA (PB-3-D)

Initial Displacement: 10.29 ft
Total Well Penetration Depth: 38.48 ft
Casing Radius: 0.042 ft
Static Water Column Height: 38.48 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.1233 ft/day
Kz/Kr = 0.1
Ss = 0.002599 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-S Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 12:28:49

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-S-Test 1
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 16.78 ft Anisotropy Ratio (Kz/Kr): 0.1

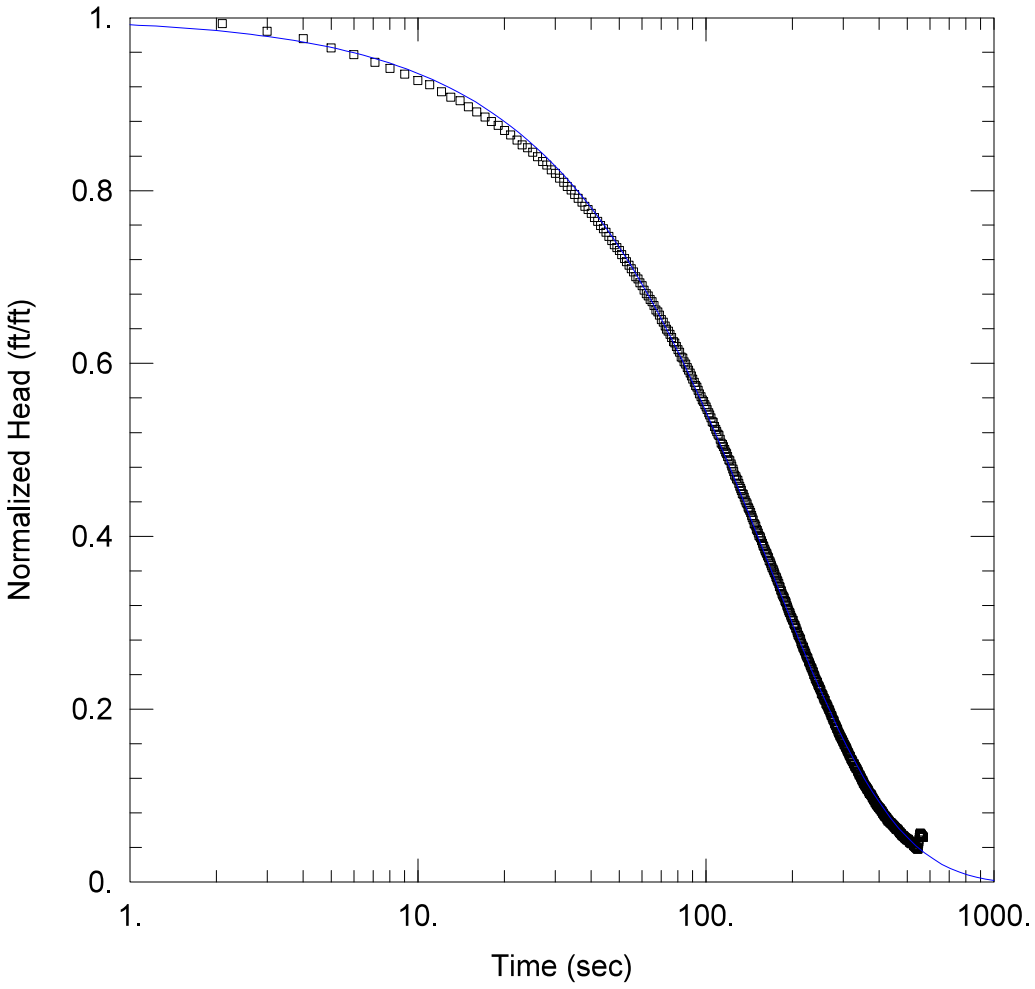
WELL DATA (PB-3-S)

Initial Displacement: 5.48 ft
Total Well Penetration Depth: 16.78 ft
Casing Radius: 0.042 ft
Static Water Column Height: 16.78 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1385 ft/day y0 = 5.837 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-S Test 1 KGS.aqt
Date: 05/19/17 Time: 12:30:49

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-S-Test 1
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 16.78 ft

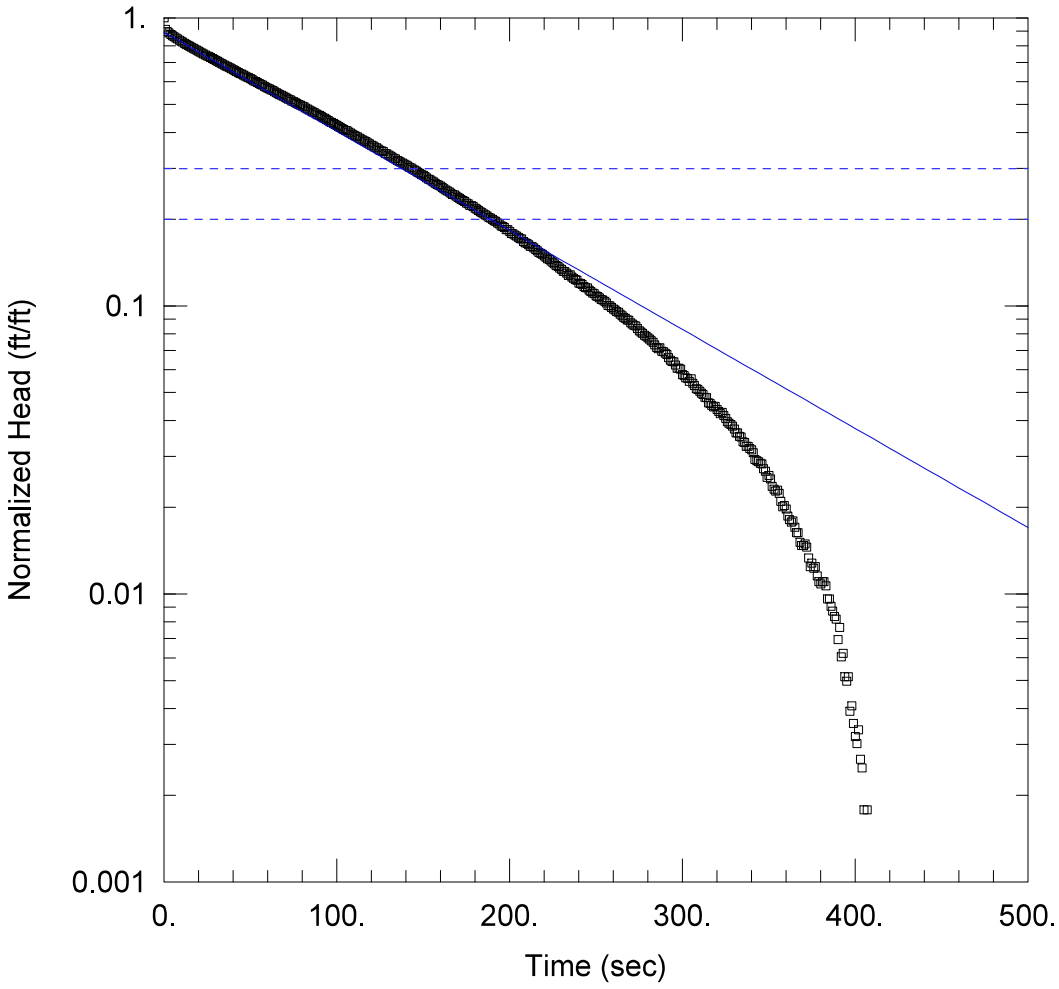
WELL DATA (PB-3-S)

Initial Displacement: 5.48 ft
Total Well Penetration Depth: 16.78 ft
Casing Radius: 0.042 ft
Static Water Column Height: 16.78 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.1477 ft/day
Kz/Kr = 0.1
Ss = 3.149E-8 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-S Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 12:33:49

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-S-Test 2
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 16.78 ft Anisotropy Ratio (Kz/Kr): 0.1

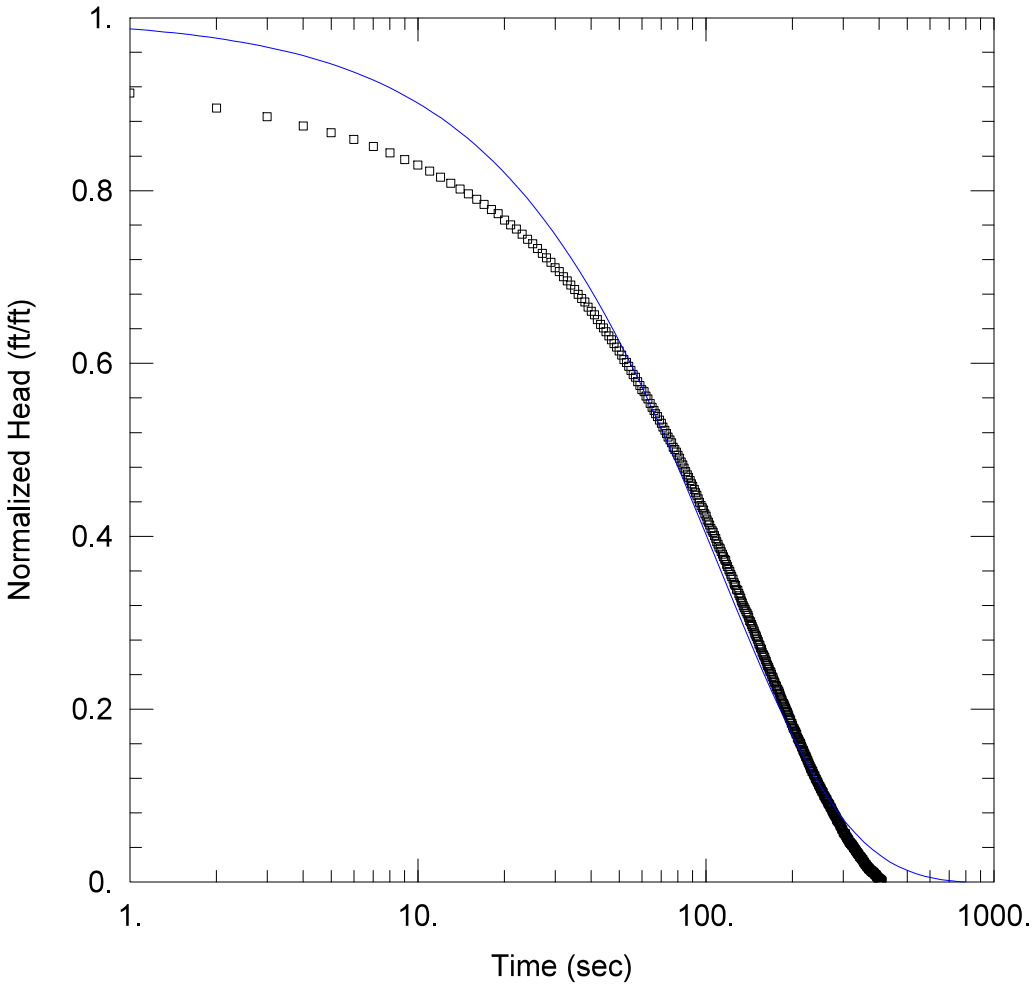
WELL DATA (PB-3-S)

Initial Displacement: 5.63 ft
Total Well Penetration Depth: 16.78 ft
Casing Radius: 0.042 ft
Static Water Column Height: 16.78 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1742 ft/day y0 = 5.024 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-3-S Test 2 KGS.aqt
Date: 05/19/17 Time: 12:35:49

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-3-S-Test 2
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 16.78 ft

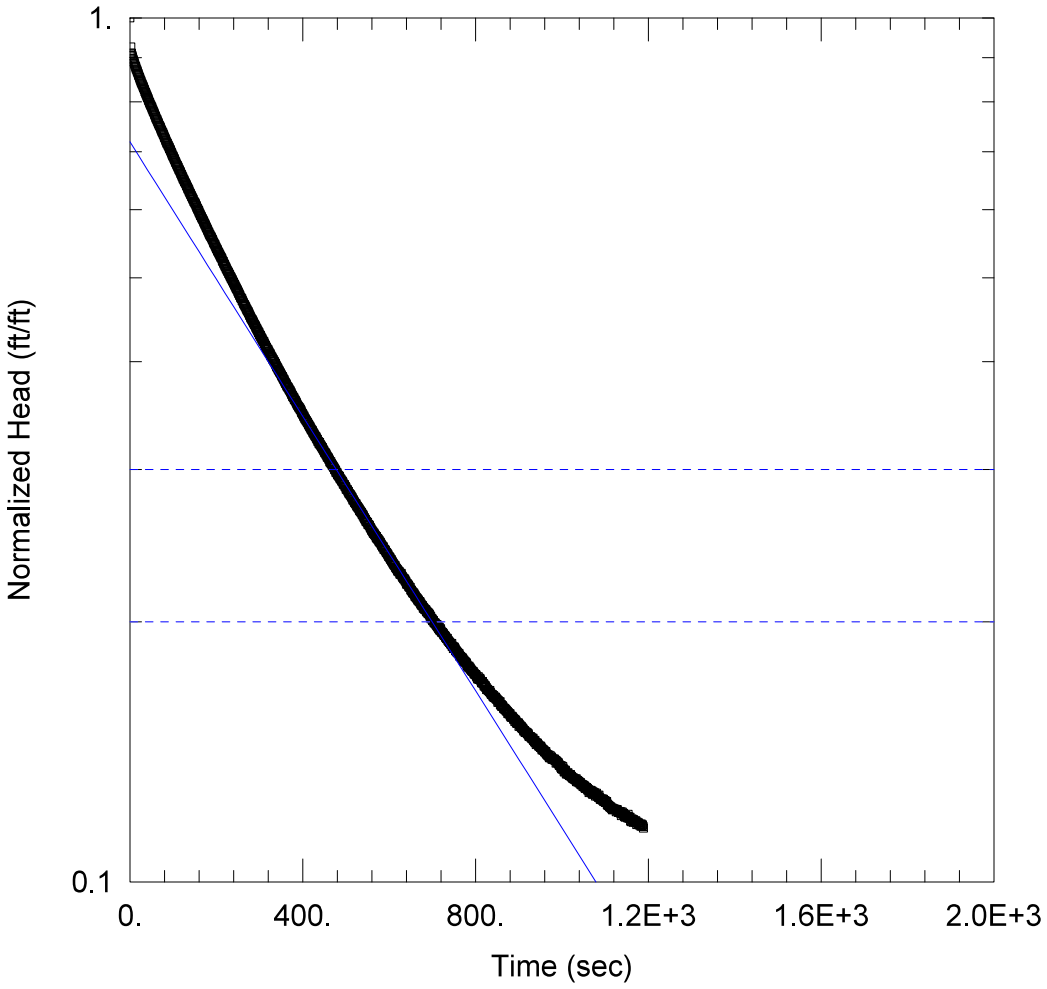
WELL DATA (PB-3-S)

Initial Displacement: 5.63 ft
Total Well Penetration Depth: 16.78 ft
Casing Radius: 0.042 ft
Static Water Column Height: 16.78 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.2201 ft/day
Kz/Kr = 0.1
Ss = 1.038E-7 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-4-D Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:01:33

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-4-D-Test 1
Test Date: 4/26/2017

AQUIFER DATA

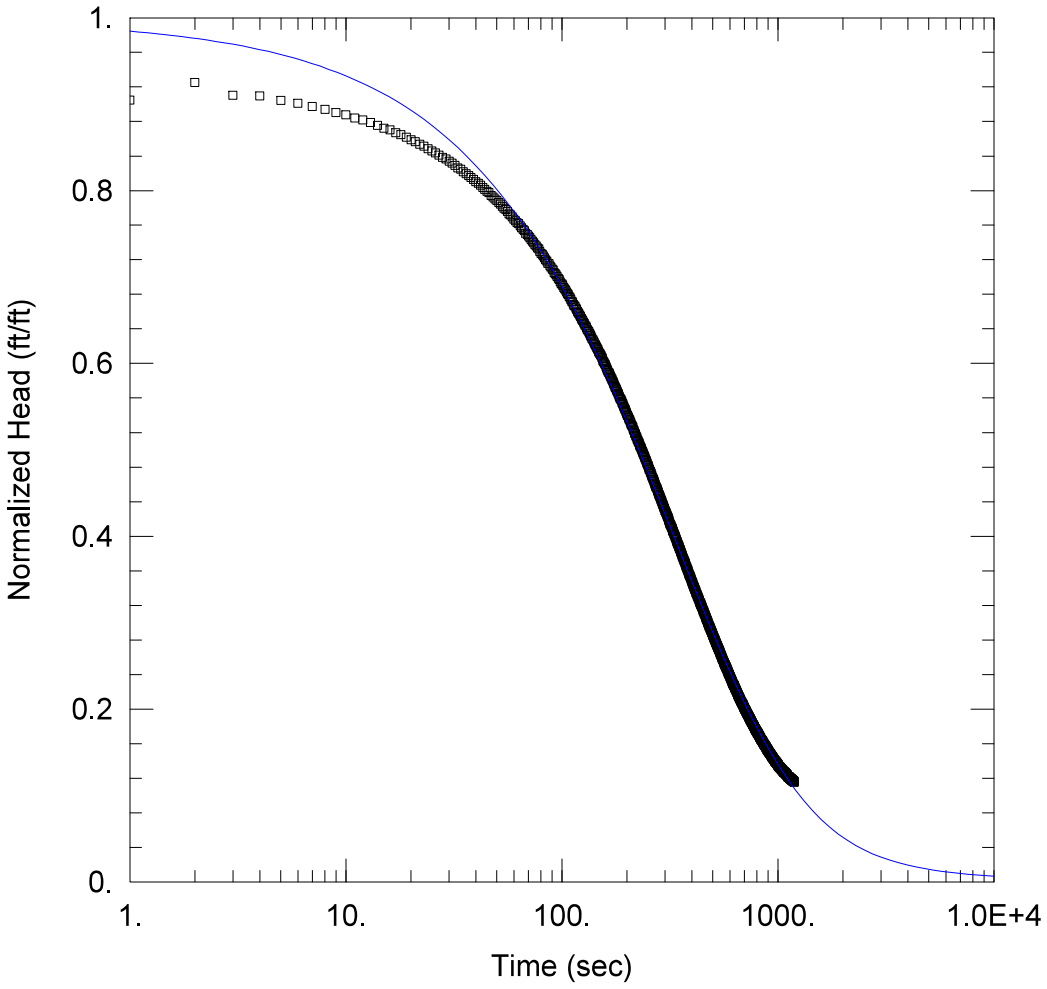
Saturated Thickness: 55.02 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-4-D)

Initial Displacement: 9.7 ft
Total Well Penetration Depth: 55.02 ft
Casing Radius: 0.042 ft
Static Water Column Height: 55.02 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.04618 ft/day
y0 = 6.968 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-4-D Test 1 KGS.aqt
Date: 05/19/17 Time: 13:03:24

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-4-D-Test 1
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 55.02 ft

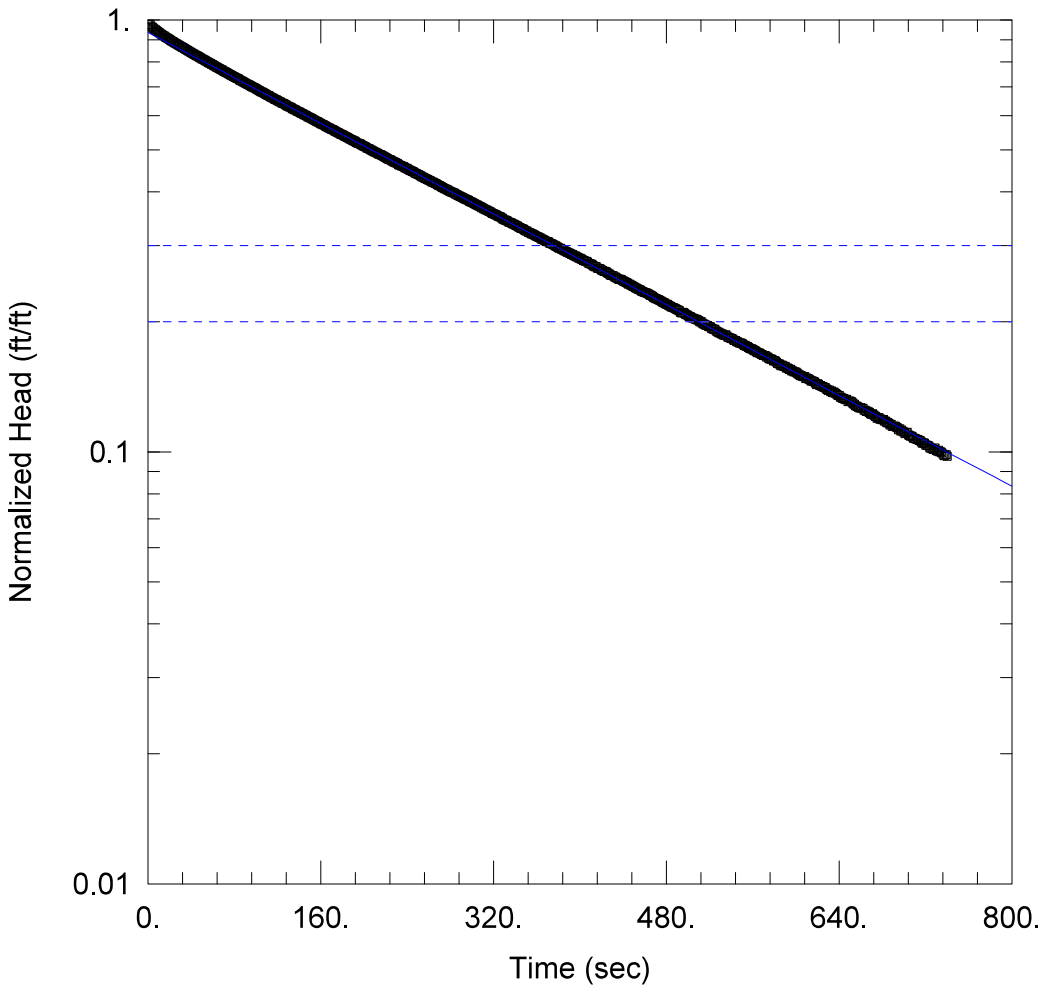
WELL DATA (PB-4-D)

Initial Displacement: 9.7 ft
Total Well Penetration Depth: 55.02 ft
Casing Radius: 0.042 ft
Static Water Column Height: 55.02 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.03059 ft/day
Kz/Kr = 0.1
Ss = 0.0003246 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-4-D Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:05:00

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-4-D-Test 2
Test Date: 4/26/2017

AQUIFER DATA

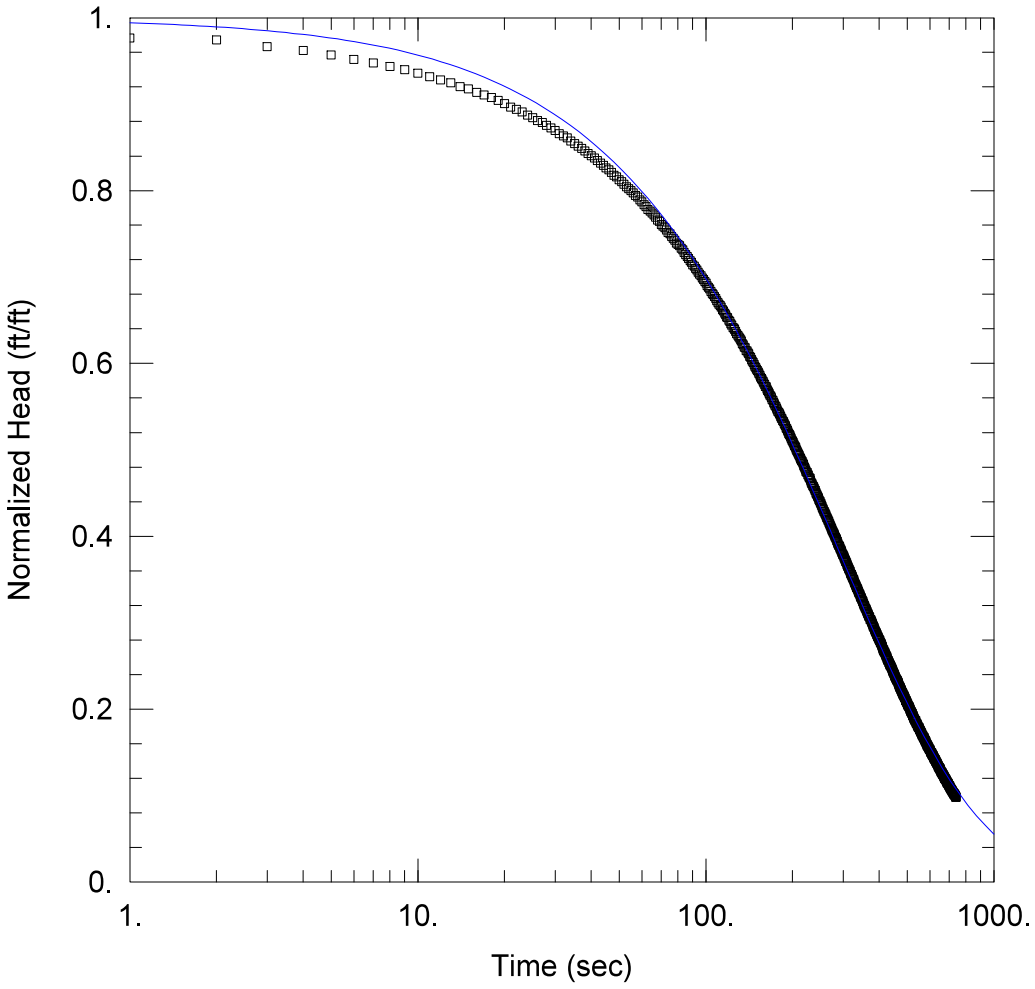
Saturated Thickness: 55.02 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-4-D)

Initial Displacement: 8.39 ft Static Water Column Height: 55.02 ft
Total Well Penetration Depth: 55.02 ft Screen Length: 10. ft
Casing Radius: 0.042 ft Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.07638 ft/day y0 = 7.847 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-4-D Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:06:24

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-4-D-Test 2
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 55.02 ft

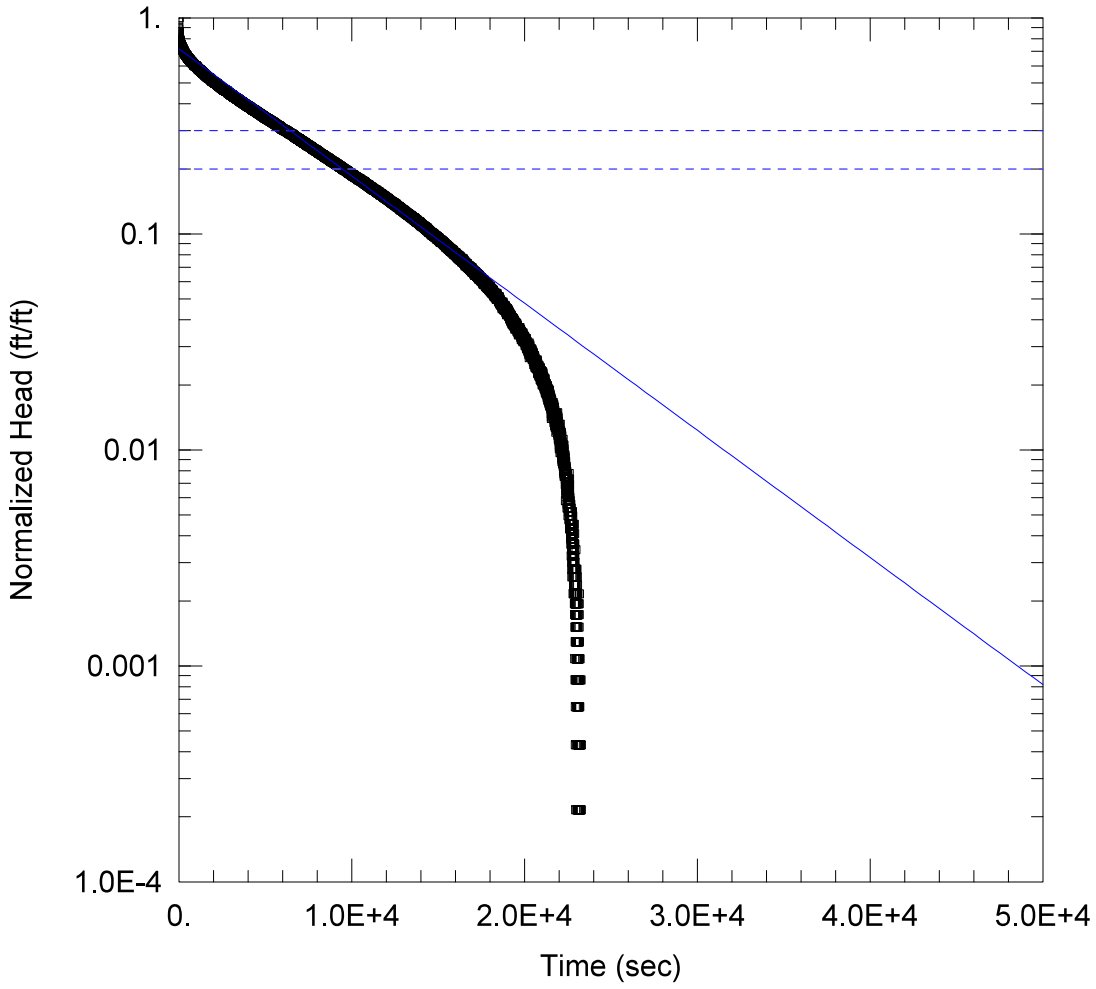
WELL DATA (PB-4-D)

Initial Displacement: 8.39 ft
Total Well Penetration Depth: 55.02 ft
Casing Radius: 0.042 ft
Static Water Column Height: 55.02 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.07823 ft/day
Kz/Kr = 0.1
Ss = 2.828E-7 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-4-S Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:09:10

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-4-S-Test 1
Test Date: 4/26/2017

AQUIFER DATA

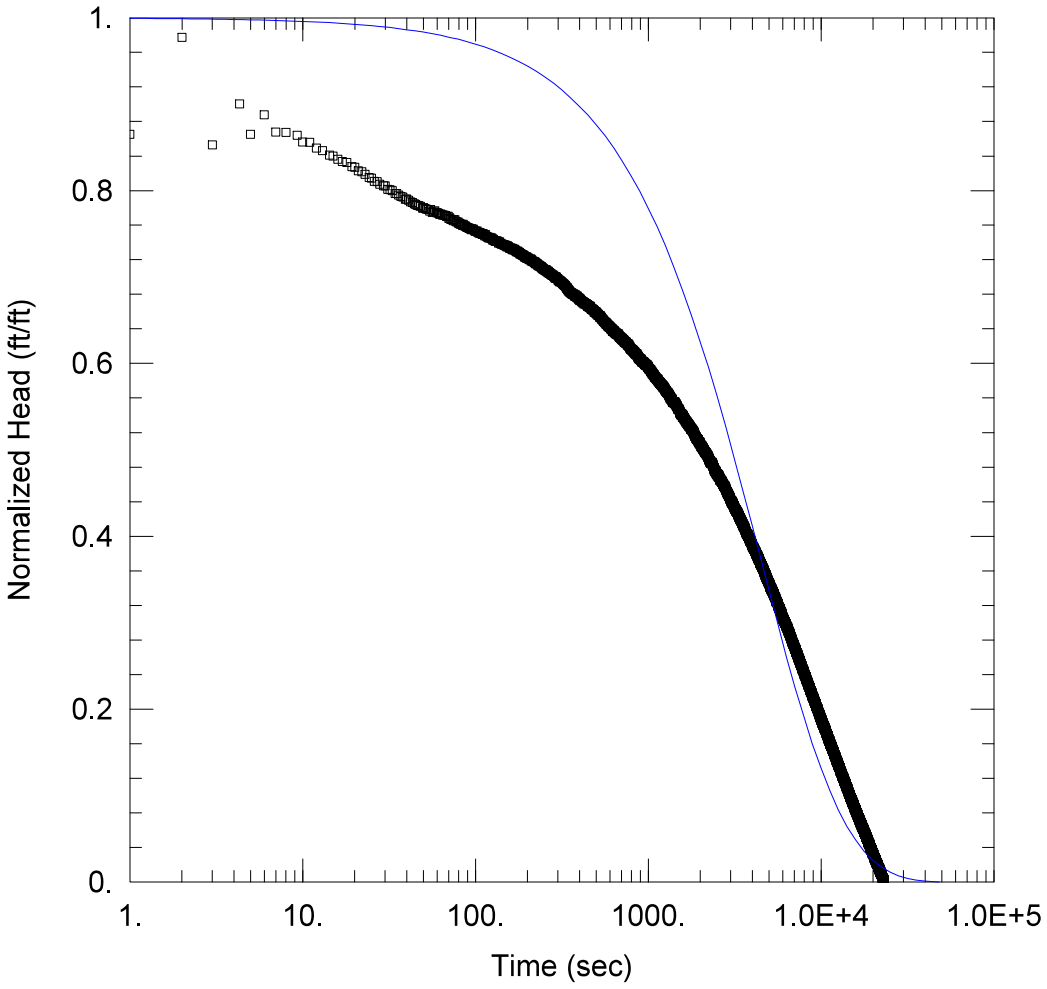
Saturated Thickness: 23.71 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-4-S)

Initial Displacement: 4.64 ft
Total Well Penetration Depth: 23.71 ft
Casing Radius: 0.042 ft
Static Water Column Height: 23.71 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.003112 ft/day
y0 = 3.337 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-4-S Test 1 KGS.aqt
Date: 05/19/17 Time: 13:32:39

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-4-S-Test 1
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 23.71 ft

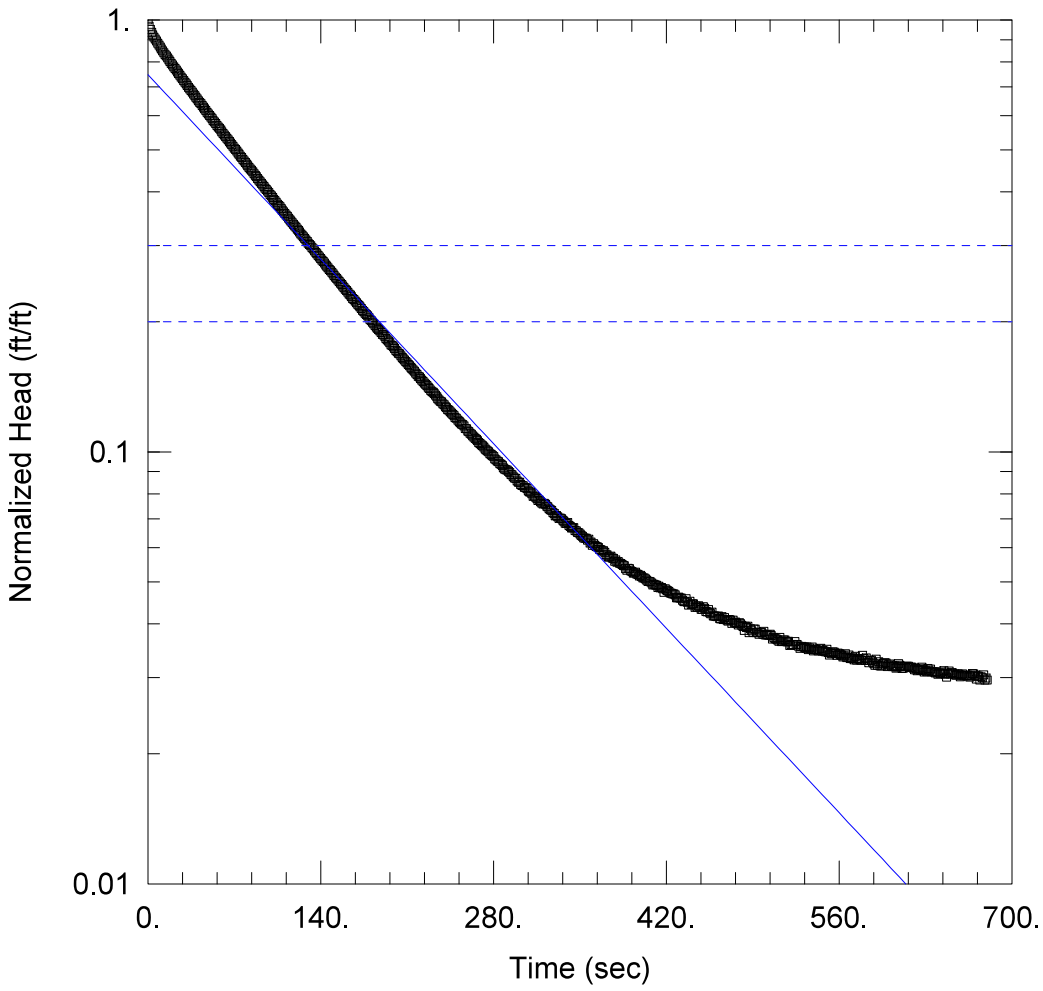
WELL DATA (PB-4-S)

Initial Displacement: 4.64 ft
Total Well Penetration Depth: 23.71 ft
Casing Radius: 0.042 ft
Static Water Column Height: 23.71 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.005166 ft/day
Kz/Kr = 0.1
Ss = 3.471E-7 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-D Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:34:21

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-D-Test 1
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 54.51 ft Anisotropy Ratio (Kz/Kr): 0.1

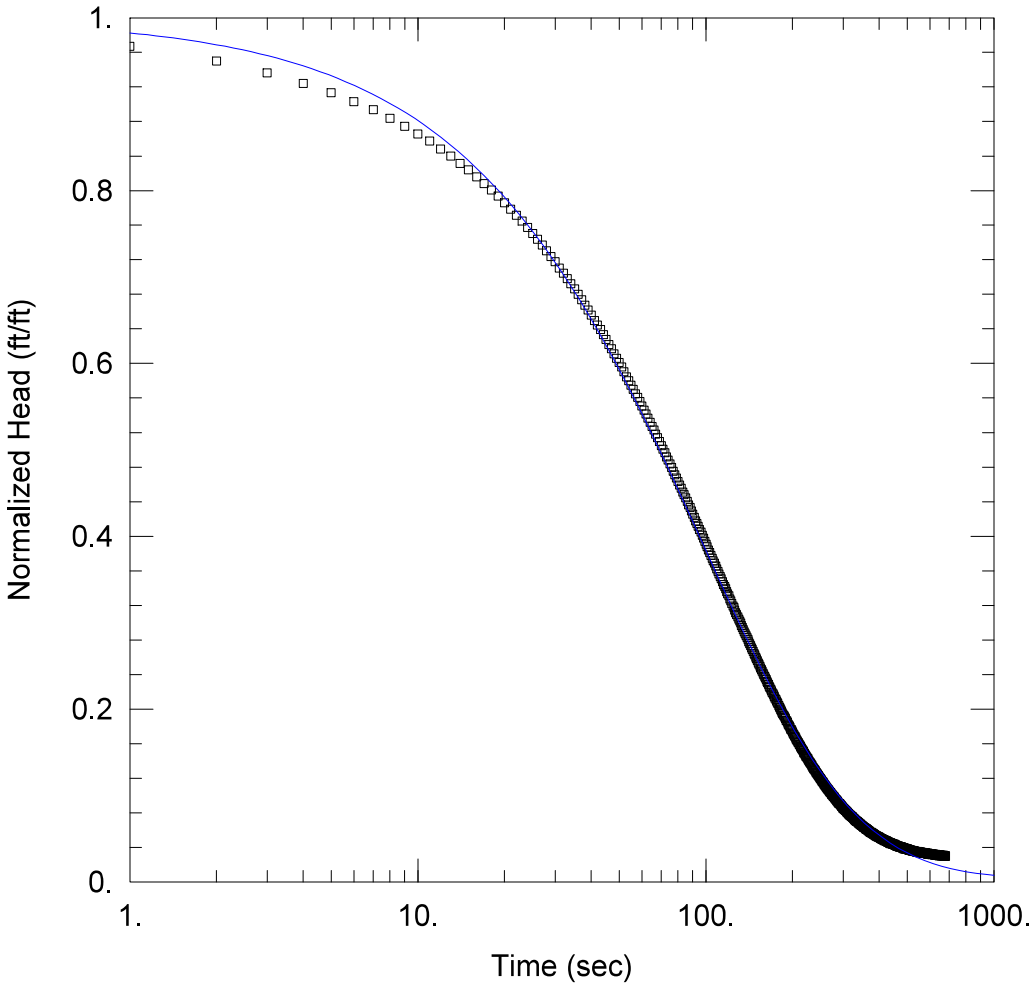
WELL DATA (PB-5-D)

Initial Displacement: 13. ft
Total Well Penetration Depth: 54.51 ft
Casing Radius: 0.042 ft
Static Water Column Height: 54.51 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.1773 ft/day y0 = 9.714 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-D Test 1 KGS.aqt
Date: 05/19/17 Time: 13:35:24

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-D-Test 1
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 54.51 ft

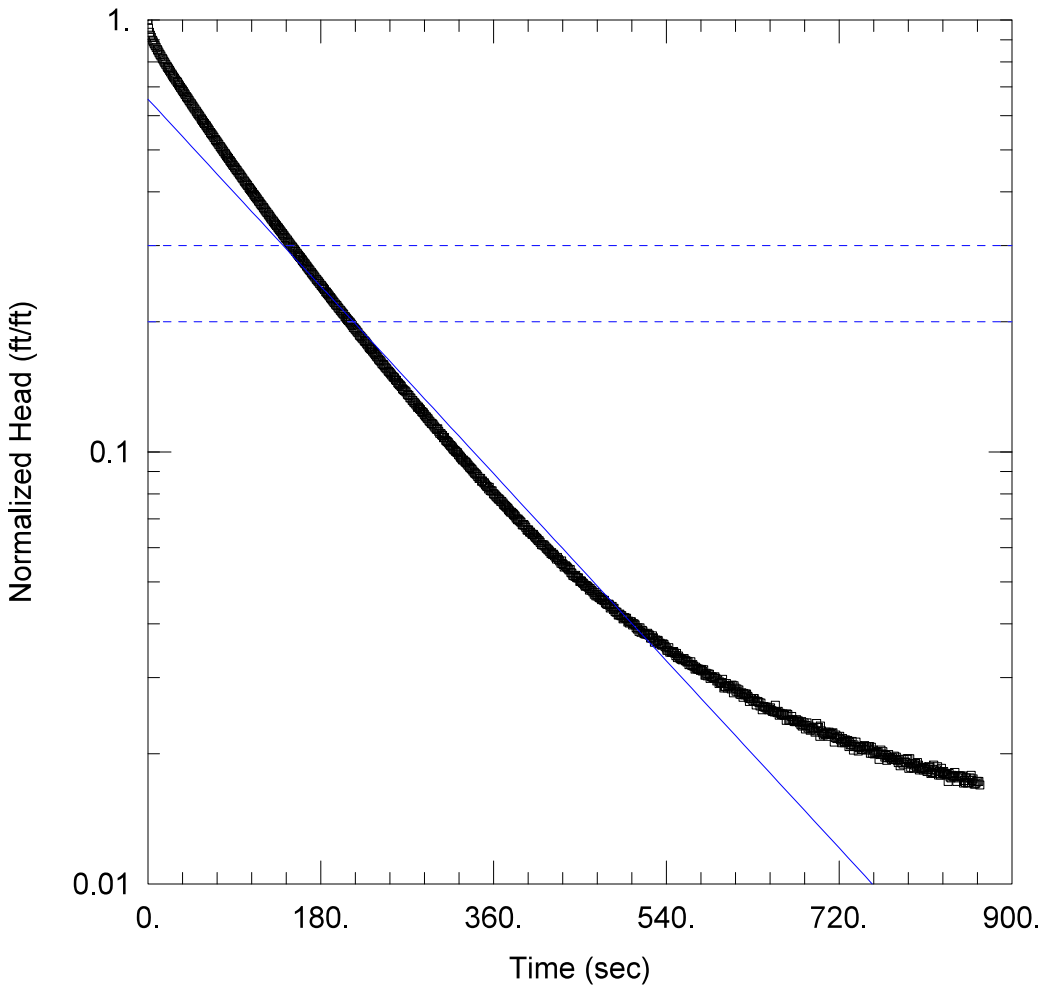
WELL DATA (PB-5-D)

Initial Displacement: 13. ft
Total Well Penetration Depth: 54.51 ft
Casing Radius: 0.042 ft
Static Water Column Height: 54.51 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.1942 ft/day
Kz/Kr = 0.1
Ss = 2.996E-6 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-D Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:37:18

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-D-Test 2
Test Date: 4/27/2017

AQUIFER DATA

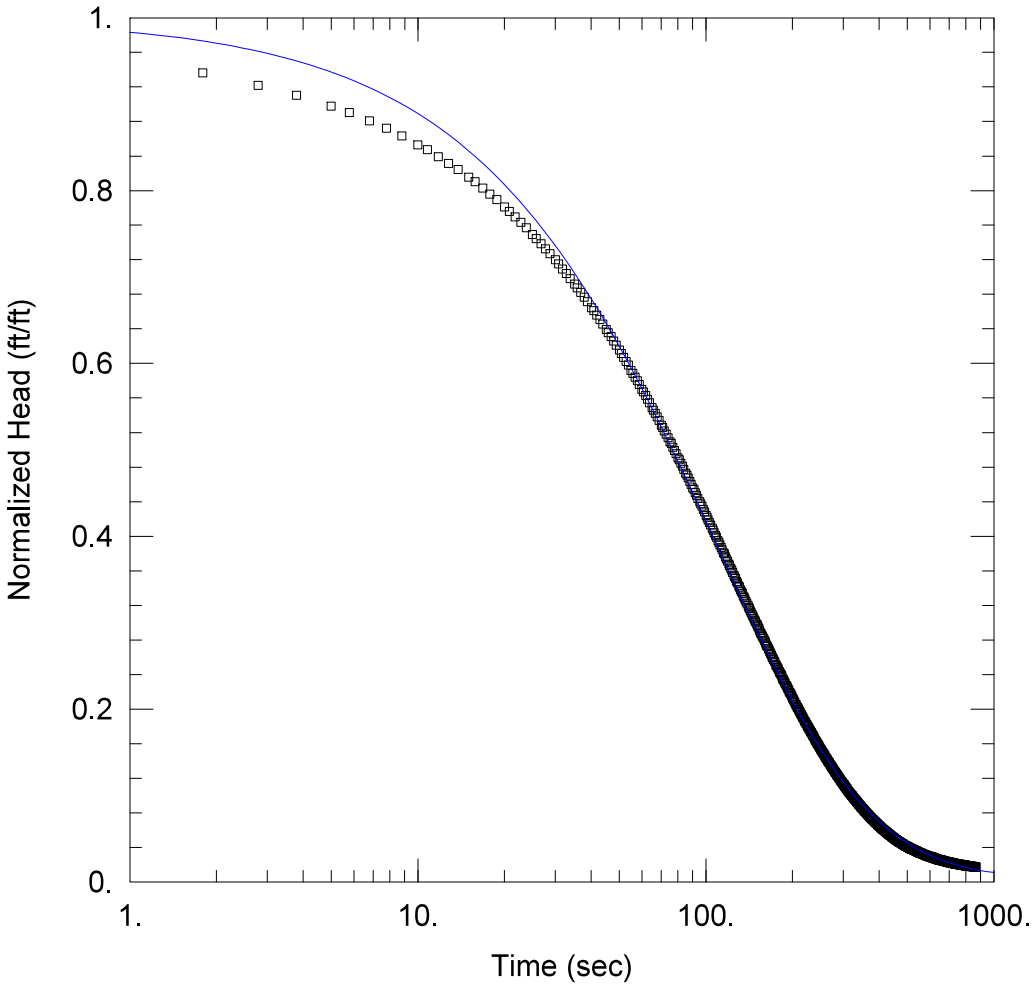
Saturated Thickness: 54.51 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-5-D)

Initial Displacement: 12.21 ft Static Water Column Height: 54.51 ft
Total Well Penetration Depth: 54.51 ft Screen Length: 10. ft
Casing Radius: 0.042 ft Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.1399 ft/day y0 = 8.004 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-D Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:38:18

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-D-Test 2
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 54.51 ft

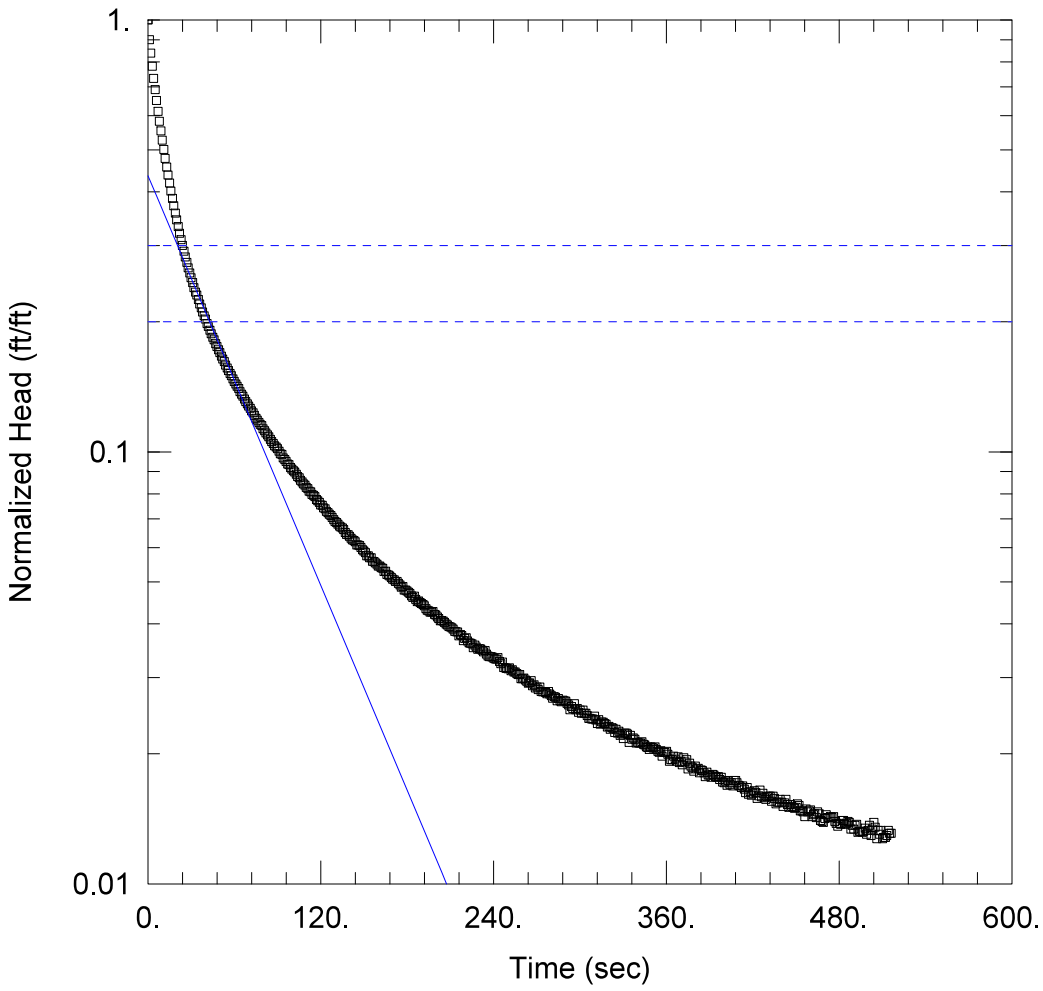
WELL DATA (PB-5-D)

Initial Displacement: 12.21 ft
Total Well Penetration Depth: 54.51 ft
Casing Radius: 0.042 ft
Static Water Column Height: 54.51 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.1679 ft/day
Kz/Kr = 0.1
Ss = 4.615E-6 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-S Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:40:41

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-S-Test 1
Test Date: 4/27/2017

AQUIFER DATA

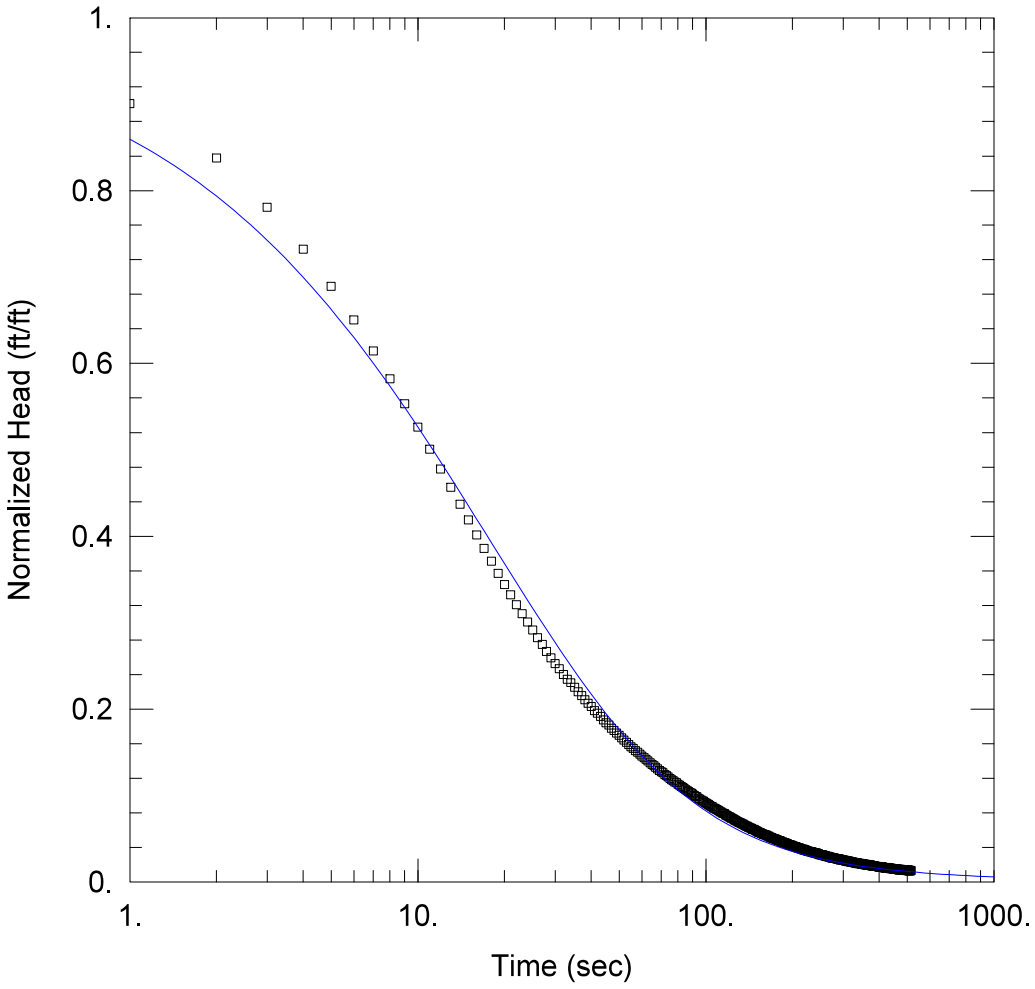
Saturated Thickness: 36.33 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-5-S)

Initial Displacement: 13.83 ft Static Water Column Height: 36.33 ft
Total Well Penetration Depth: 36.33 ft Screen Length: 10. ft
Casing Radius: 0.042 ft Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.4391 ft/day y0 = 6.028 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-S Test 1 KGS.aqt
Date: 05/19/17 Time: 13:43:20

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-S-Test 1
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 36.33 ft

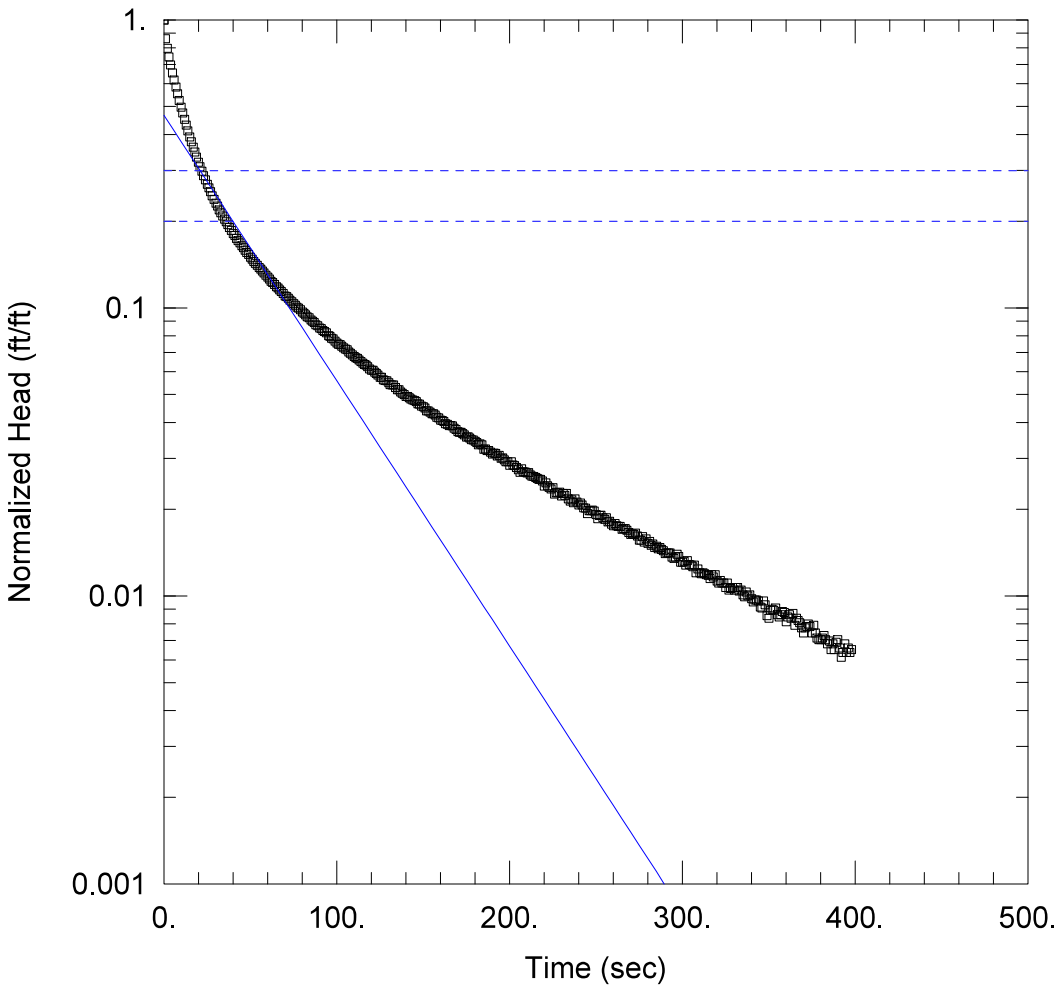
WELL DATA (PB-5-S)

Initial Displacement: 13.83 ft
Total Well Penetration Depth: 36.33 ft
Casing Radius: 0.042 ft
Static Water Column Height: 36.33 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.3448 ft/day
Kz/Kr = 0.1
Ss = 0.002753 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-S Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:44:47

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-S-Test 2
Test Date: 4/27/2017

AQUIFER DATA

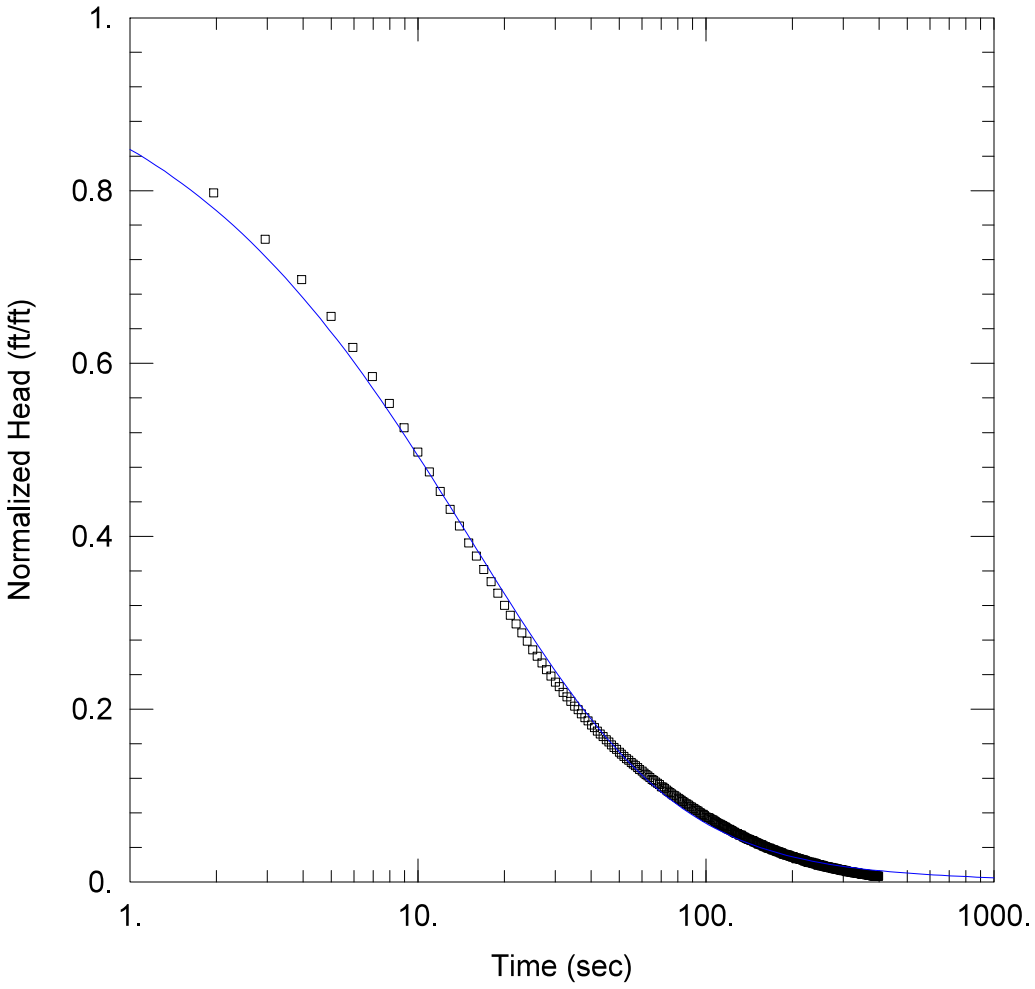
Saturated Thickness: 36.33 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-5-S)

Initial Displacement: 12.89 ft
Total Well Penetration Depth: 36.33 ft
Casing Radius: 0.042 ft
Static Water Column Height: 36.33 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.5121 ft/day
y0 = 6.013 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-5-S Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 13:47:10

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-5-S-Test 2
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 36.33 ft

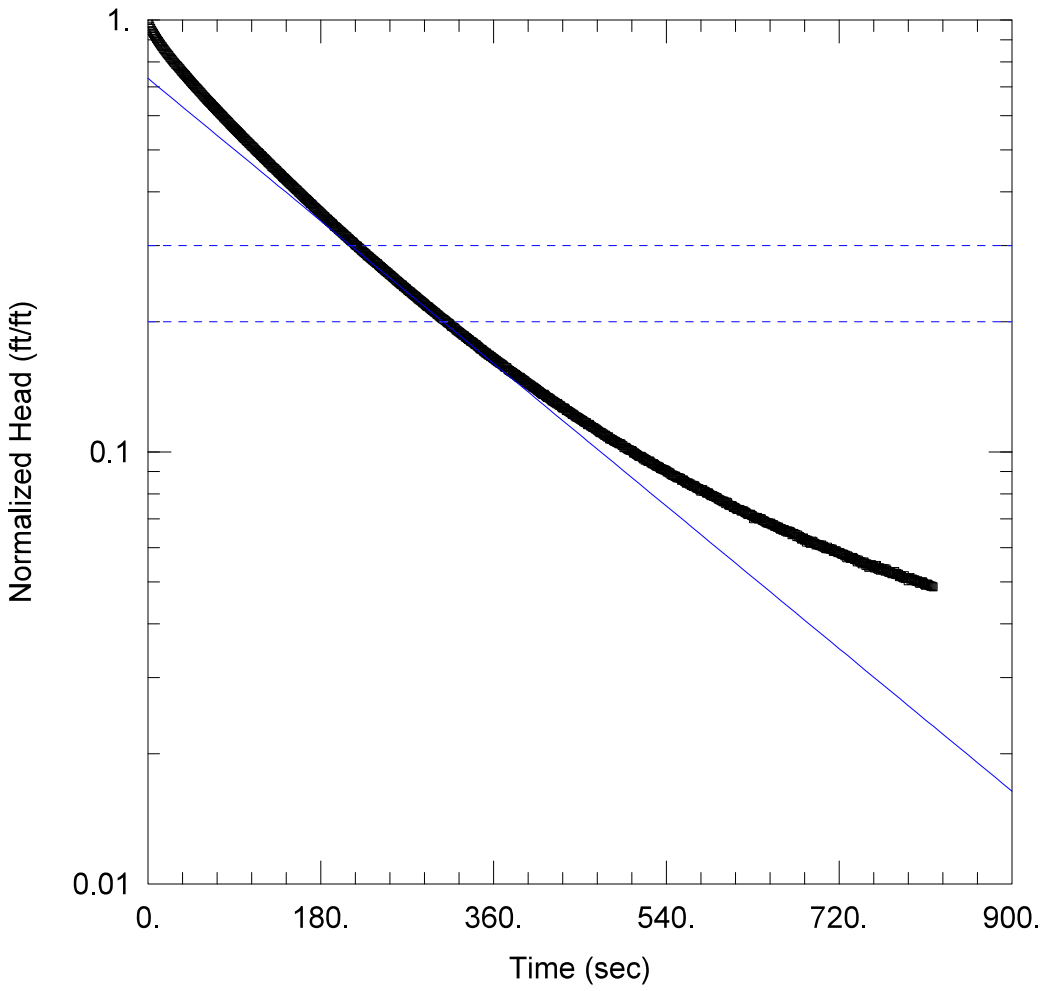
WELL DATA (PB-5-S)

Initial Displacement: 12.89 ft
Total Well Penetration Depth: 36.33 ft
Casing Radius: 0.042 ft
Static Water Column Height: 36.33 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.405 ft/day
Kz/Kr = 0.1
Ss = 0.002665 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-D Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 14:26:17

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-D-Test 1
Test Date: 4/27/2017

AQUIFER DATA

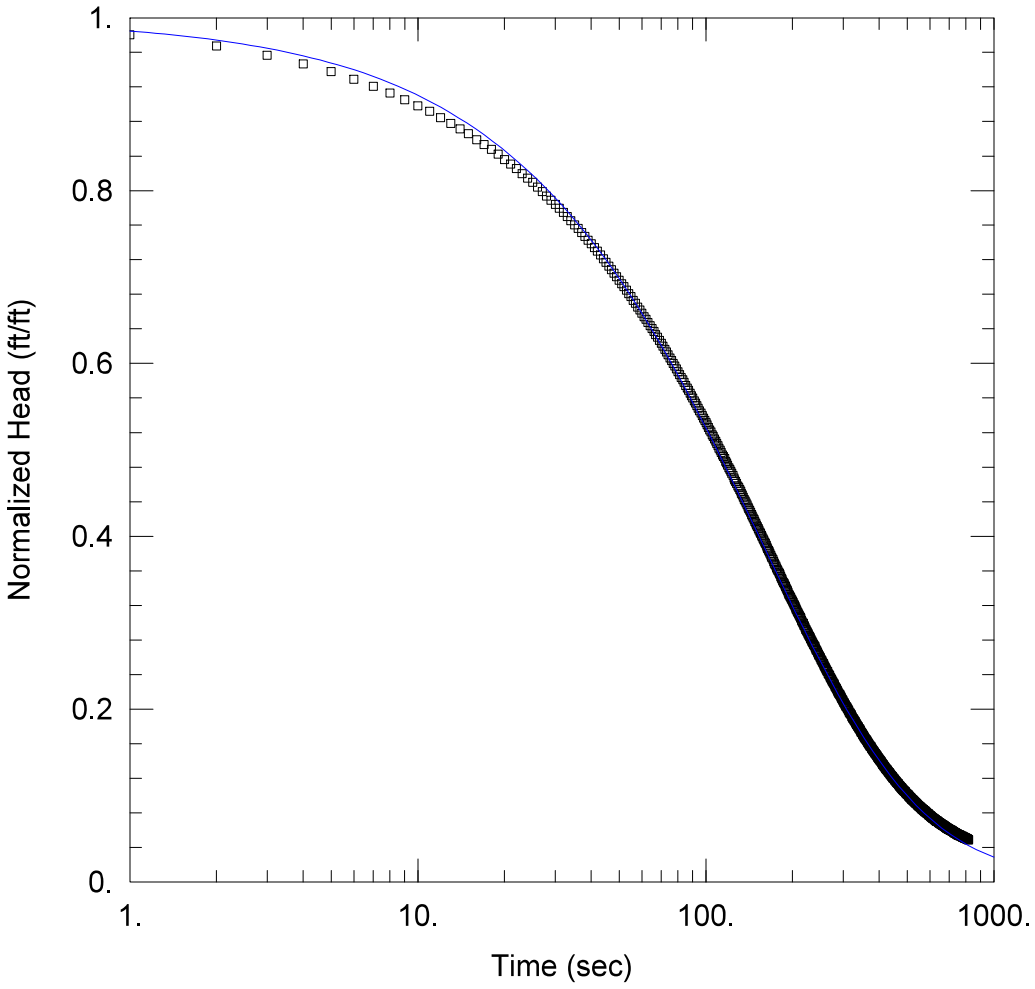
Saturated Thickness: 40. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-6-D)

Initial Displacement: 12.28 ft
Total Well Penetration Depth: 64.85 ft
Casing Radius: 0.042 ft
Static Water Column Height: 64.85 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1085 ft/day
y0 = 8.997 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-D Test 1 KGS.aqt
Date: 05/19/17 Time: 14:27:30

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-D-Test 1
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 40. ft

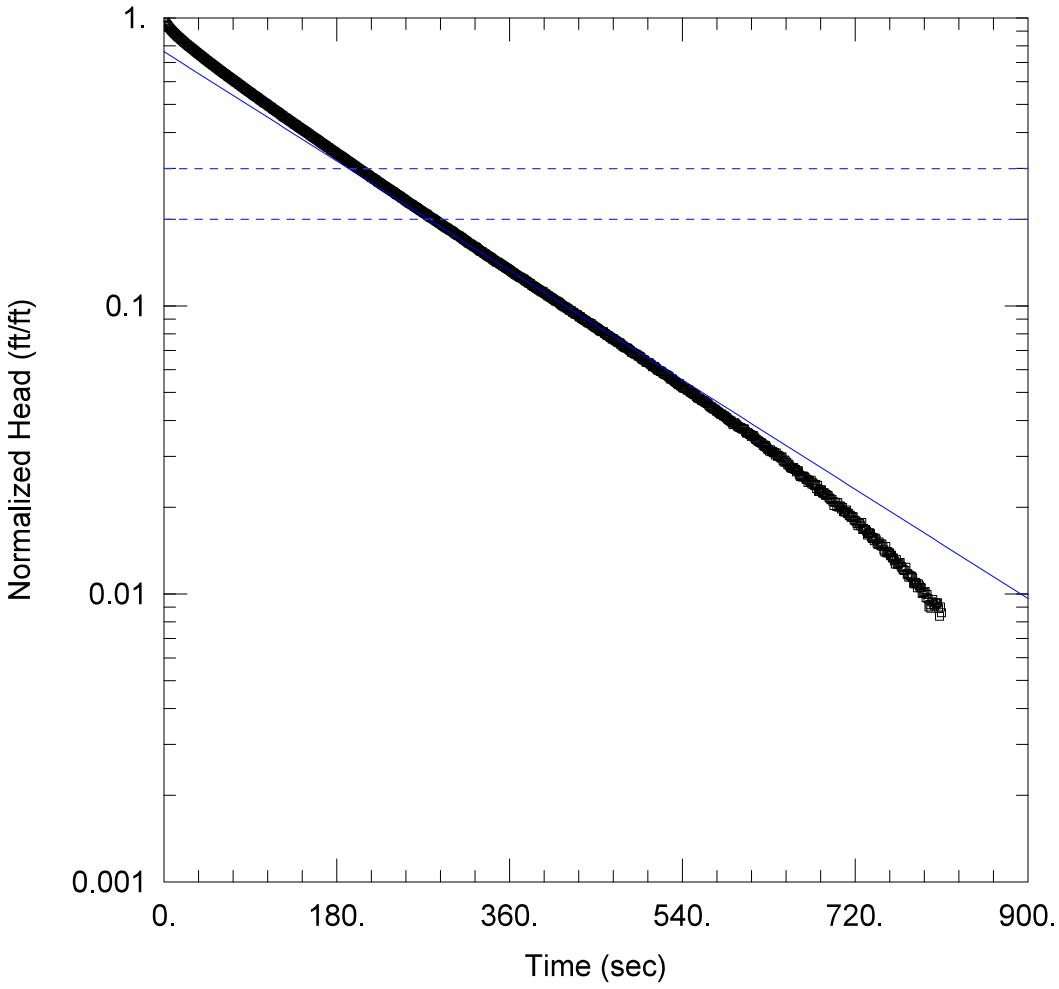
WELL DATA (PB-6-D)

Initial Displacement: 12.28 ft
Total Well Penetration Depth: 64.85 ft
Casing Radius: 0.042 ft
Static Water Column Height: 64.85 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.09545 ft/day
Kz/Kr = 0.1
Ss = 2.624E-5 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-D Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 14:37:46

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-D-Test 2
Test Date: 4/27/2017

AQUIFER DATA

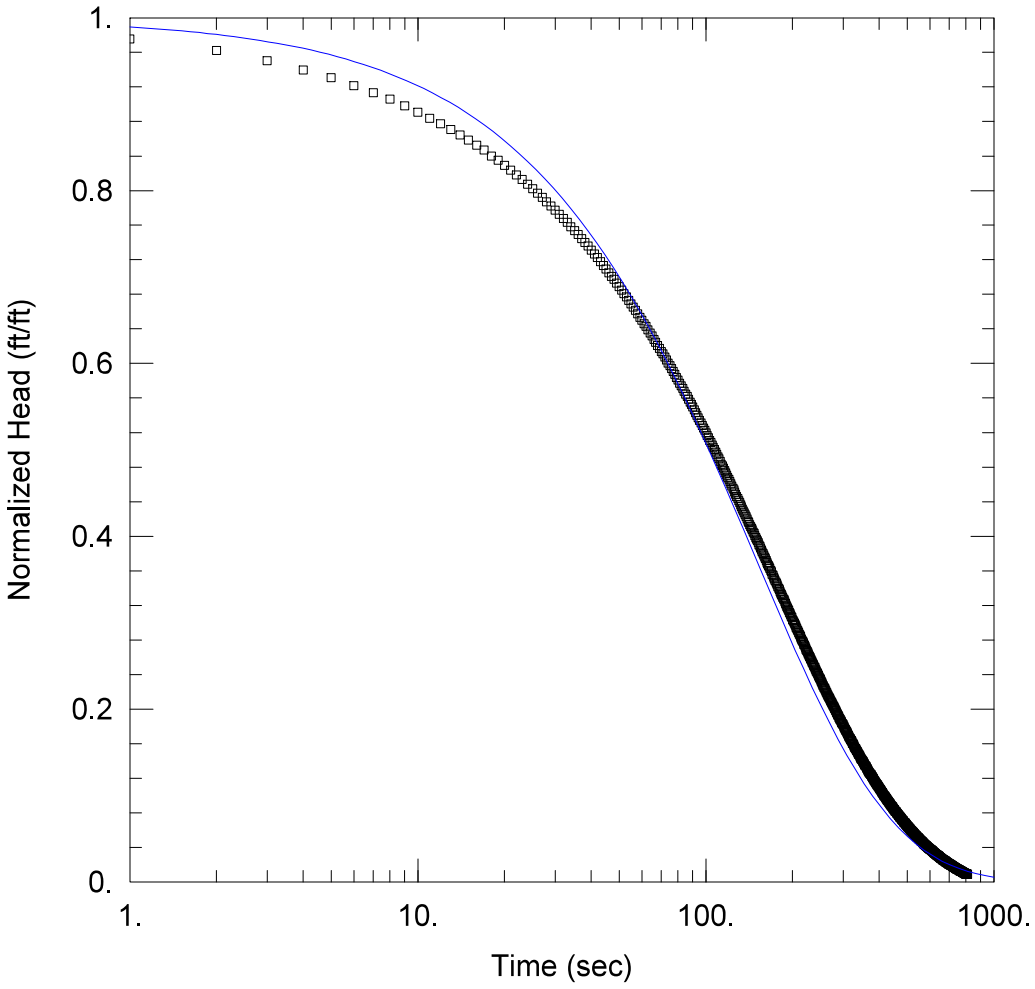
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-6-D)

Initial Displacement: 12.67 ft Static Water Column Height: 64.85 ft
Total Well Penetration Depth: 64.85 ft Screen Length: 10. ft
Casing Radius: 0.042 ft Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.1249 ft/day y0 = 9.665 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-D Test 2 KGS.aqt
Date: 05/19/17 Time: 14:38:35

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-D-Test 2
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 40. ft

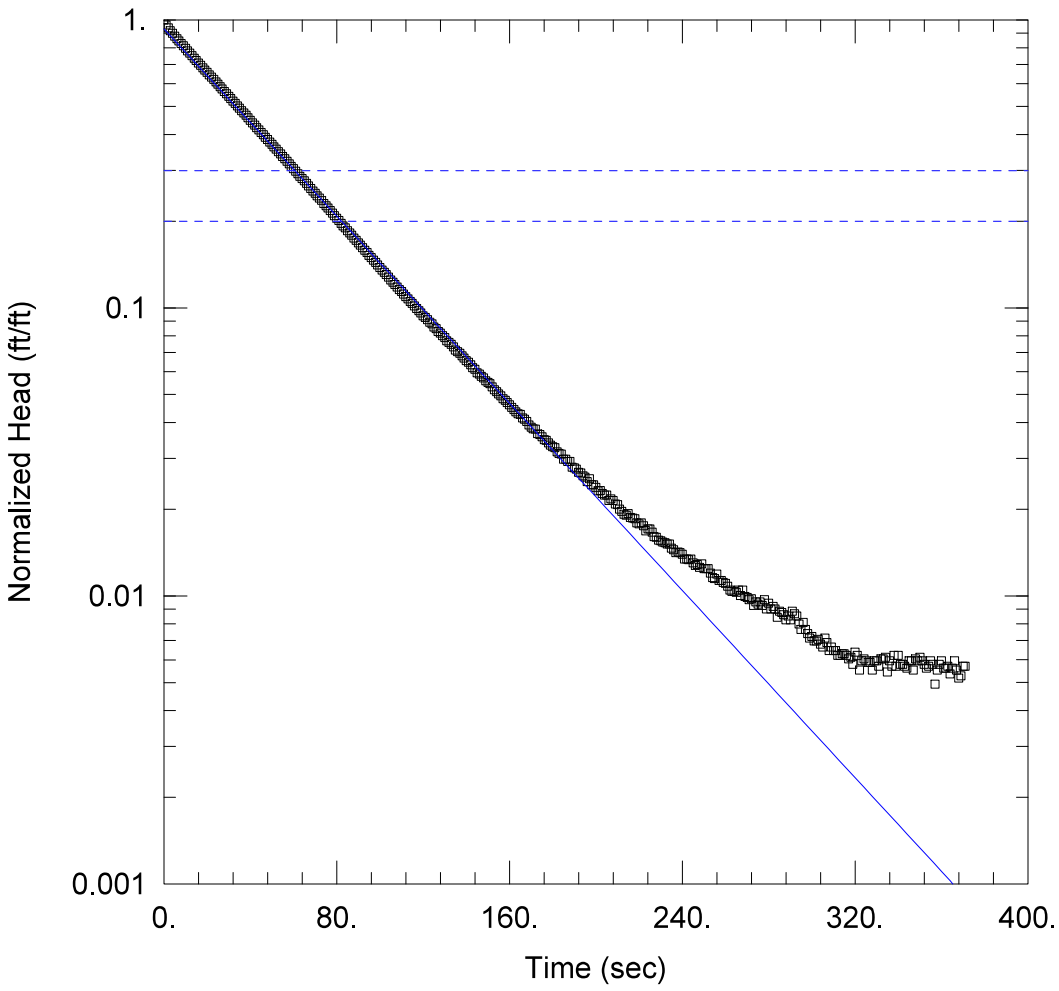
WELL DATA (PB-6-D)

Initial Displacement: 12.67 ft
Total Well Penetration Depth: 64.85 ft
Casing Radius: 0.042 ft
Static Water Column Height: 64.85 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.1435 ft/day
Kz/Kr = 0.1
Ss = 5.15E-7 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-S Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 14:46:07

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-S-Test 1
Test Date: 4/27/2017

AQUIFER DATA

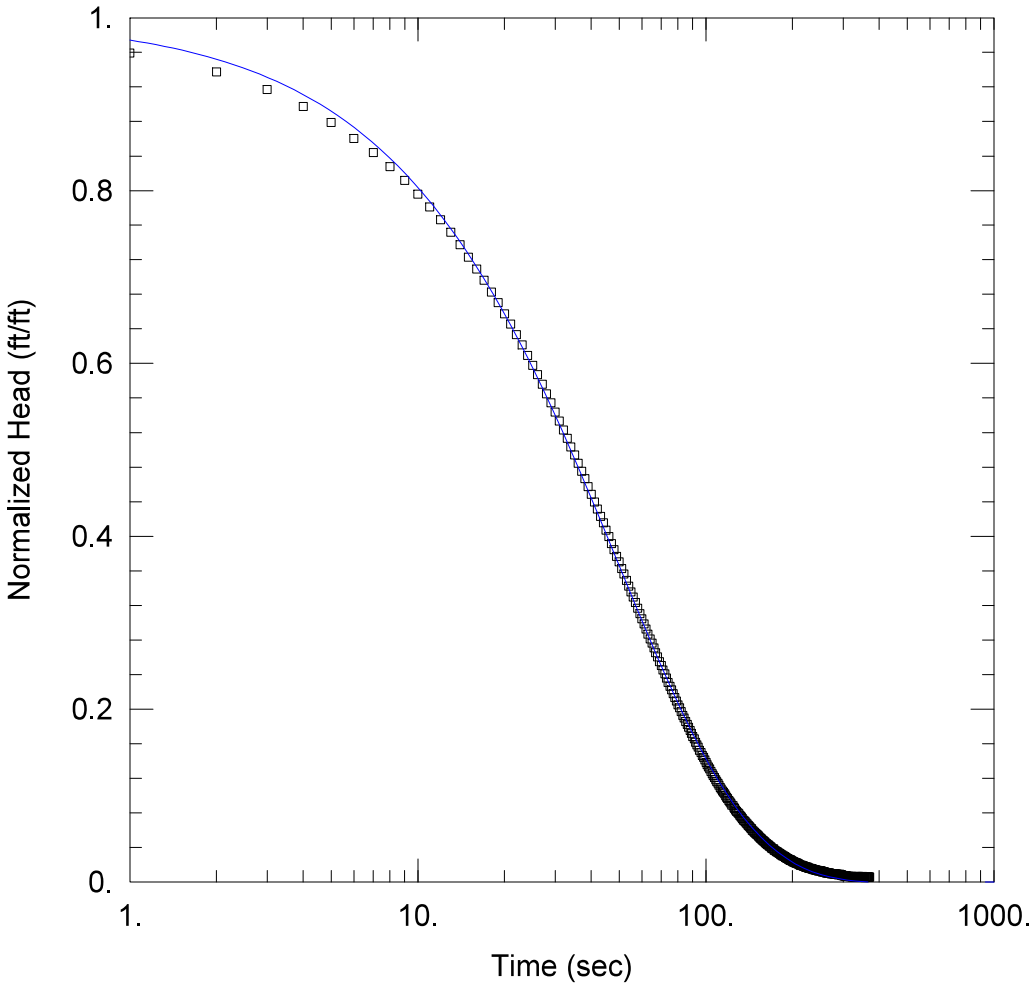
Saturated Thickness: 24.25 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-6-S)

Initial Displacement: 11.76 ft
Total Well Penetration Depth: 24.25 ft
Casing Radius: 0.042 ft
Static Water Column Height: 24.25 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.4307 ft/day
y0 = 10.94 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-S Test 1 KGS.aqt
Date: 05/19/17 Time: 14:48:29

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-S-Test 1
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 24.25 ft

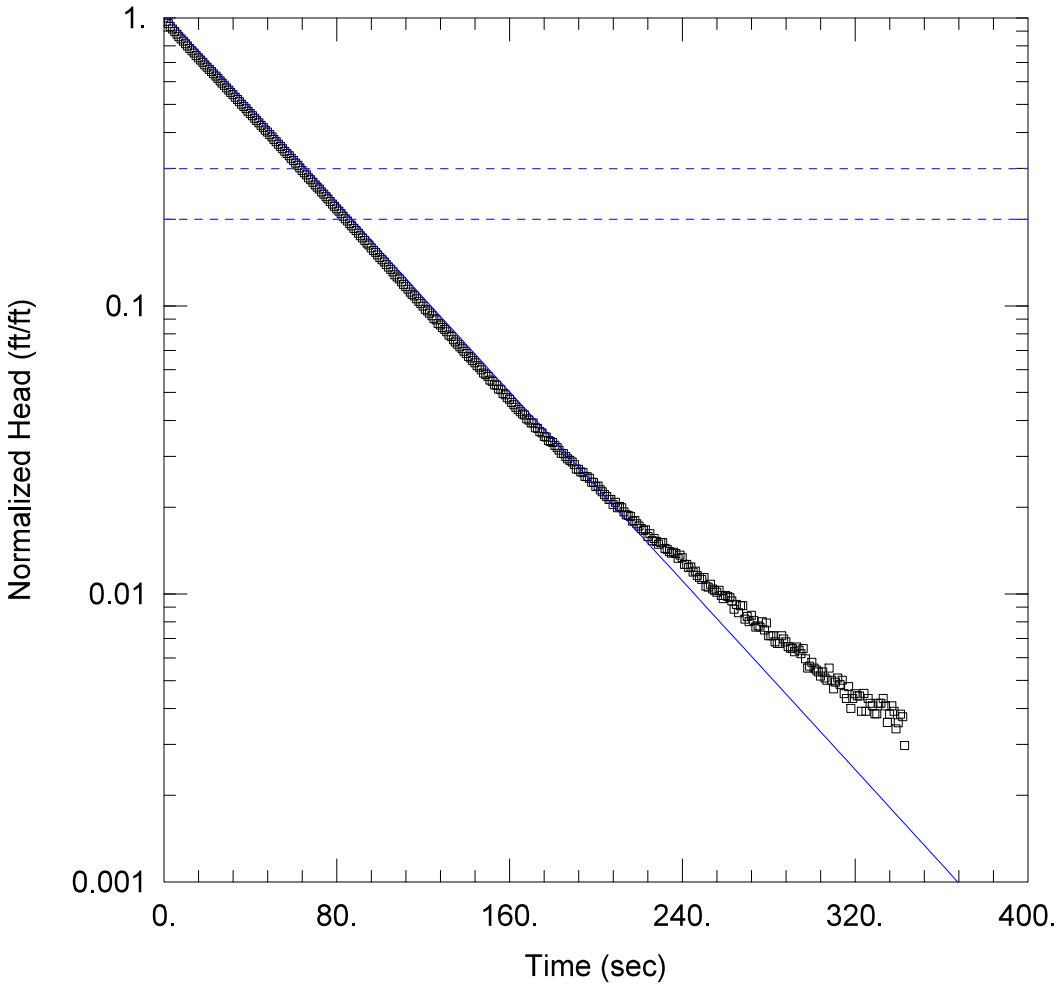
WELL DATA (PB-6-S)

Initial Displacement: 11.76 ft
Total Well Penetration Depth: 24.25 ft
Casing Radius: 0.042 ft
Static Water Column Height: 24.25 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.4966 ft/day
Kz/Kr = 0.1
Ss = 8.162E-8 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-S Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 15:00:03

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-S-Test 2
Test Date: 4/27/2017

AQUIFER DATA

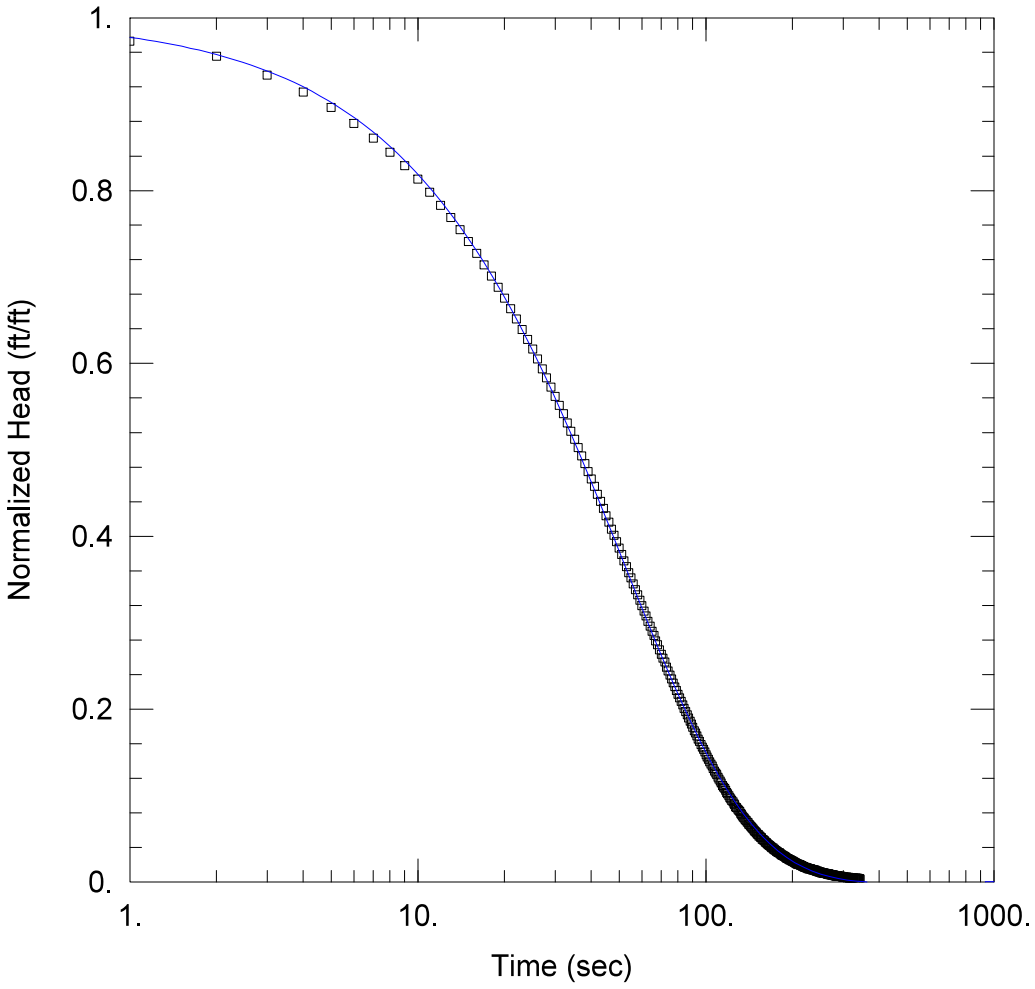
Saturated Thickness: 24.25 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-6-S)

Initial Displacement: 11.75 ft
Total Well Penetration Depth: 24.25 ft
Casing Radius: 0.042 ft
Static Water Column Height: 24.25 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.4345 ft/day
y0 = 12.11 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-6-S Test 2 KGS.aqt
Date: 05/19/17 Time: 15:00:51

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-6-S-Test 2
Test Date: 4/27/2017

AQUIFER DATA

Saturated Thickness: 24.25 ft

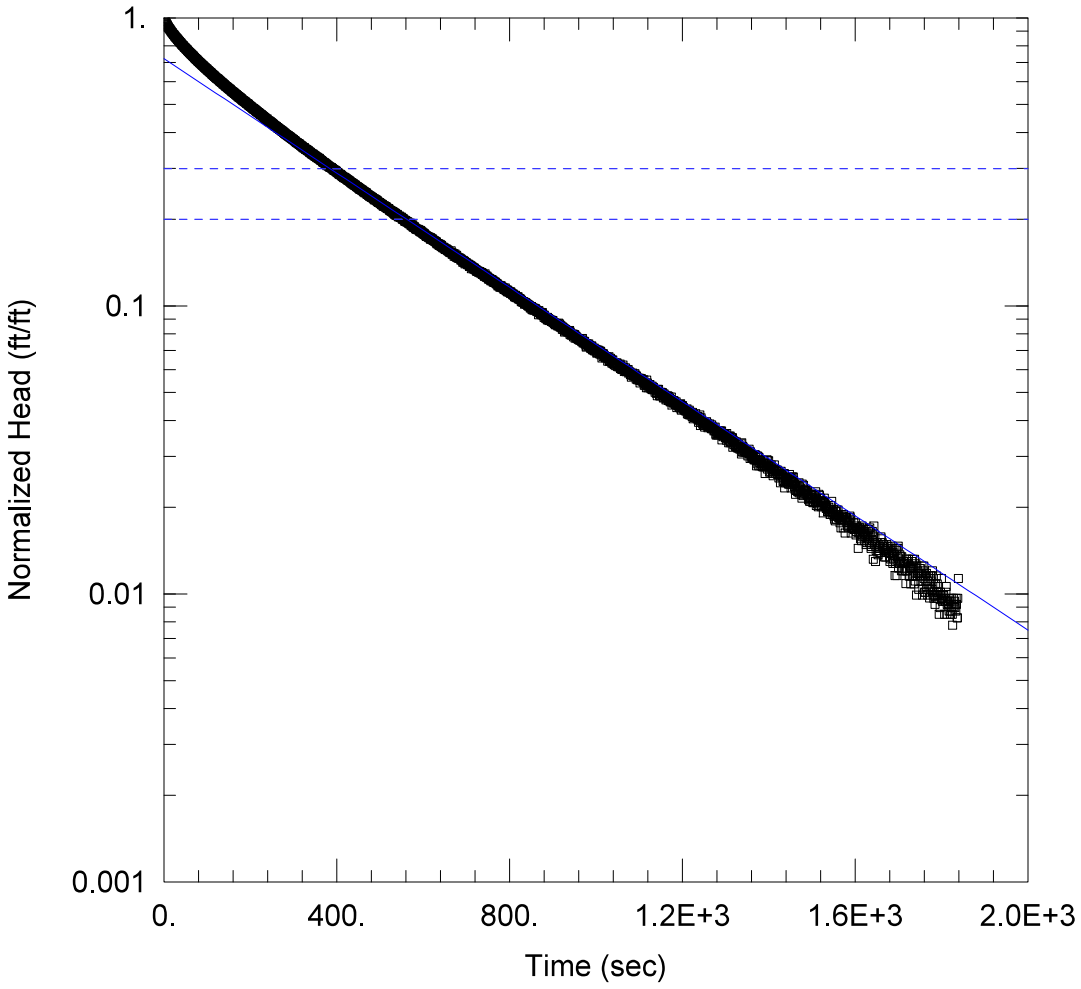
WELL DATA (PB-6-S)

Initial Displacement: 11.75 ft
Total Well Penetration Depth: 24.25 ft
Casing Radius: 0.042 ft
Static Water Column Height: 24.25 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.4797 ft/day
Kz/Kr = 0.1
Ss = 2.268E-8 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-7 Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 15:03:25

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-7-Test 1
Test Date: 4/26/2017

AQUIFER DATA

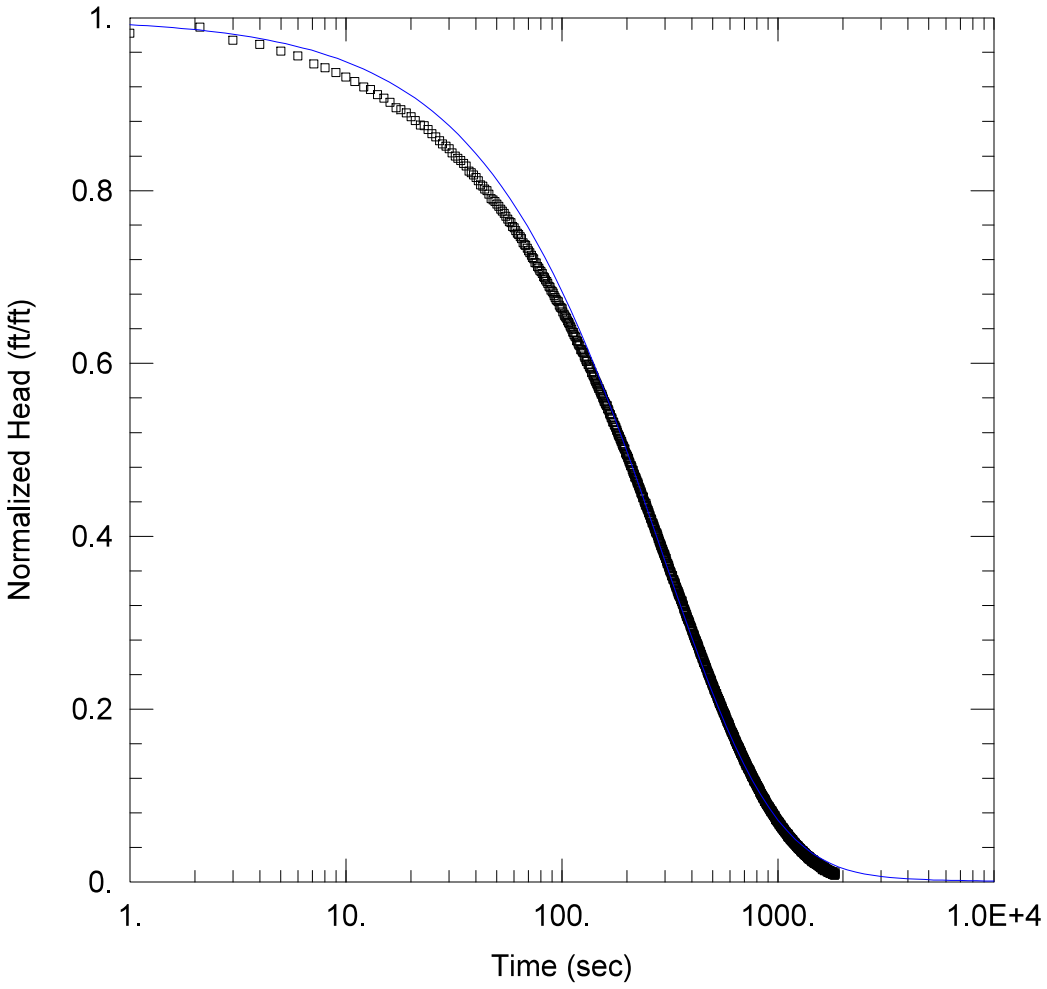
Saturated Thickness: 61.65 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-7)

Initial Displacement: 4.24 ft
Static Water Column Height: 61.65 ft
Total Well Penetration Depth: 61.65 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3541 ft/day
y0 = 3.056 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-7 Test 1 KGS.aqt
Date: 05/19/17 Time: 15:04:24

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-7-Test 1
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 61.65 ft

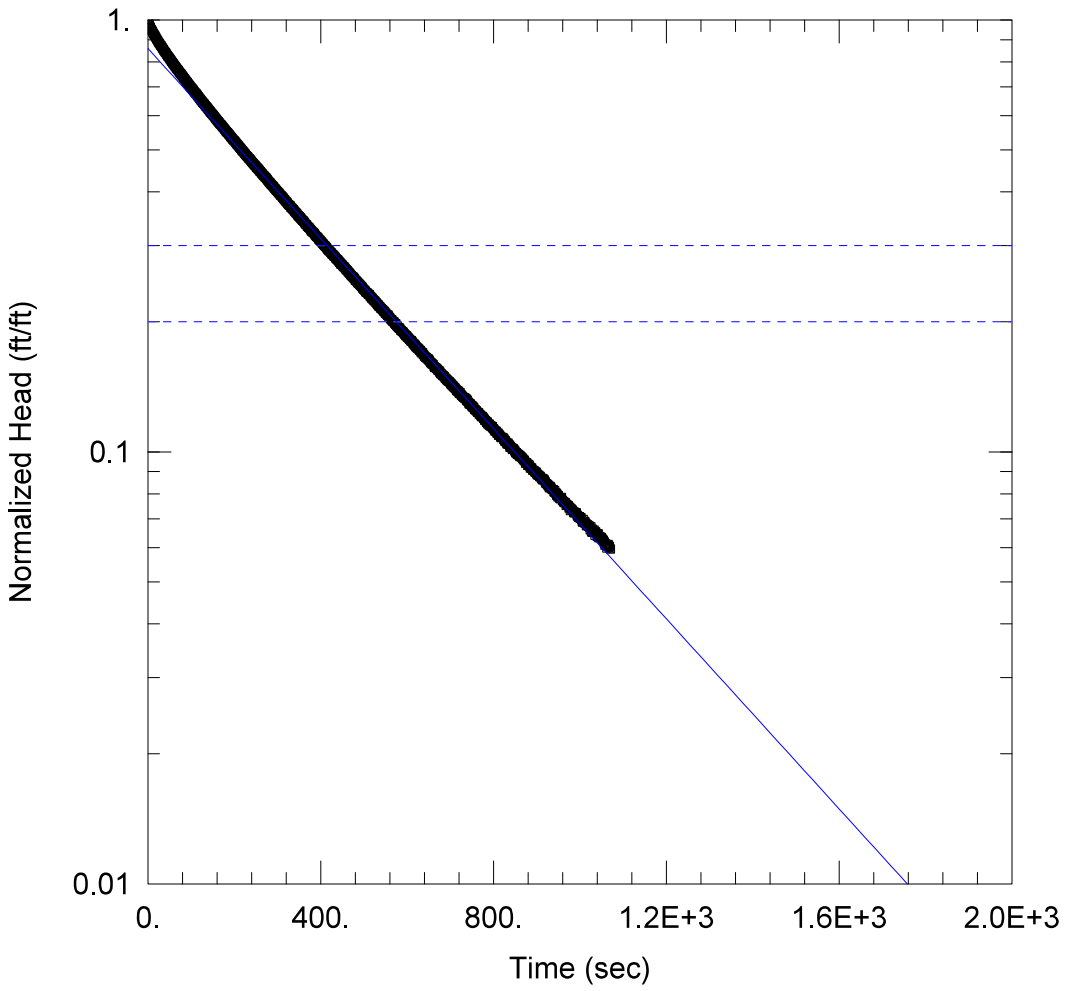
WELL DATA (PB-7)

Initial Displacement: 4.24 ft
Total Well Penetration Depth: 61.65 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.65 ft
Screen Length: 10. ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.4293 ft/day
Kz/Kr = 0.1
Ss = 1.076E-5 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-7 Test 2 Bouwer-Rice.aqt
Date: 05/19/17 Time: 15:05:34

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-7-Test 2
Test Date: 4/26/2017

AQUIFER DATA

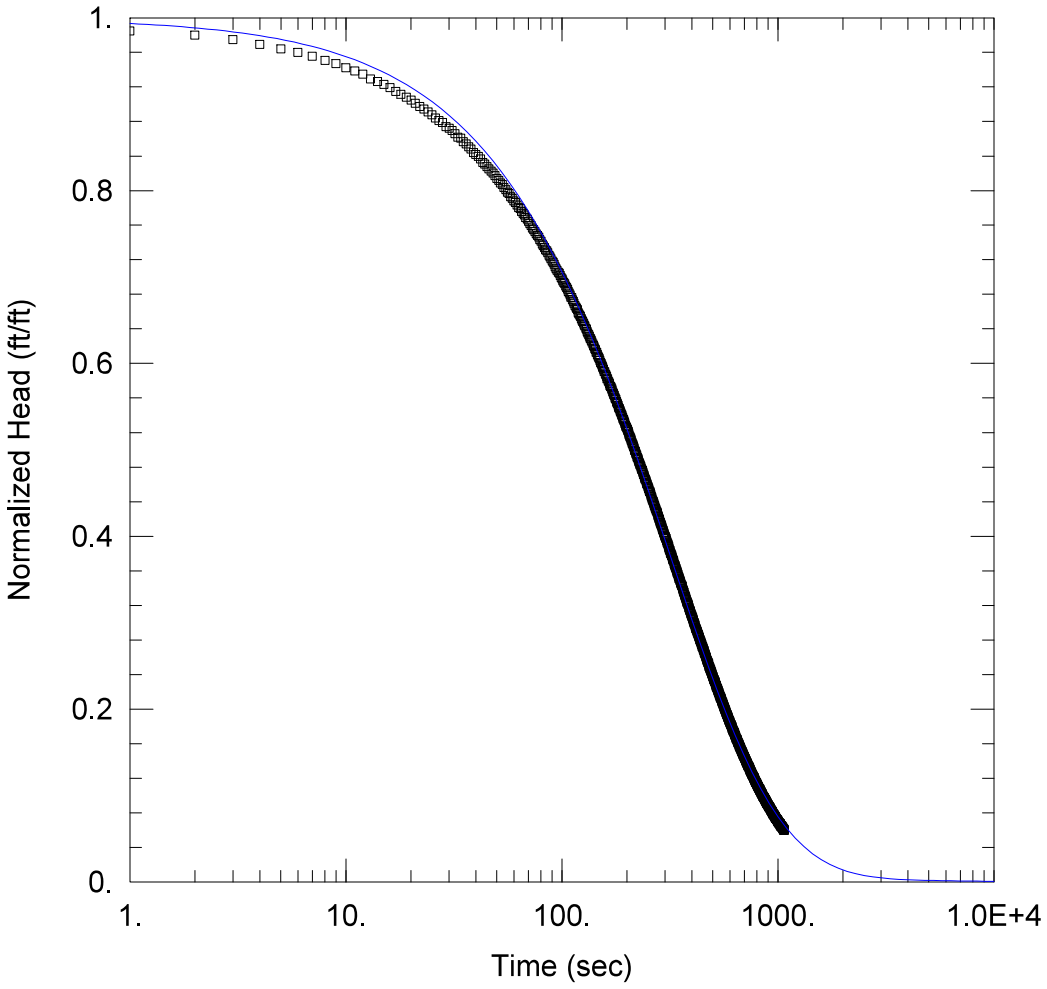
Saturated Thickness: 61.65 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-7)

Initial Displacement: 7.04 ft Static Water Column Height: 61.65 ft
Total Well Penetration Depth: 61.65 ft Screen Length: 10. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.3928 ft/day y0 = 6.042 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-7 Test 2 KGS.aqt
Date: 05/19/17 Time: 15:06:35

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-7-Test 2
Test Date: 4/26/2017

AQUIFER DATA

Saturated Thickness: 61.65 ft

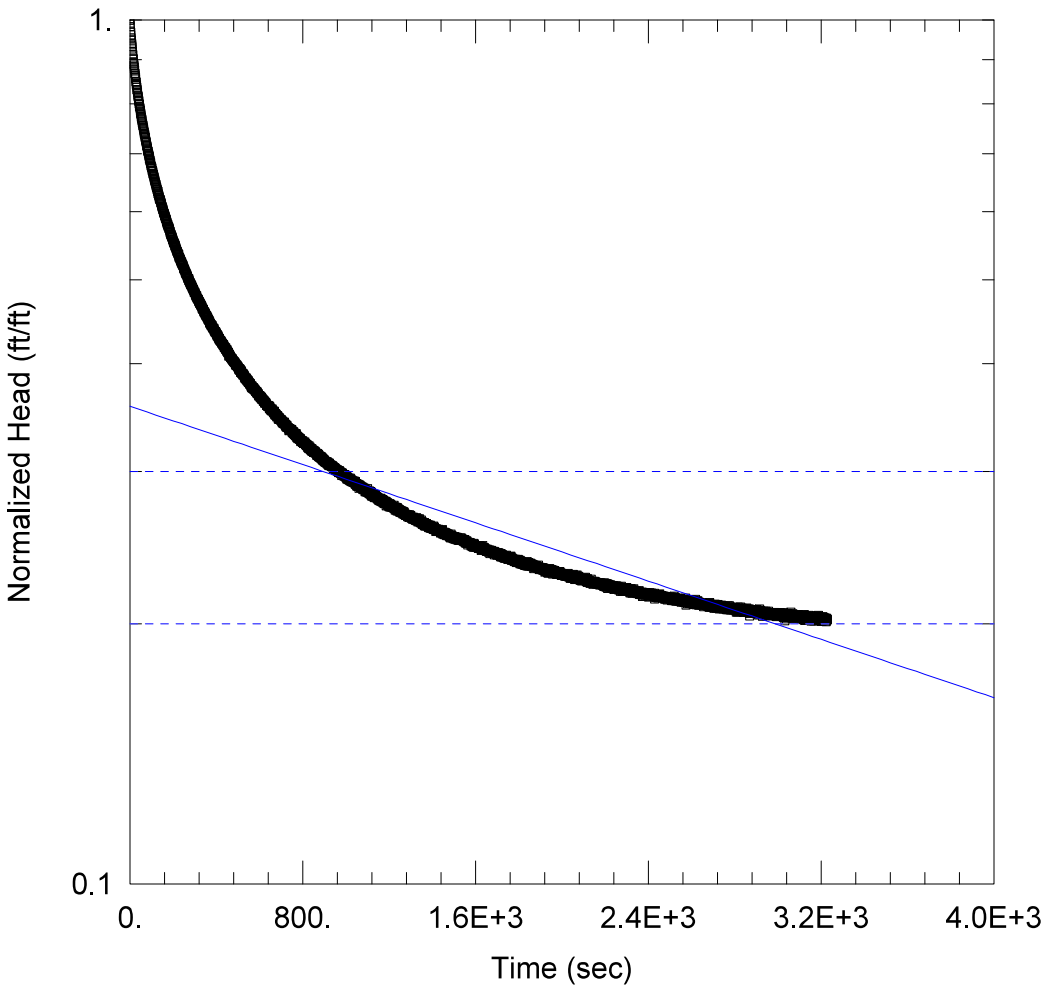
WELL DATA (PB-7)

Initial Displacement: 7.04 ft
Total Well Penetration Depth: 61.65 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.65 ft
Screen Length: 10. ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.4257 ft/day
Kz/Kr = 0.1
Ss = 4.555E-6 ft^{-1}



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-8-D Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 15:10:05

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-8-DTest 1
Test Date: 4/28/2017

AQUIFER DATA

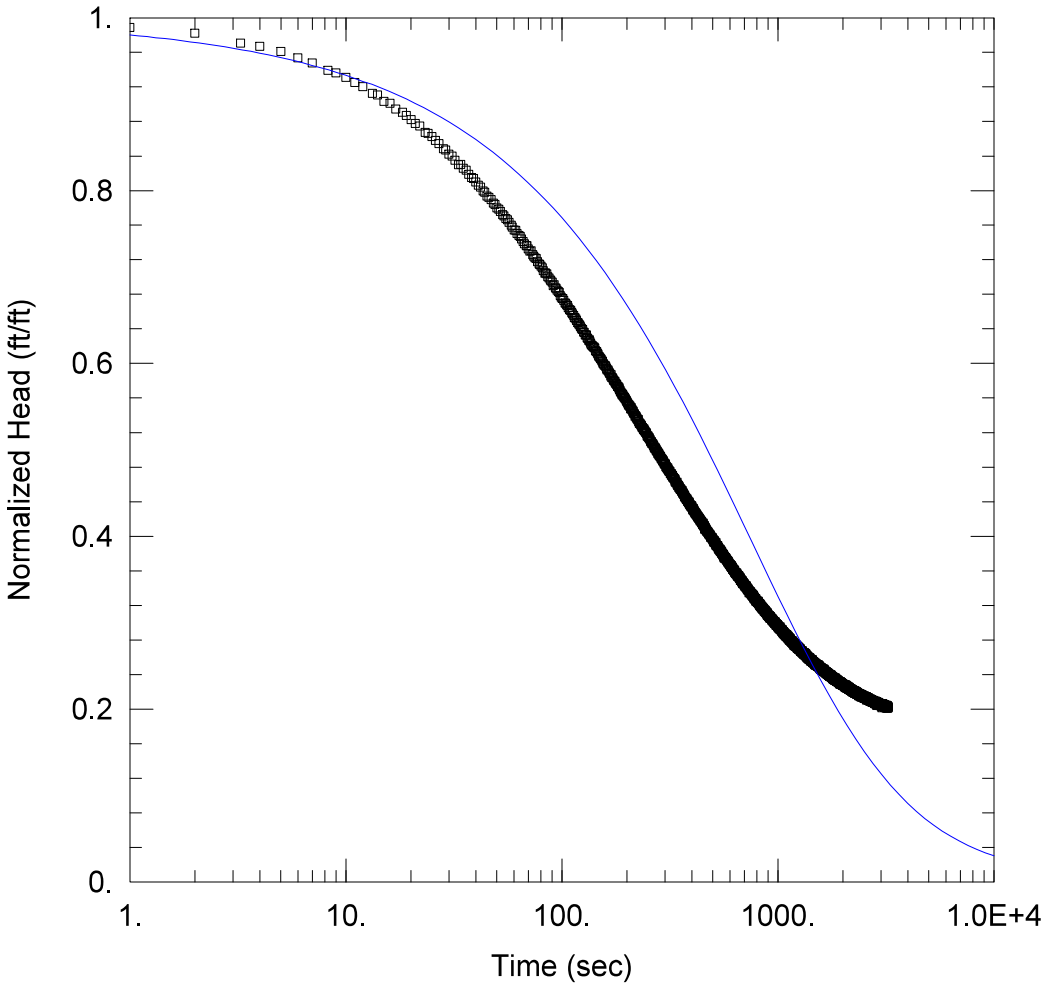
Saturated Thickness: 30. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-8-D)

Initial Displacement: 4.26 ft Static Water Column Height: 78.51 ft
Total Well Penetration Depth: 78.51 ft Screen Length: 10. ft
Casing Radius: 0.042 ft Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.00509 ft/day y0 = 1.521 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-8-D Test 1 KGS.aqt
Date: 05/19/17 Time: 15:17:50

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-8-DTest 1
Test Date: 4/28/2017

AQUIFER DATA

Saturated Thickness: 30. ft

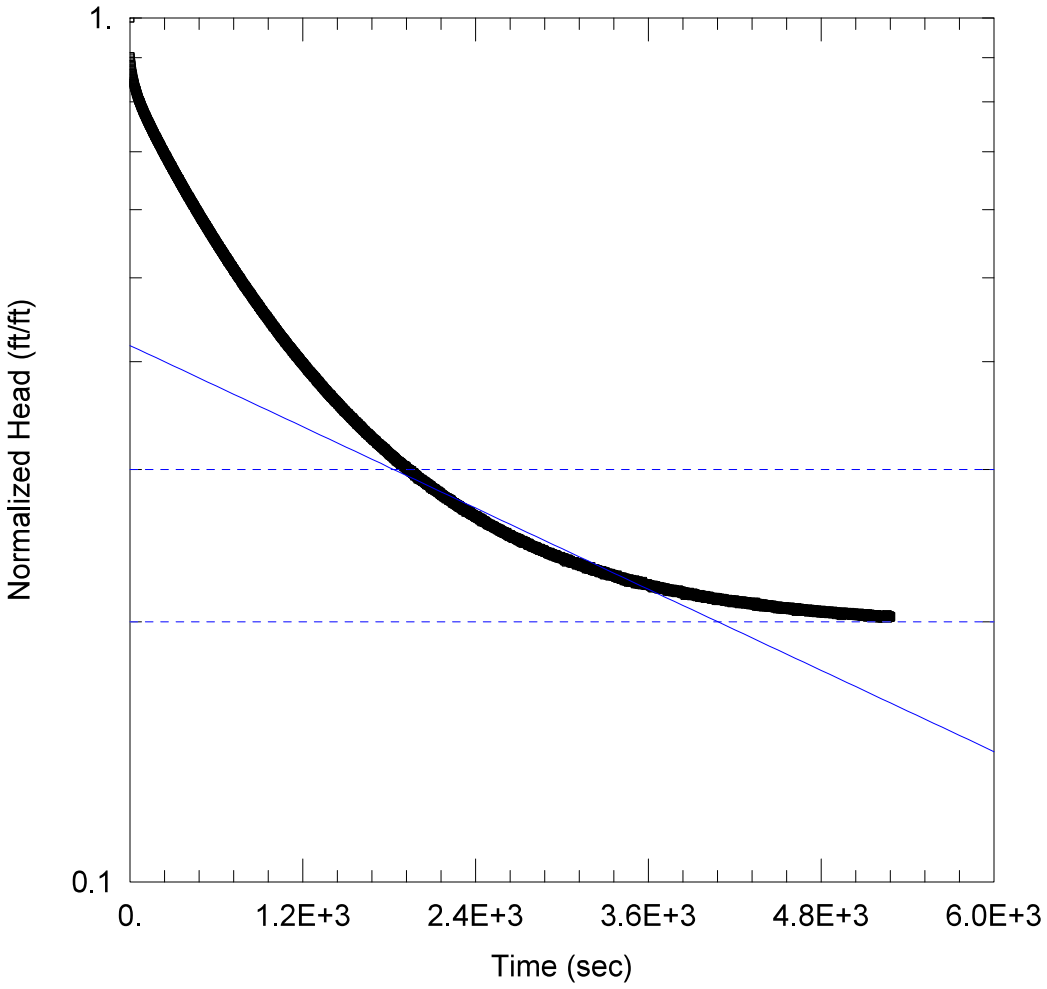
WELL DATA (PB-8-D)

Initial Displacement: 4.26 ft
Total Well Penetration Depth: 78.51 ft
Casing Radius: 0.042 ft
Static Water Column Height: 78.51 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.007665 ft/day
Ss = 0.003333 ft^{-1}
Kz/Kr = 0.1



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-8-I Test 1 Bouwer-Rice.aqt
Date: 05/19/17 Time: 15:22:54

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-8-ITest 1
Test Date: 4/28/2017

AQUIFER DATA

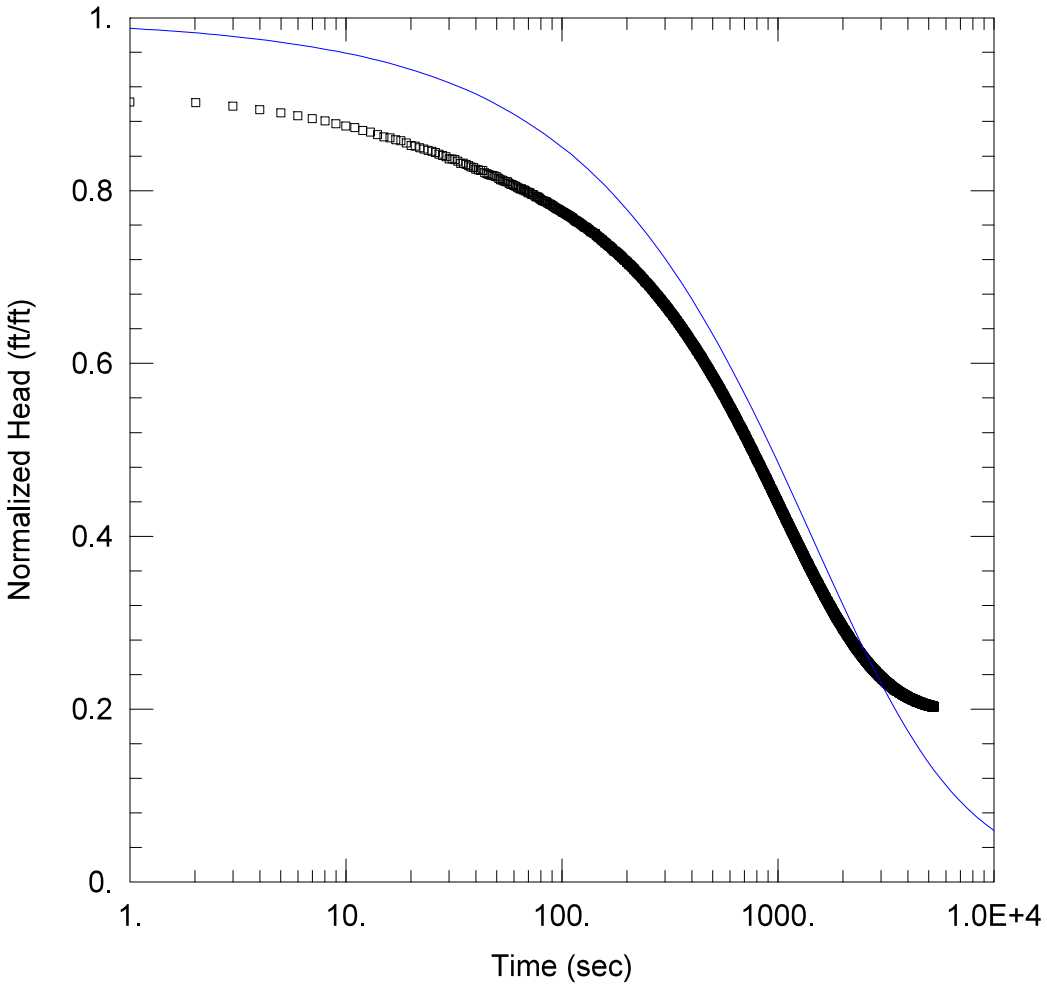
Saturated Thickness: 51.43 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PB-8-I)

Initial Displacement: 7.43 ft Static Water Column Height: 34.43 ft
Total Well Penetration Depth: 34.43 ft Screen Length: 10. ft
Casing Radius: 0.042 ft Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.003913 ft/day y0 = 3.103 ft



PLANT WANSLEY APRIL 2017 SLUG TESTING

Data Set: N:\...\PB-8-I Test 1 KGS.aqt
Date: 05/19/17 Time: 15:32:48

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: SCS/GPC
Project: GW6241
Location: Plant Wansley, Carrollton, GA
Test Well: PB-8-ITest 1
Test Date: 4/28/2017

AQUIFER DATA

Saturated Thickness: 51.43 ft

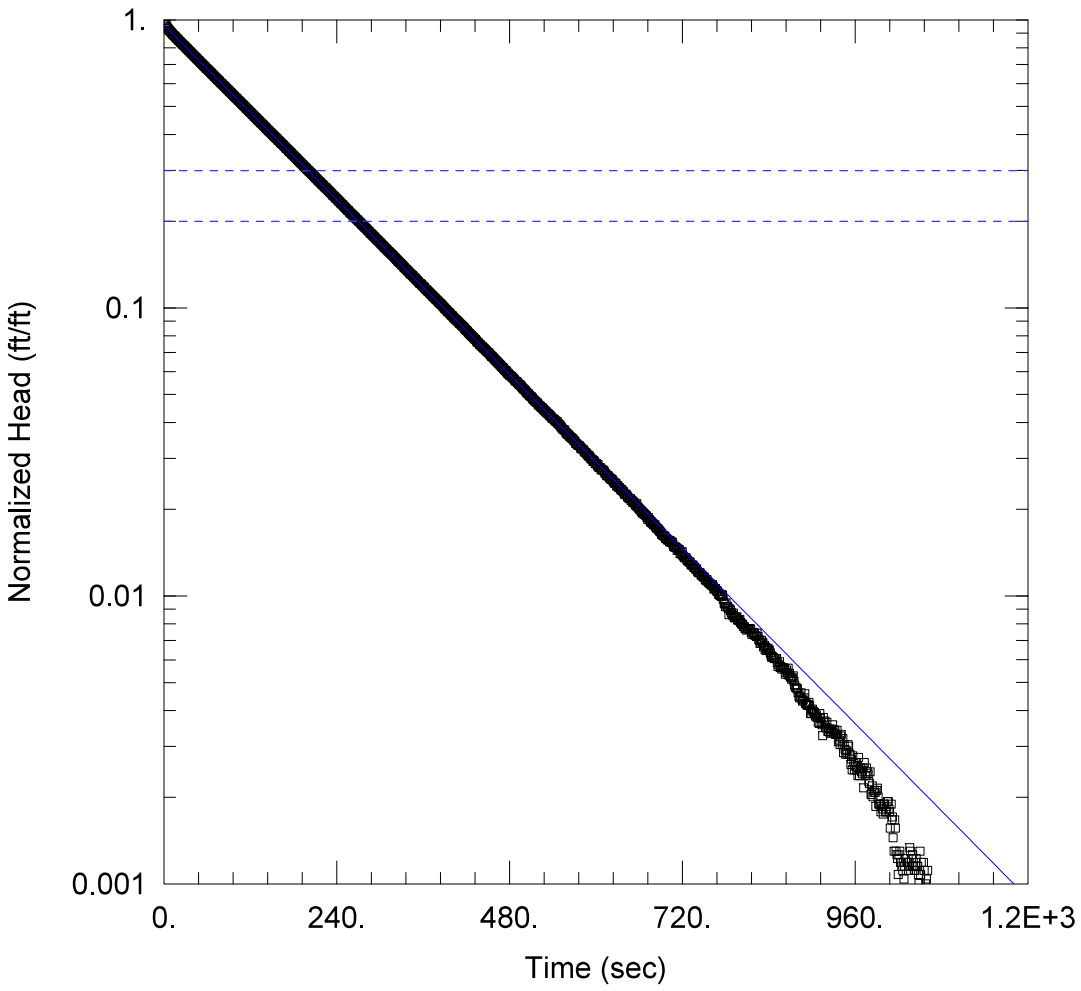
WELL DATA (PB-8-I)

Initial Displacement: 7.43 ft
Total Well Penetration Depth: 34.43 ft
Casing Radius: 0.042 ft
Static Water Column Height: 34.43 ft
Screen Length: 10. ft
Well Radius: 0.042 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.004636 ft/day
Kz/Kr = 0.1
Ss = 0.001944 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA1S -test 1 - BR.aqt
Date: 06/21/16 Time: 17:33:09

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1S
Test Date: 4/27/2016

AQUIFER DATA

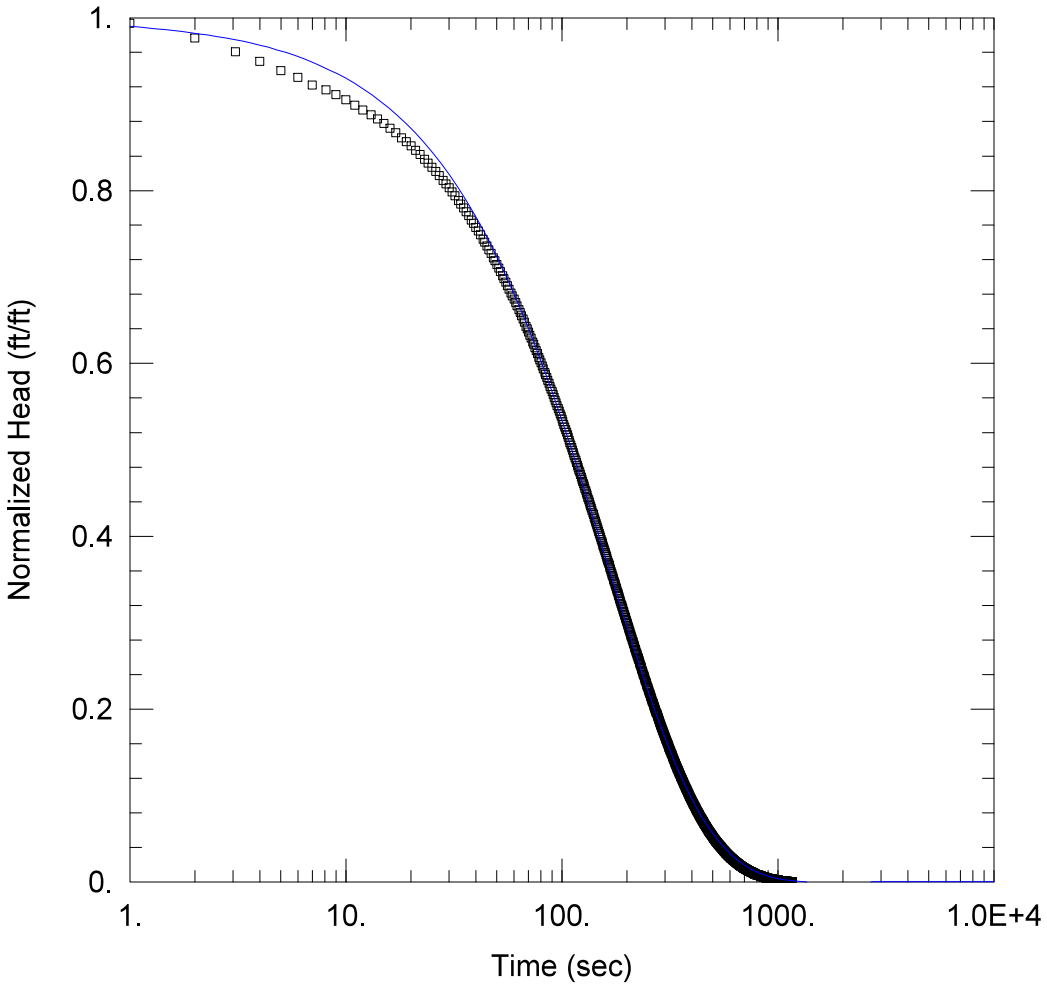
Saturated Thickness: 85.22 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-1S)

Initial Displacement: 26.94 ft Static Water Column Height: 30.22 ft
Total Well Penetration Depth: 30.22 ft Screen Length: 5. ft
Casing Radius: 0.0833 ft Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 1.362 ft/day y0 = 25.85 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA1S -test 1 - KGS.aqt
Date: 06/21/16 Time: 17:41:55

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1S
Test Date: 4/27/2016

AQUIFER DATA

Saturated Thickness: 85.22 ft

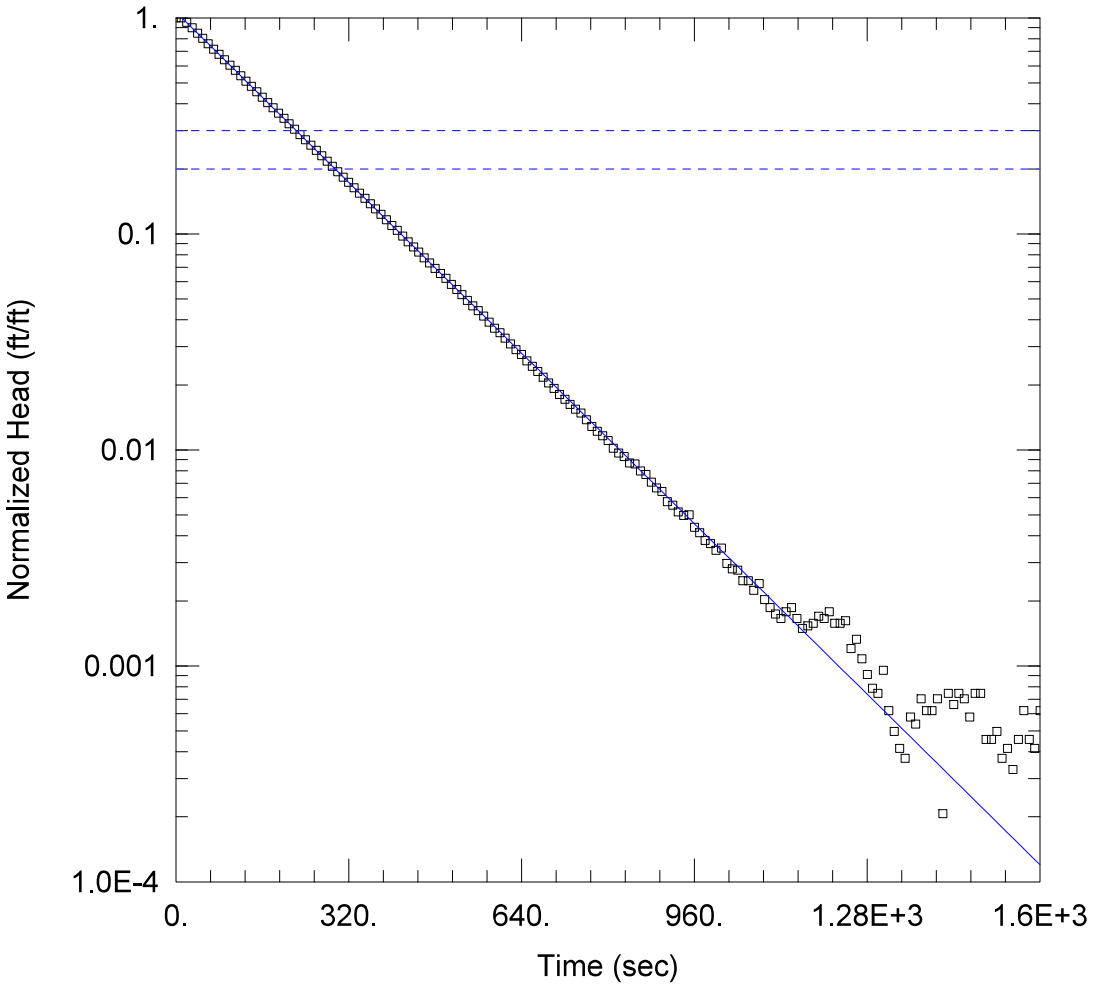
WELL DATA (PZA-1S)

Initial Displacement: 26.94 ft
Total Well Penetration Depth: 30.22 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 30.22 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.178 ft/day
Kz/Kr = 1.
Ss = 1.328E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA1S -test 2 - BR.aqt
Date: 06/21/16 Time: 17:45:21

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1S
Test Date: 4/28/2016

AQUIFER DATA

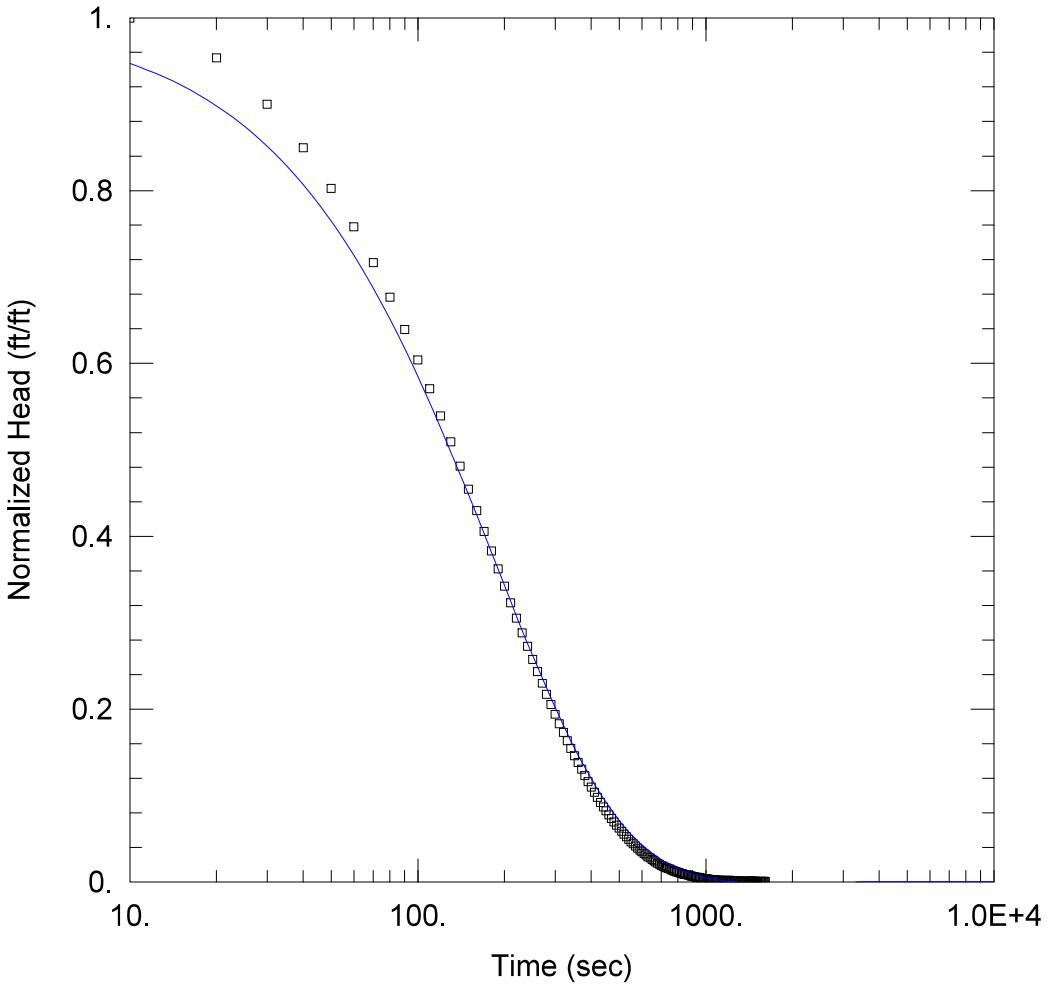
Saturated Thickness: 85.14 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-1S)

Initial Displacement: 24.15 ft
Total Well Penetration Depth: 30.14 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 30.14 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.33 ft/day
y0 = 25.73 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA1S -test 2 - KGS.aqt
Date: 06/21/16 Time: 17:48:27

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1S
Test Date: 4/28/2016

AQUIFER DATA

Saturated Thickness: 85.14 ft

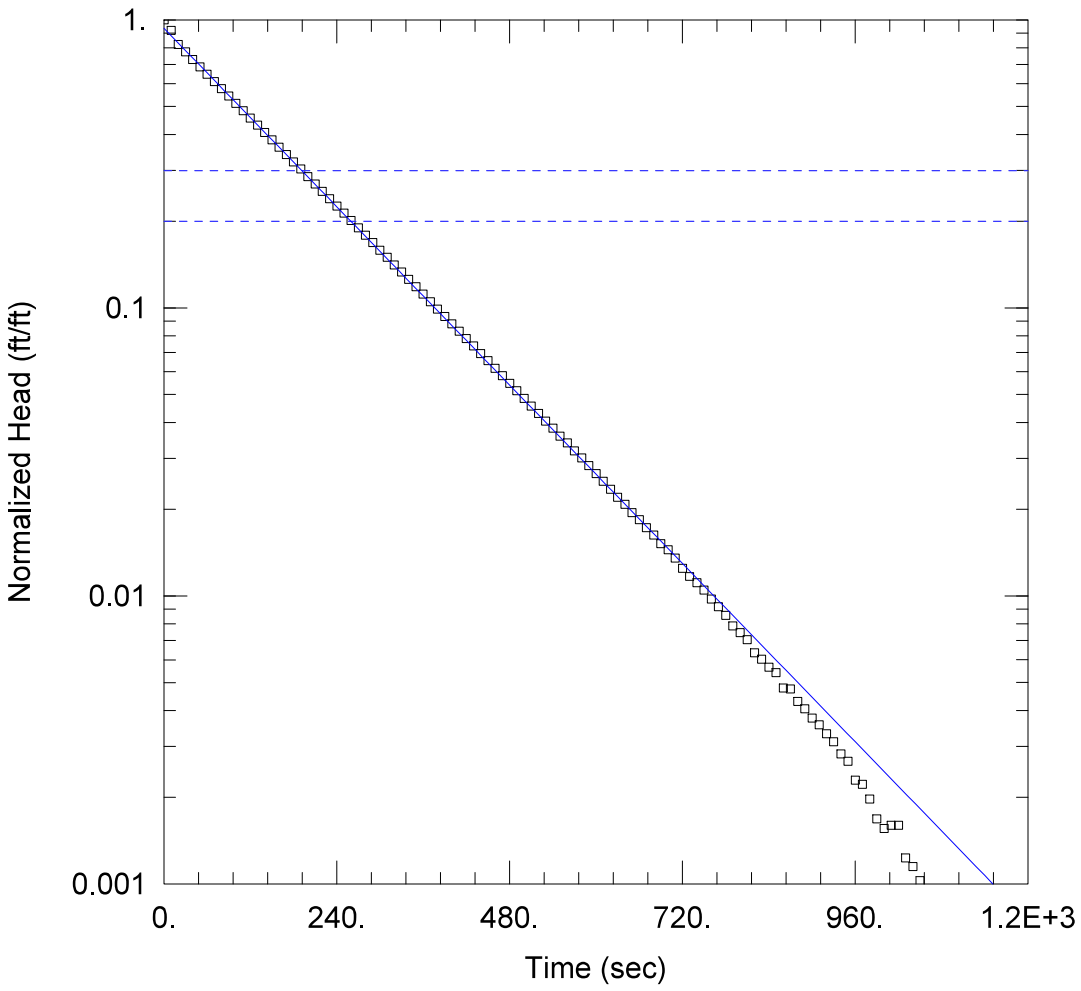
WELL DATA (PZA-1S)

Initial Displacement: 24.15 ft
Total Well Penetration Depth: 30.14 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 30.14 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.285 ft/day
Kz/Kr = 0.1788
Ss = 1.186E-12 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA1S -test 3 - BR.aqt
Date: 06/21/16 Time: 17:49:37

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1S
Test Date: 4/29/2016

AQUIFER DATA

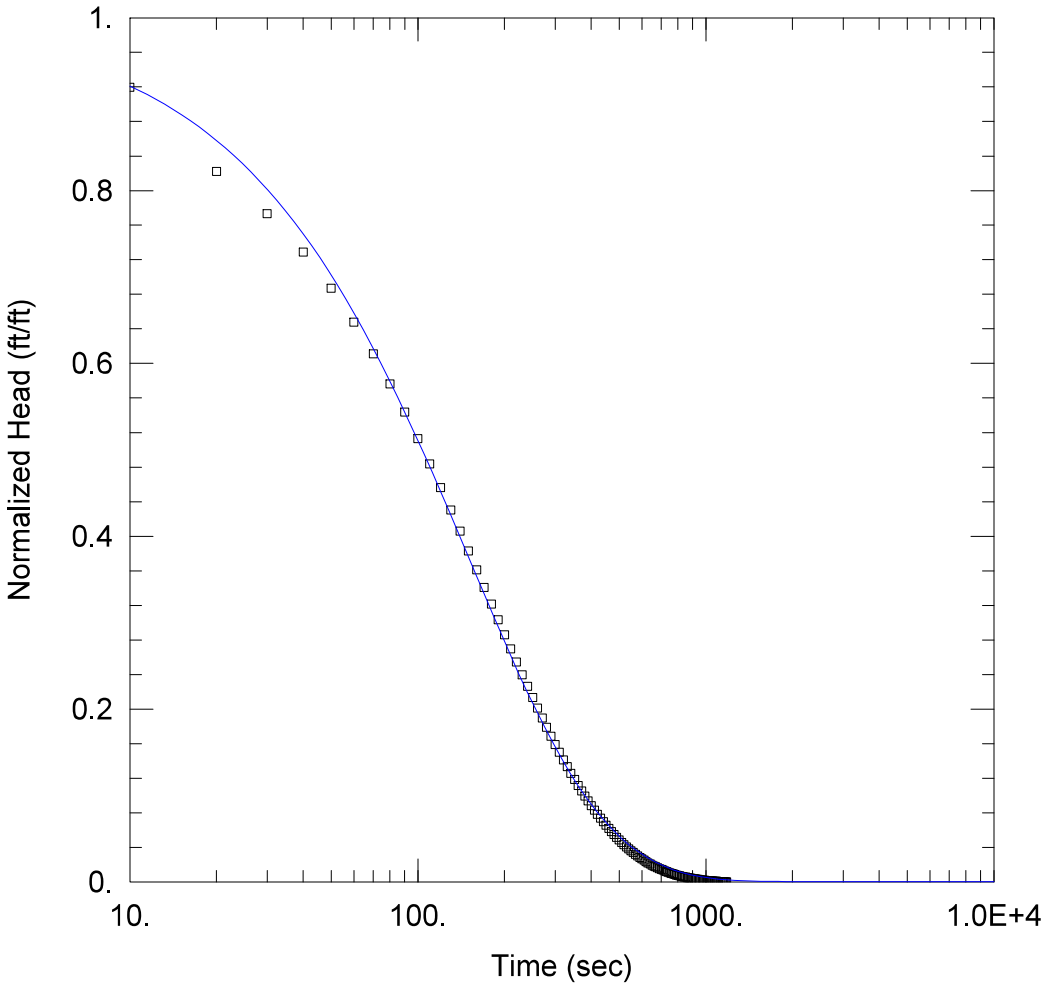
Saturated Thickness: 84.86 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-1S)

Initial Displacement: 24.39 ft Static Water Column Height: 29.86 ft
Total Well Penetration Depth: 29.86 ft Screen Length: 5. ft
Casing Radius: 0.0833 ft Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 1.39 ft/day y0 = 22.8 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA1S -test 3 - KGS.aqt
Date: 06/21/16 Time: 17:51:13

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1S
Test Date: 4/29/2016

AQUIFER DATA

Saturated Thickness: 84.86 ft

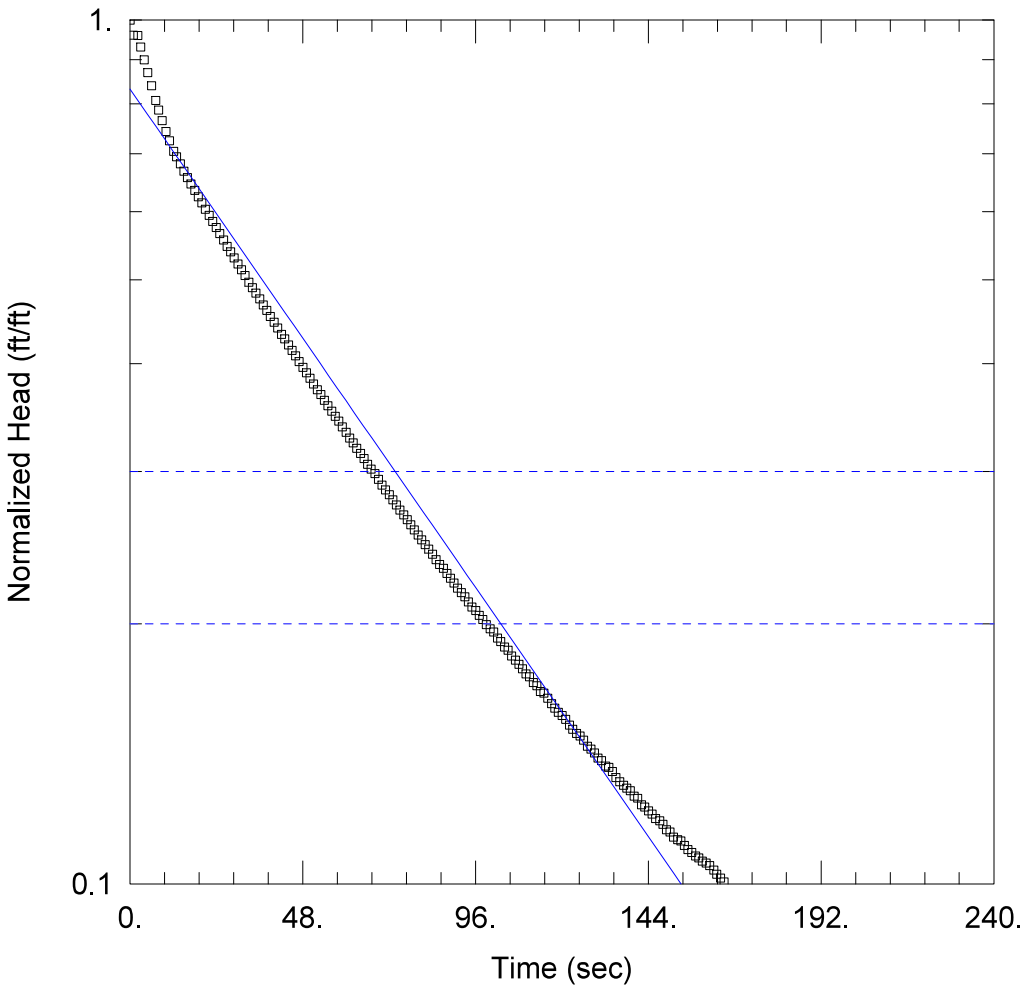
WELL DATA (PZA-1S)

Initial Displacement: 24.39 ft
Total Well Penetration Depth: 29.86 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 29.86 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.568 ft/day
Kz/Kr = 0.1
Ss = 1.009E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA1M - Test 1 - BR.aqt
Date: 06/22/16 Time: 16:38:16

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1M
Test Date: 4/27/2016

AQUIFER DATA

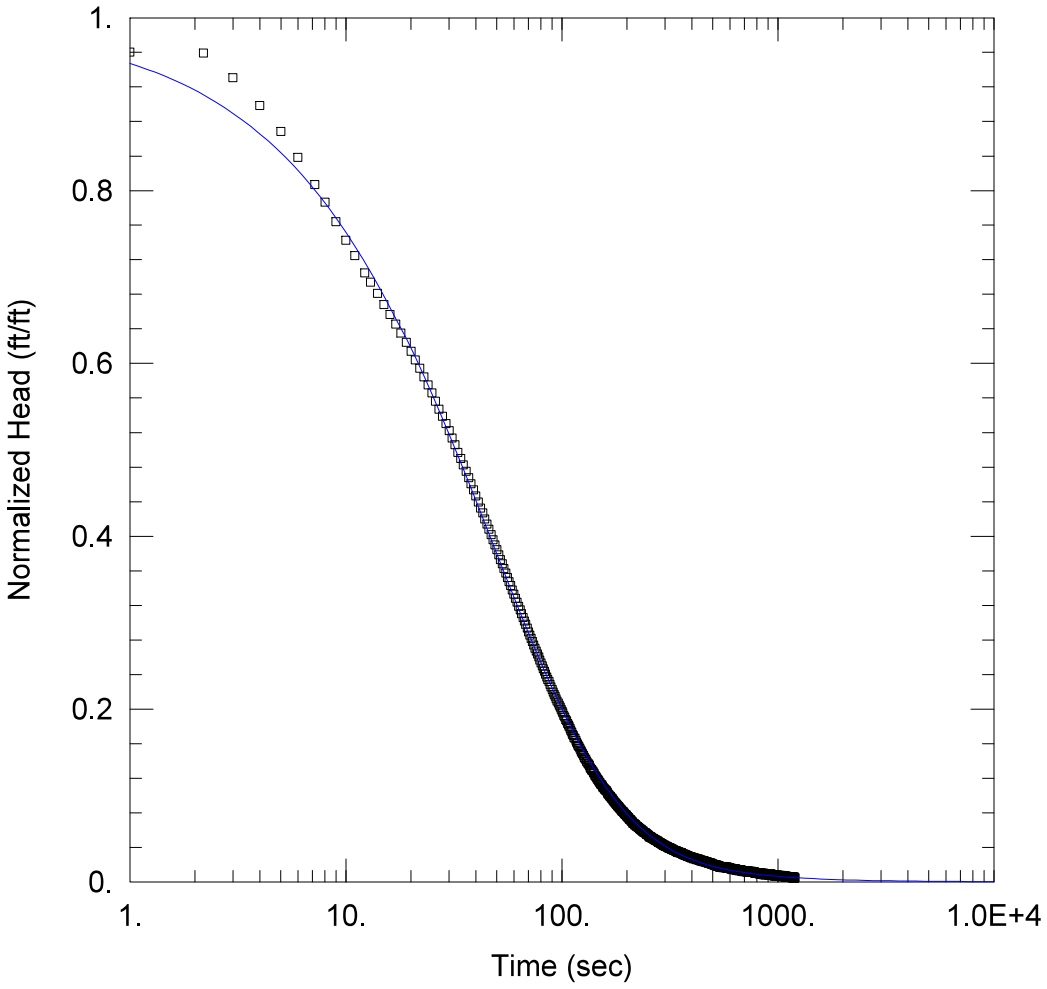
Saturated Thickness: 85.36 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-1M)

Initial Displacement: 12.73 ft Static Water Column Height: 45.36 ft
Total Well Penetration Depth: 45.36 ft Screen Length: 5. ft
Casing Radius: 0.0833 ft Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 3.369 ft/day y0 = 10.58 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA1M - Test 1 - KGS.aqt
Date: 06/22/16 Time: 16:39:45

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1M
Test Date: 4/27/2016

AQUIFER DATA

Saturated Thickness: 85.36 ft

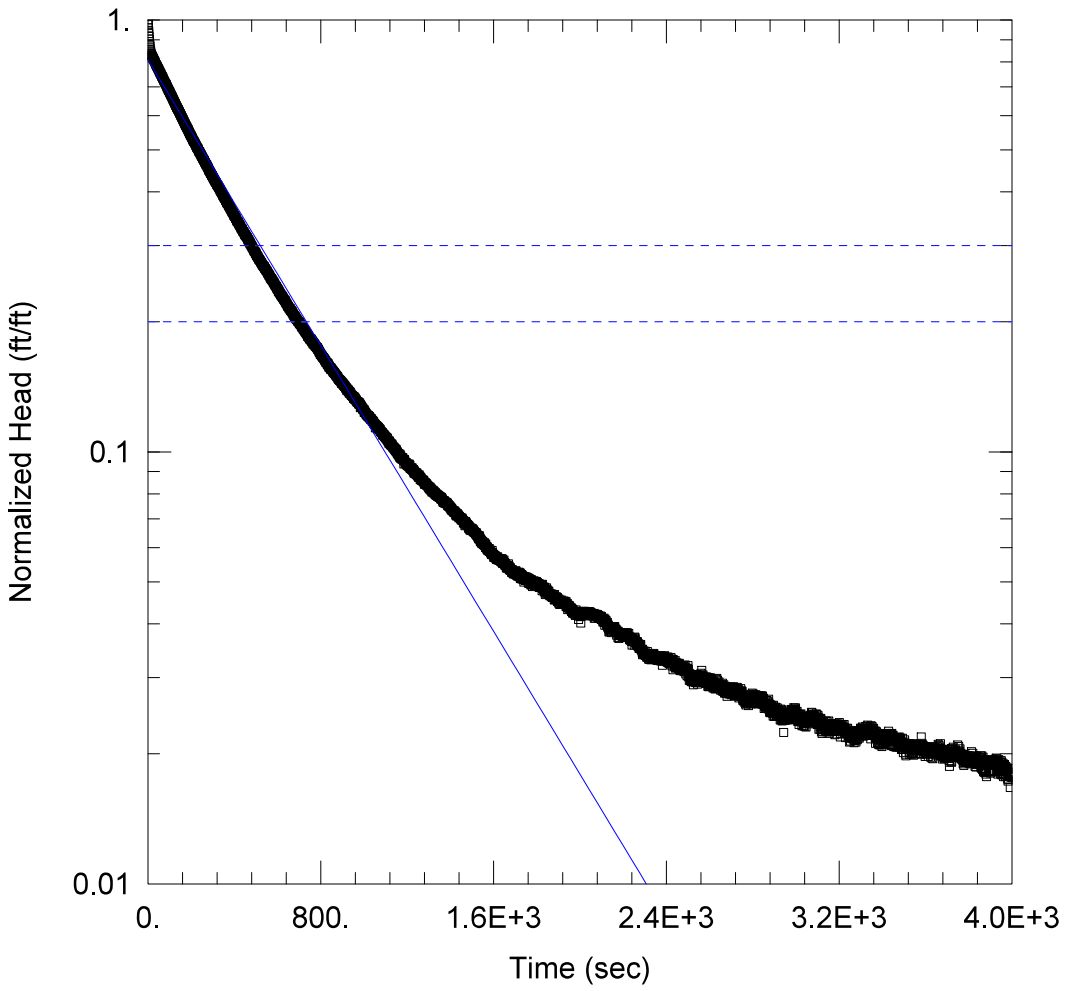
WELL DATA (PZA-1M)

Initial Displacement: 12.73 ft
Total Well Penetration Depth: 45.36 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 45.36 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 2.996 ft/day
Kz/Kr = 0.1
Ss = 0.001058 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA1D - Test 1 - BR.aqt
Date: 06/22/16 Time: 16:40:50

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1D
Test Date: 4/26/2016

AQUIFER DATA

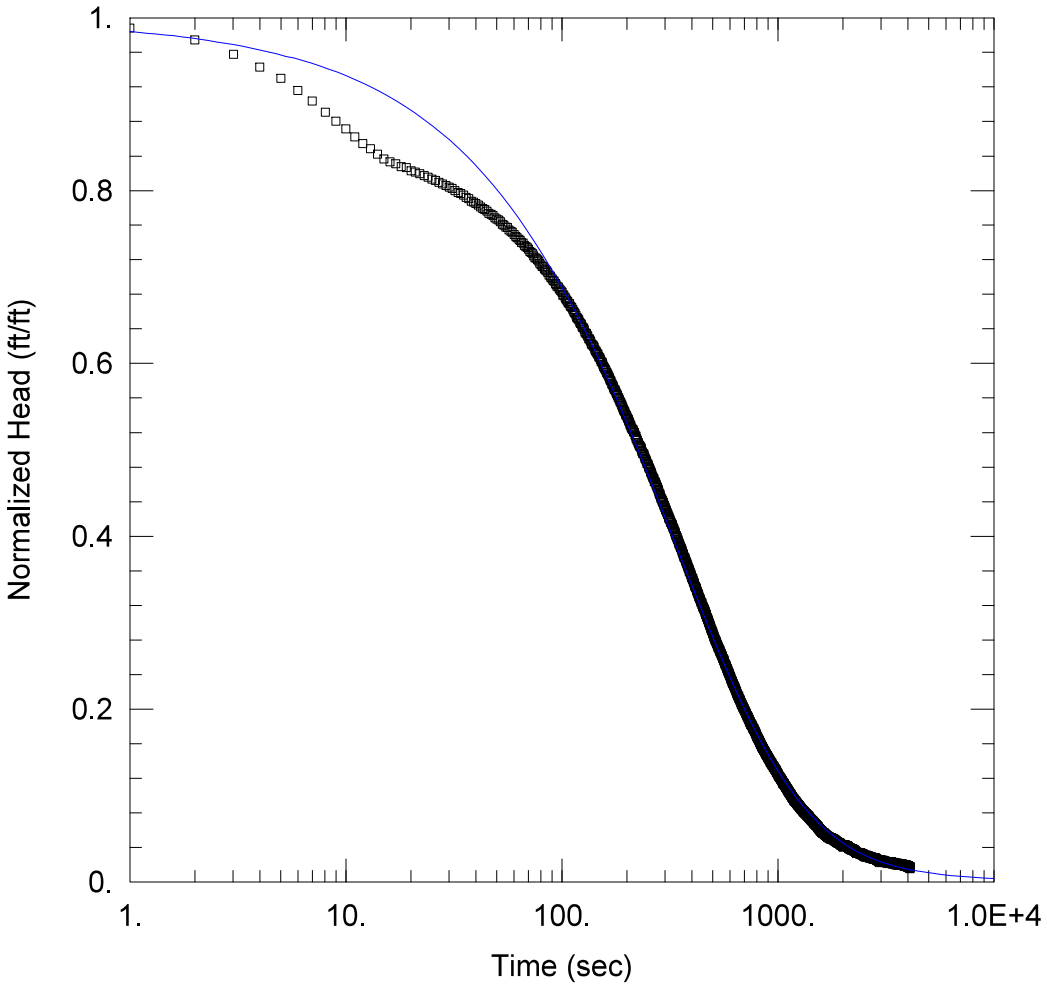
Saturated Thickness: 84.9 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-1D)

Initial Displacement: 11.97 ft
Total Well Penetration Depth: 73.4 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 73.4 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.4837 ft/day
y0 = 9.671 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA1D - Test 1 - KGS.aqt
Date: 06/22/16 Time: 16:42:12

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-1D
Test Date: 4/26/2016

AQUIFER DATA

Saturated Thickness: 84.9 ft

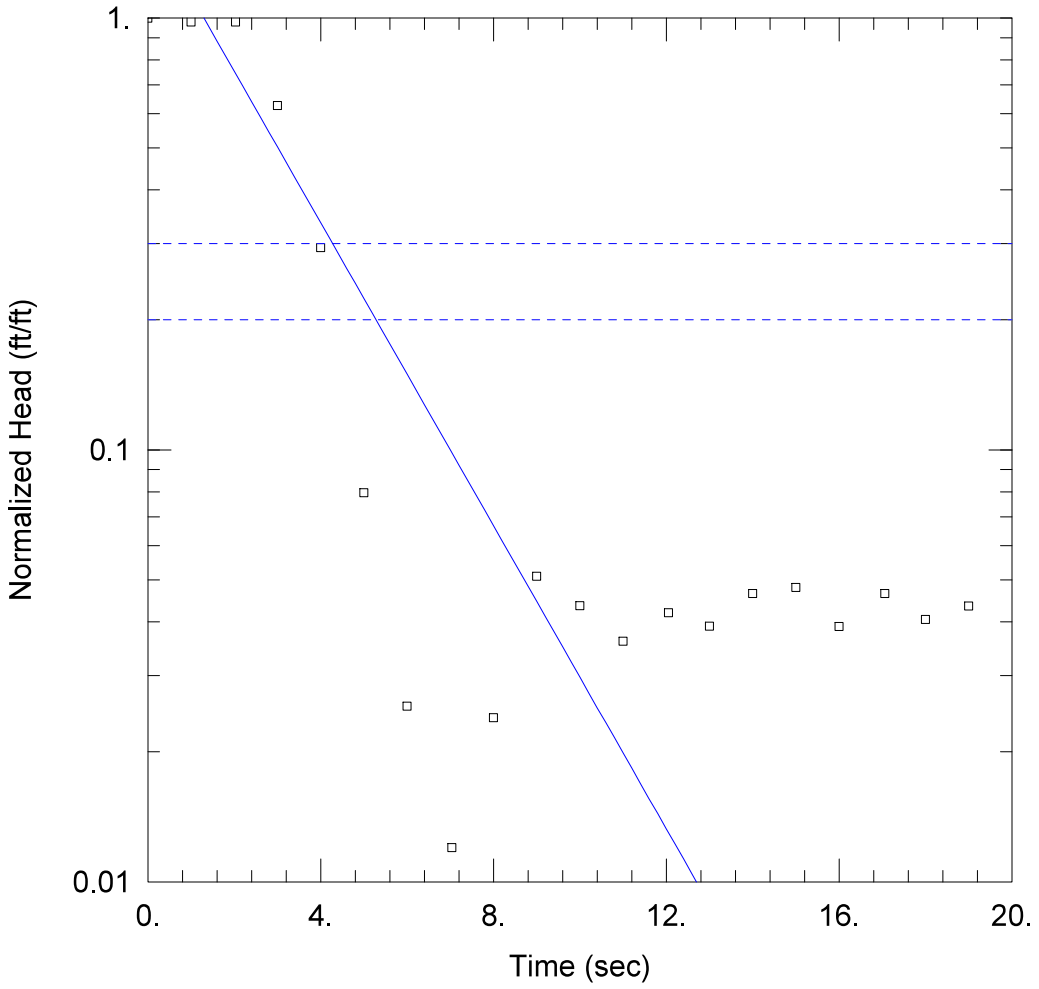
WELL DATA (PZA-1D)

Initial Displacement: 11.97 ft
Total Well Penetration Depth: 73.4 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 73.4 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.4268 ft/day
Kz/Kr = 0.1
Ss = 0.001074 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA2S -test 3 - BR.aqt
Date: 06/22/16 Time: 18:39:56

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2S
Test Date: 4/27/2016

AQUIFER DATA

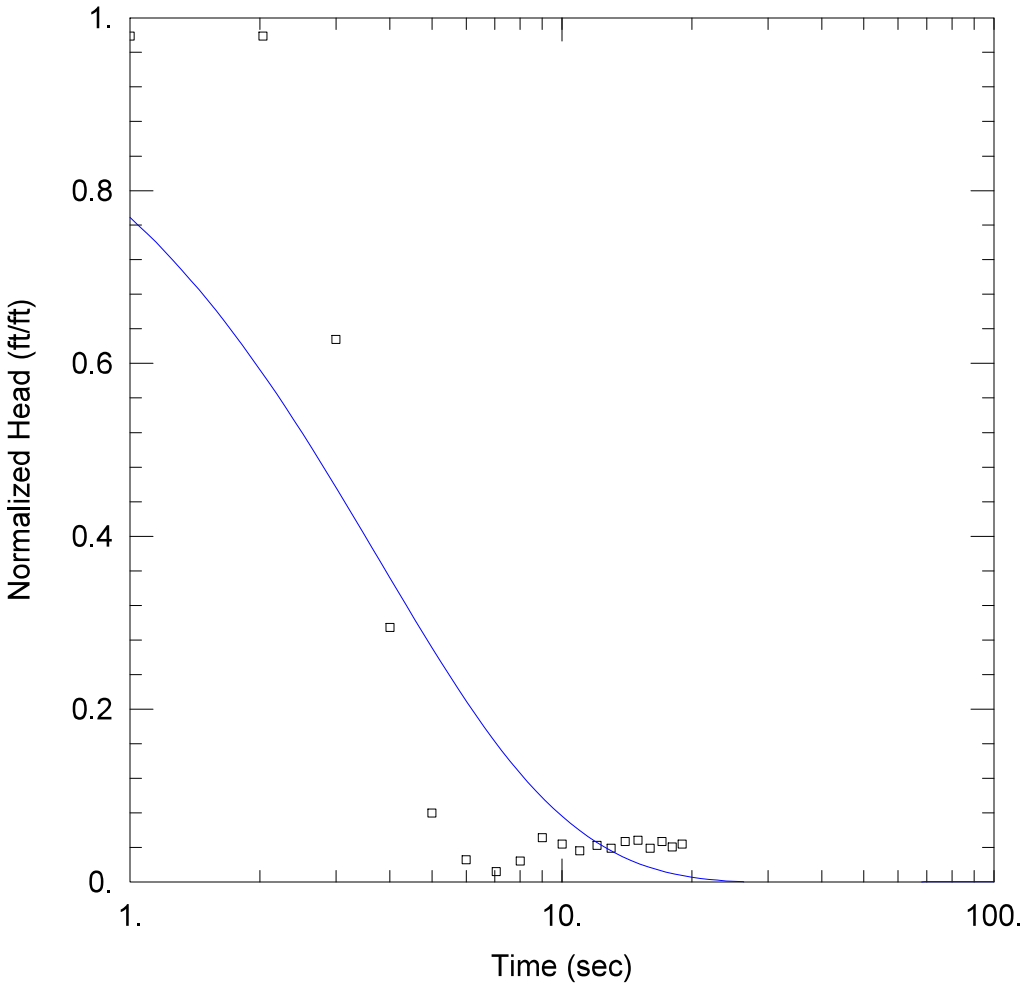
Saturated Thickness: 73.95 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-2S)

Initial Displacement: 0.666 ft Static Water Column Height: 31.05 ft
Total Well Penetration Depth: 31.05 ft Screen Length: 5. ft
Casing Radius: 0.0833 ft Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 94.78 ft/day y0 = 1.123 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA2S -test 3 - KGS.aqt
Date: 06/22/16 Time: 18:41:09

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2S
Test Date: 4/27/2016

AQUIFER DATA

Saturated Thickness: 73.95 ft

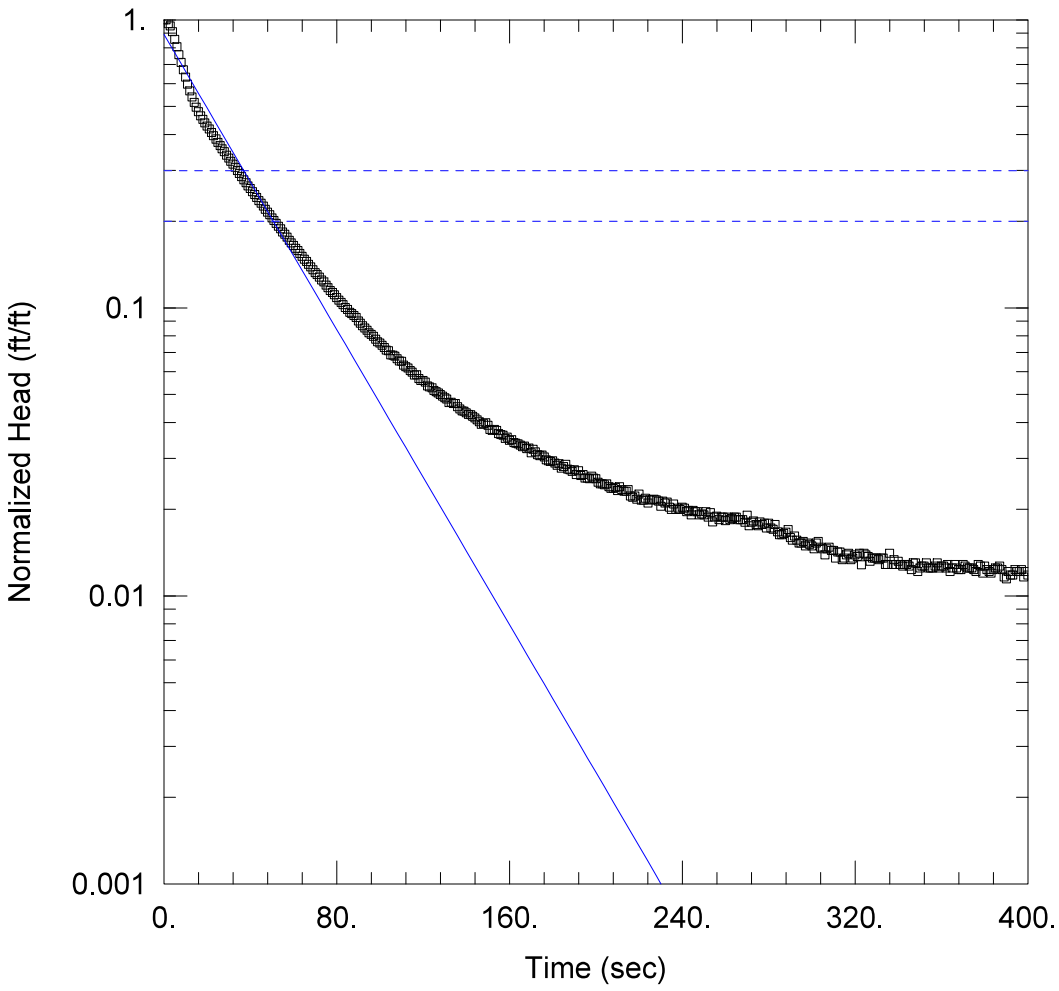
WELL DATA (PZA-2S)

Initial Displacement: 0.666 ft
Total Well Penetration Depth: 31.05 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 31.05 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 90.44 ft/day
Kz/Kr = 0.002874
Ss = 1.369E-12 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA2M - Test 1 - BR.aqt
Date: 06/22/16 Time: 16:45:28

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2M
Test Date: 4/27/2016

AQUIFER DATA

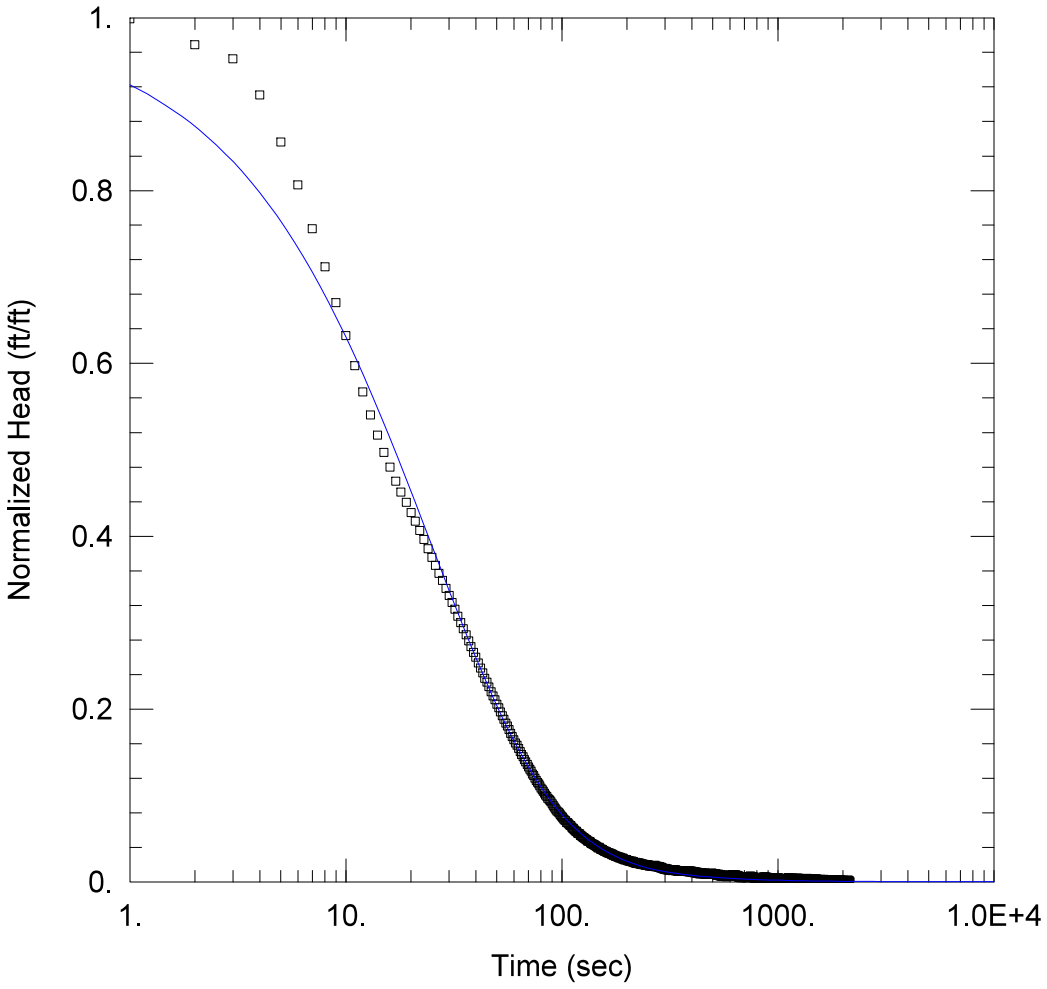
Saturated Thickness: 73.68 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-2M)

Initial Displacement: 5.761 ft
Total Well Penetration Depth: 52.68 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 52.68 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 7.282 ft/day
y0 = 5.133 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA2M - Test 1 - KGS.aqt
Date: 06/22/16 Time: 16:46:40

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2M
Test Date: 4/27/2016

AQUIFER DATA

Saturated Thickness: 73.68 ft

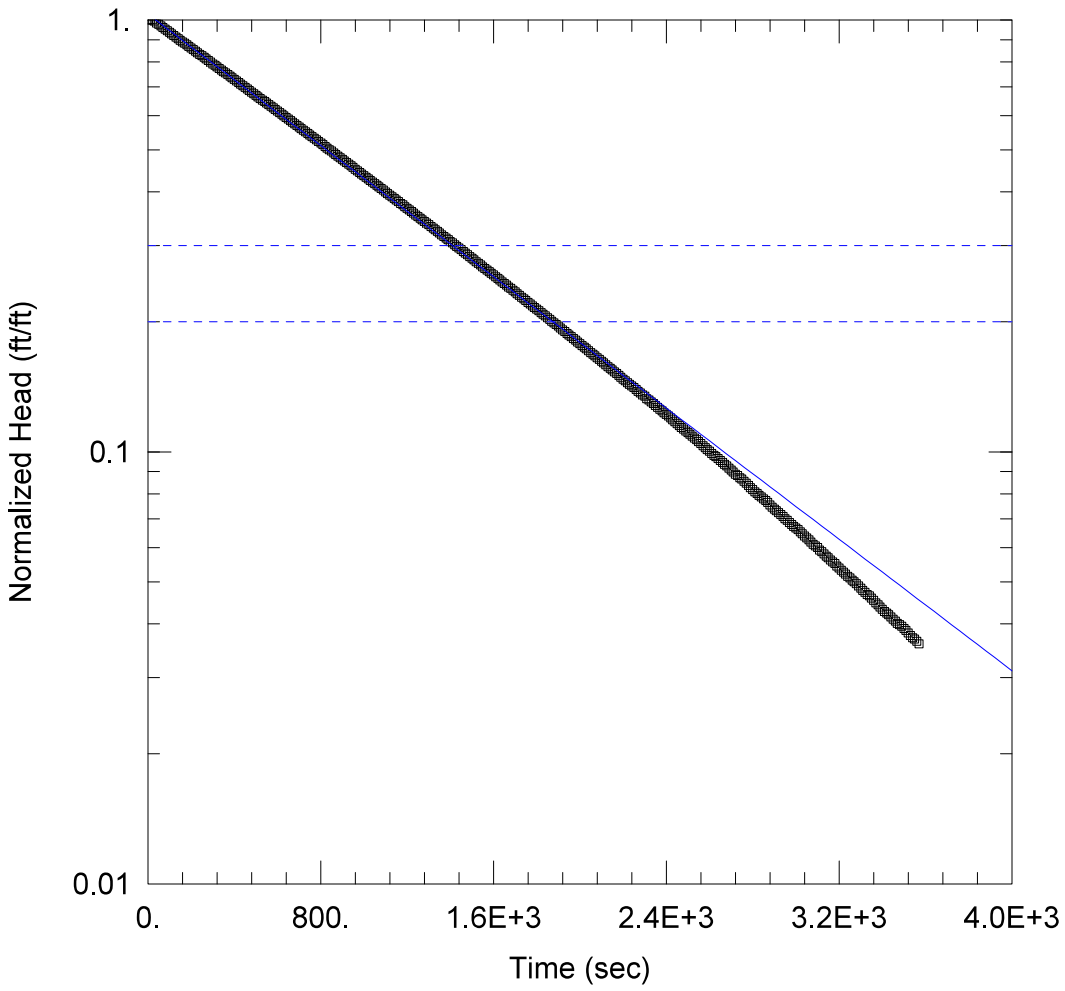
WELL DATA (PZA-2M)

Initial Displacement: 5.761 ft
Total Well Penetration Depth: 52.68 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 52.68 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 6.205 ft/day
Kz/Kr = 0.1
Ss = 0.0006941 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA2D - Test 3 - BR.aqt
Date: 06/22/16 Time: 16:47:57

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2D
Test Date: 4/28/2016

AQUIFER DATA

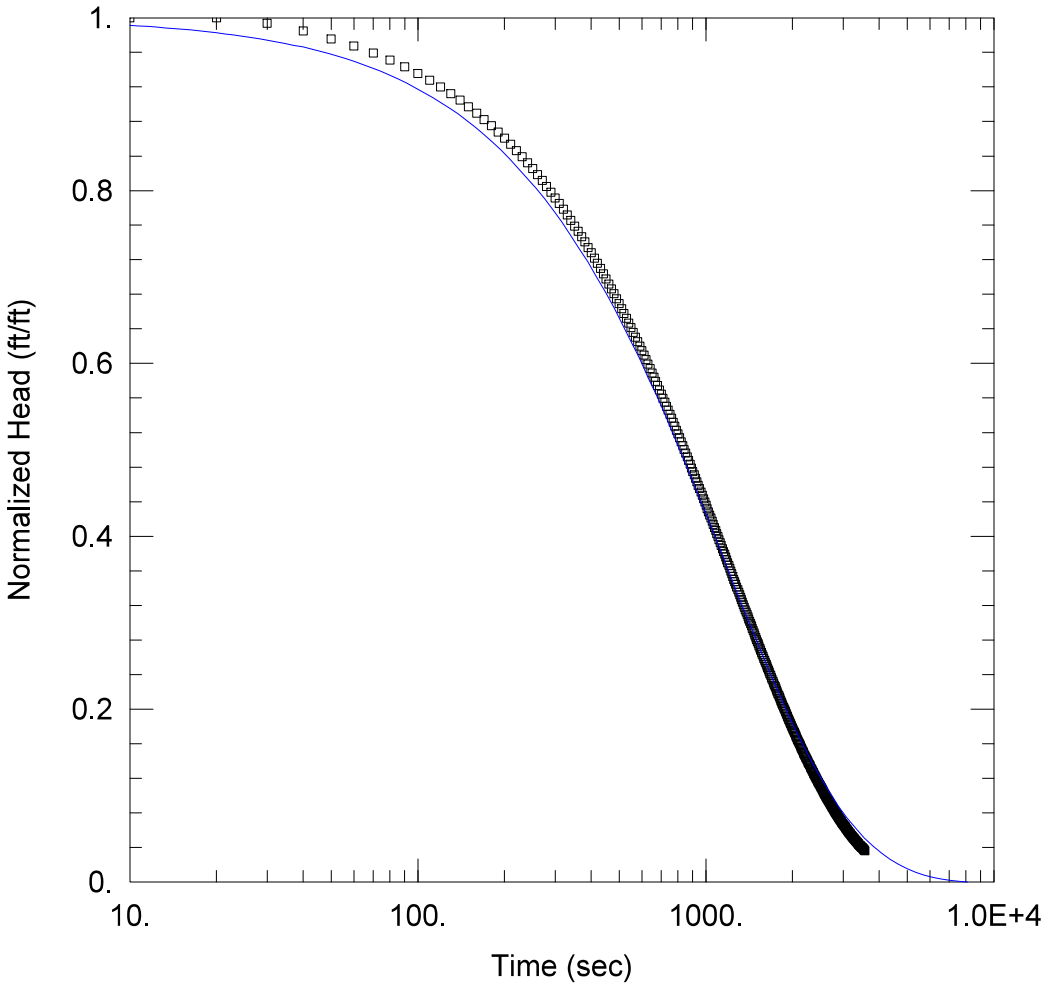
Saturated Thickness: 73.06 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZA-2D)

Initial Displacement: 29.78 ft Static Water Column Height: 70.06 ft
Total Well Penetration Depth: 70.06 ft Screen Length: 5. ft
Casing Radius: 0.0833 ft Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.2296 ft/day y0 = 30.69 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA2D - Test 3 - KGS.aqt
Date: 06/22/16 Time: 16:56:18

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2D
Test Date: 4/28/2016

AQUIFER DATA

Saturated Thickness: 73.06 ft

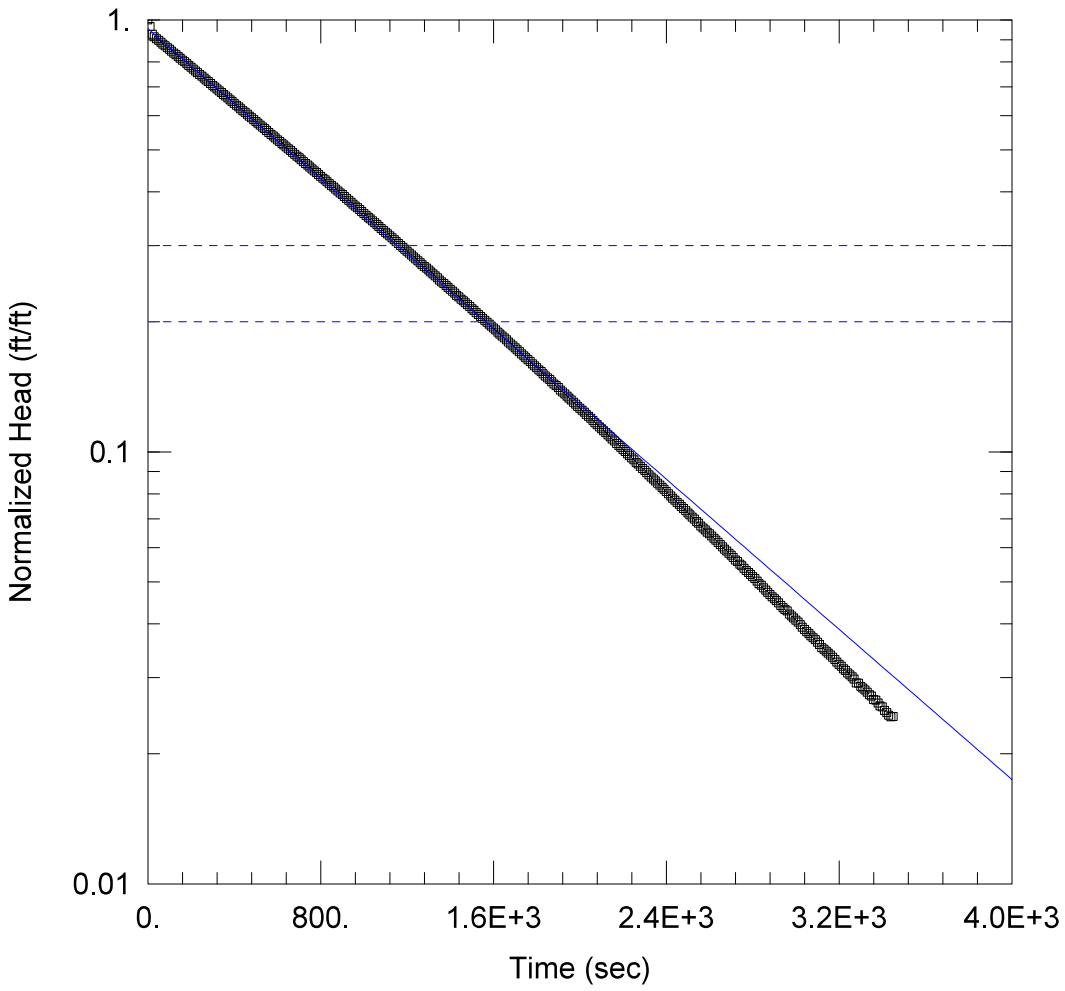
WELL DATA (PZA-2D)

Initial Displacement: 29.78 ft
Total Well Penetration Depth: 70.06 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 70.06 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.2273 ft/day
Kz/Kr = 0.1
Ss = 2.059E-12 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZA2D - Test 4 - BR.aqt
Date: 06/22/16 Time: 16:57:09

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2D
Test Date: 4/29/2016

AQUIFER DATA

Saturated Thickness: 71.24 ft Anisotropy Ratio (Kz/Kr): 0.1

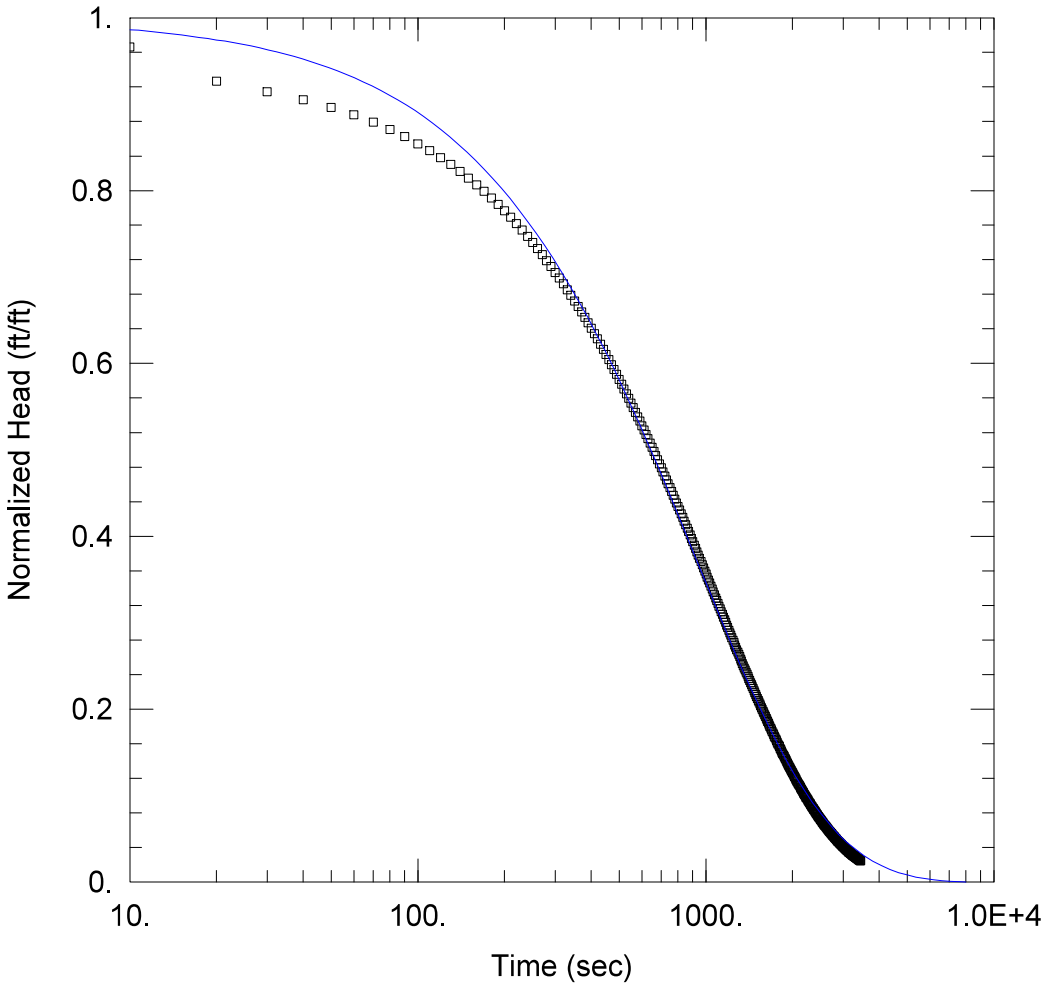
WELL DATA (PZA-2D)

Initial Displacement: 47.01 ft
Total Well Penetration Depth: 68.24 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 68.24 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.262 ft/day y0 = 44.85 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZA2D - Test 4 - KGS.aqt
Date: 06/22/16 Time: 17:46:25

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power
Project: GR5852A
Location: Plant Wansley, Carrollton, GA
Test Well: PZA-2D
Test Date: 4/29/2016

AQUIFER DATA

Saturated Thickness: 71.24 ft

WELL DATA (PZA-2D)

Initial Displacement: 47.01 ft
Total Well Penetration Depth: 68.24 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 68.24 ft
Screen Length: 5. ft
Well Radius: 0.0833 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.2768 ft/day
Kz/Kr = 0.1
Ss = 7.355E-7 ft^{-1}

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-1 ST:40-42
Lab Sample Number:	17E192
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	6/05/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions: Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Test Conditions: Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	Hydraulic Conductivity (cm/s)
ST	5.67	7.25	96.9	25.7	77.0	70.0	7.0	DTW	8	1.2E-5
	5.54	7.21	97.5	27.5	130.00	70.0	60.0	DTW	14	5.1E-6

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-21-2017
AA, MSR

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-3 ST: 68-70
Lab Sample Number:	17E187
Material Type:	Ash
Specified Value (cm/sec):	N/A
Date Test Started:	6/19/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	6.25	7.01	74.8	38.8	75.0	70.0	5.0	DTW	17	1.2E-5
	5.69	7.00	82.5	32.8	90.0	70.0	20.0	DTW	18	1.1E-5

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-28-2017
AA, NJR

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-3 ST: 85-87
Lab Sample Number:	17E458
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	6/05/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.38	7.36	87.1	35.8	75.0	70.0	5.0	DTW	13	4.6E-7
	5.17	7.21	95.9	27.2	110.00	70.0	40.0	DTW	15	2.0E-7

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-21-2017
AA, NSR

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-4 ST: 68-70
Lab Sample Number:	17E188
Material Type:	Ash
Specified Value (cm/sec):	N/A
Date Test Started:	6/19/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.98	7.10	77.3	38.1	100.0	70.0	30.0	DTW	20	9.3E-6
	5.31	7.26	81.4	32.7	120.0	70.0	50.0	DTW	19	8.9E-6

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-28-2017 AA, NSP

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-6 ST: 68-70
Lab Sample Number:	17E189
Material Type:	Ash
Specified Value (cm/sec):	N/A
Date Test Started:	6/19/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.94	7.05	78.0	36.2	73.0	70.0	3.0	DTW	15	7.3E-6
	5.52	7.14	80.0	34.7	140.0	70.0	70.0	DTW	19	4.7E-6

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-28-2017
AA1 NSR

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-7 ST: 58-60
Lab Sample Number:	17E190
Material Type:	Ash
Specified Value (cm/sec):	N/A
Date Test Started:	6/19/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.98	6.97	69.7	45.3	73.0	70.0	3.0	DTW	18	7.1E-5
	5.42	6.94	78.0	36.5	130.0	70.0	60.0	DTW	19	4.9E-5

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-28-2017
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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-7 ST: 84-86
Lab Sample Number:	17E459
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	6/05/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.58	7.27	66.1	58.3	77.0	70.0	7.0	DTW	12	3.7E-5
	5.44	7.17	69.4	53.9	130.00	70.0	60.0	DTW	20	1.5E-5

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-21-2017
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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-8 ST: 102-104
Lab Sample Number:	17E195
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/18/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.65	7.21	89.1	29.5	83.0	70.0	13.0	DTW	15	1.9E-5
	5.50	7.19	90.2	33.7	100.00	70.0	30.0	DTW	13	1.4E-5

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-21-2017
AA

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-9 ST: 48-50
Lab Sample Number:	17D199
Material Type:	Ash
Specified Value (cm/sec):	N/A
Date Test Started:	6/13/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	14.38	7.27	81.7	31.8	90.0	70.0	20.0	DTW	23	1.2E-5
	14.24	7.19	82.8	31.8	110.0	70.0	40.0	DTW	18	2.4E-5

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water

6-21-2017
AA/NSR

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-9 ST: 68-70
Lab Sample Number:	17D200
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/15/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions: Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Test Conditions: Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	Hydraulic Conductivity (cm/s)
ST	5.61	7.19	78.5	44.1	100.0	70.0	30.0	DTW	13	1.6E-5
	5.49	7.13	79.9	42.5	Note 4					

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water
4. Only one consolidation pressure was requested.

6-21-2017
AA, MSK

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FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	M-11 ST: 54-56
Lab Sample Number:	17E196
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/24/2017

Specimen Type	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity
(Note 2)	Spec. Length	Spec. Diameter	Dry Unit Weight	Moisture Content	Cell Press.	Back Press.	Consolid. Press.	Permeant Liquid [3]	Average Gradient	
(-)	(cm)	(cm)	(pcf)	(%)	(psi)	(psi)	(psi)	(-)	(-)	(cm/s)
ST	5.64	7.20	58.0	73.9	74.0	70.0	4.0	DTW	9	5.5E-5
	5.62	7.22	57.7	73.6	Note 4					

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water
4. Only one consolidation pressure was requested.

6-21-2017
AA (NSR

APPENDIX A.4

Laboratory Reports

Excel Geotechnical Testing, Inc.
"Excellence in Testing"
953 Forrest Street, Roswell, Georgia 30075
Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	PB-5 ST: 10-12
Lab Sample Number:	17D183
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/10/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.78	7.22	85.4	34.2	76.0	70.0	6.0	DTW	9	1.2E-5
	5.69	7.16	88.0	35.1	Note 4					

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water
4. Only one consolidation pressure was requested.

6-20-2017
AA, NSR

Excel Geotechnical Testing, Inc.
"Excellence in Testing"
953 Forrest Street, Roswell, Georgia 30075
Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	PB-6 SC: 15-16
Lab Sample Number:	17D184
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/09/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.72	7.29	115.2	13.8	78.5	70.0	8.5	DTW	12	7.6E-6
	5.71	7.14	121.7	13.0	Note 4					

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water
4. Only one consolidation pressure was requested.

6-20-2017
AA, MSR

Excel Geotechnical Testing, Inc.
"Excellence in Testing"
953 Forrest Street, Roswell, Georgia 30075
Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	PB-7 ST: 35-37
Lab Sample Number:	17D185
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/12/2017

Specimen Type	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity
	Spec. Length	Spec. Diameter	Dry Unit Weight	Moisture Content	Cell Press.	Back Press.	Consolid. Press.	Permeant Liquid [3]	Average Gradient	
(Note 2)	(cm)	(cm)	(pcf)	(%)	(psi)	(psi)	(psi)	(-)	(-)	(cm/s)
ST	5.61	7.25	80.3	39.2	86.0	70.0	16.0	DTW	9	5.4E-5
	5.52	7.17	82.2	40.6	Note 4					

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water
4. Only one consolidation pressure was requested.

6-20-2017
AA, NSA

Excel Geotechnical Testing, Inc.
"Excellence in Testing"
953 Forrest Street, Roswell, Georgia 30075
Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	PB-7 SC: 83-84
Lab Sample Number:	17D186
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/09/2017

Specimen Type (Note 2) (-)	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity (cm/s)
	Spec. Length (cm)	Spec. Diameter (cm)	Dry Unit Weight (pcf)	Moisture Content (%)	Cell Press. (psi)	Back Press. (psi)	Consolid. Press. (psi)	Permeant Liquid [3] (-)	Average Gradient (-)	
ST	5.64	7.13	90.3	32.5	97.0	70.0	27.0	DTW	13	6.6E-6
	5.58	7.07	90.8	31.2	Note 4					

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water
4. Only one consolidation pressure was requested.

6-20-2017
AA, NSR

Excel Geotechnical Testing, Inc.
"Excellence in Testing"
953 Forrest Street, Roswell, Georgia 30075
Tel: (770) 910 7537 Fax: (770) 910 7538

FLEXIBLE WALL PERMEABILITY TEST [1]

ASTM D 5084 *

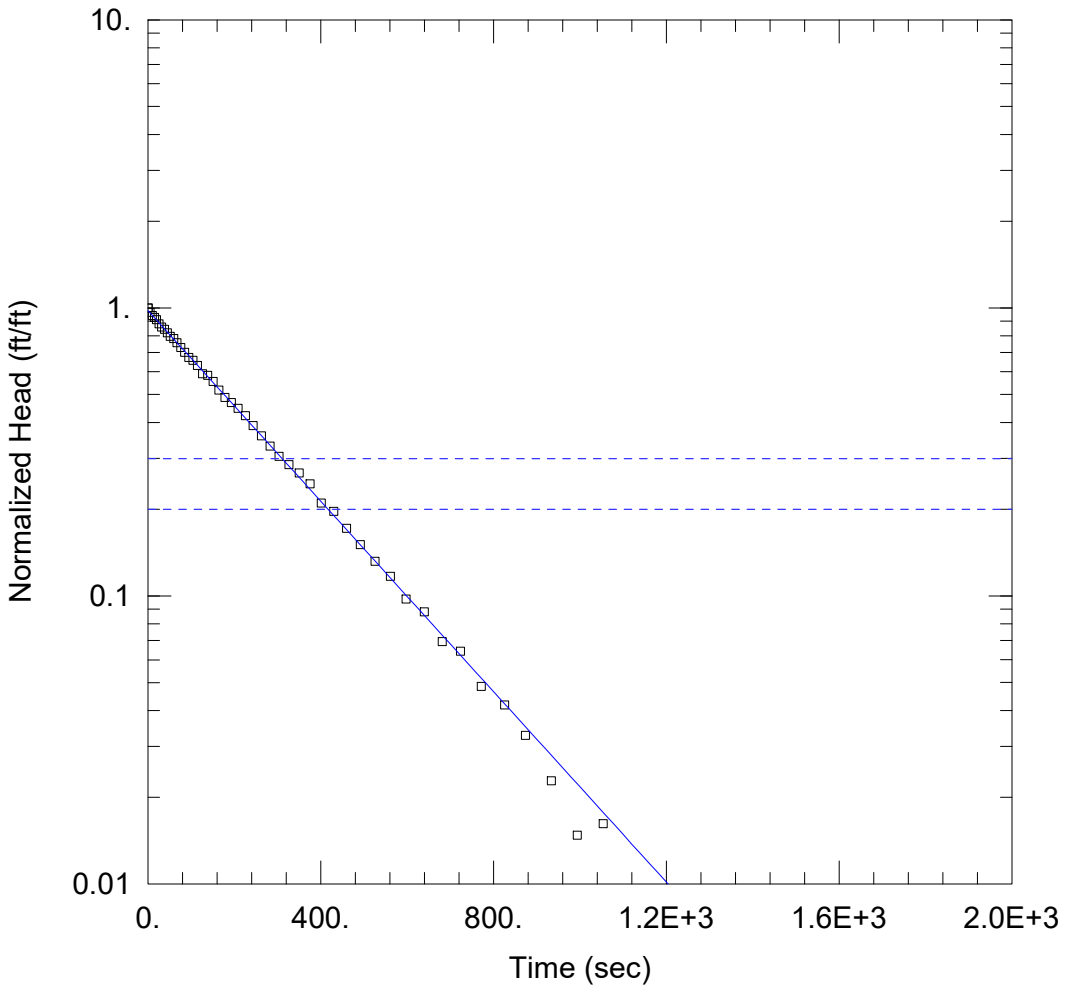
Project Name:	Plant Wansley AEM FS & PreDesign Study
Project Number:	830
Client Name:	Geosyntec Consultants
Site Sample ID:	PB-7 SC: 90-91
Lab Sample Number:	17D187
Material Type:	Soil
Specified Value (cm/sec):	N/A
Date Test Started:	5/09/2017

Specimen Type	Specimen Initial Conditions / Specimen Final Conditions				Test Conditions					Hydraulic Conductivity
	Spec. Length	Spec. Diameter	Dry Unit Weight	Moisture Content	Cell Press.	Back Press.	Consolid. Press.	Permeant Liquid [3]	Average Gradient	
(Note 2)	(cm)	(cm)	(pcf)	(%)	(psi)	(psi)	(psi)	(-)	(-)	(cm/s)
ST	5.65	7.26	117.8	16.3	99.0	70.0	29.0	DTW	12	5.9E-6
	5.67	7.29	116.4	16.9	Note 4					

Notes:

1. Method C, "Falling-Head, Increasing-Tailwater" test procedures were followed during the testing.
2. Specimen preparation: ST = Shelby Tube, R = Remolded, B = Block Sample.
3. Type of permeant liquid: DTW = Deaired Tap Water, DDI = Deaired Deionized Water
4. Only one consolidation pressure was requested.

6-20-2017
AA, NSR



WELL TEST ANALYSIS

Data Set: N:\...\APC-2 Rising_BR.aqt
Date: 04/23/21 Time: 16:24:10

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-2
Test Date: 1/26/16

AQUIFER DATA

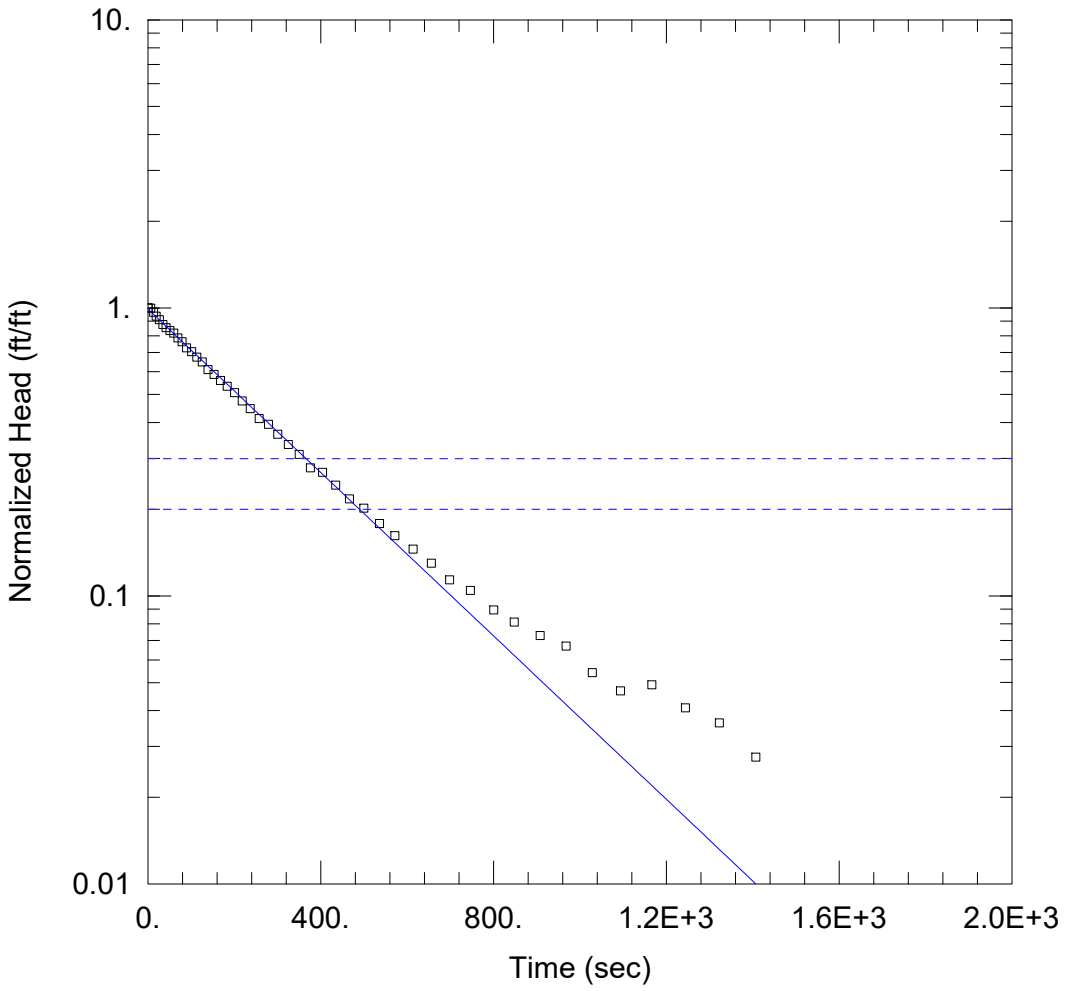
Saturated Thickness: 77. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (APC-2 Rising)

Initial Displacement: 2.101 ft Static Water Column Height: 76.98 ft
Total Well Penetration Depth: 77. ft Screen Length: 12.9 ft
Casing Radius: 0.0833 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.3858 ft/day y0 = 2.056 ft



WELL TEST ANALYSIS

Data Set: N:\...\APC-2a Rising_BR.aqt
Date: 04/23/21 Time: 16:24:40

PROJECT INFORMATION

Company: Golder
Client: SCS
Project: Wansley
Location: Wansley
Test Well: APC-2a
Test Date: 1/26/16

AQUIFER DATA

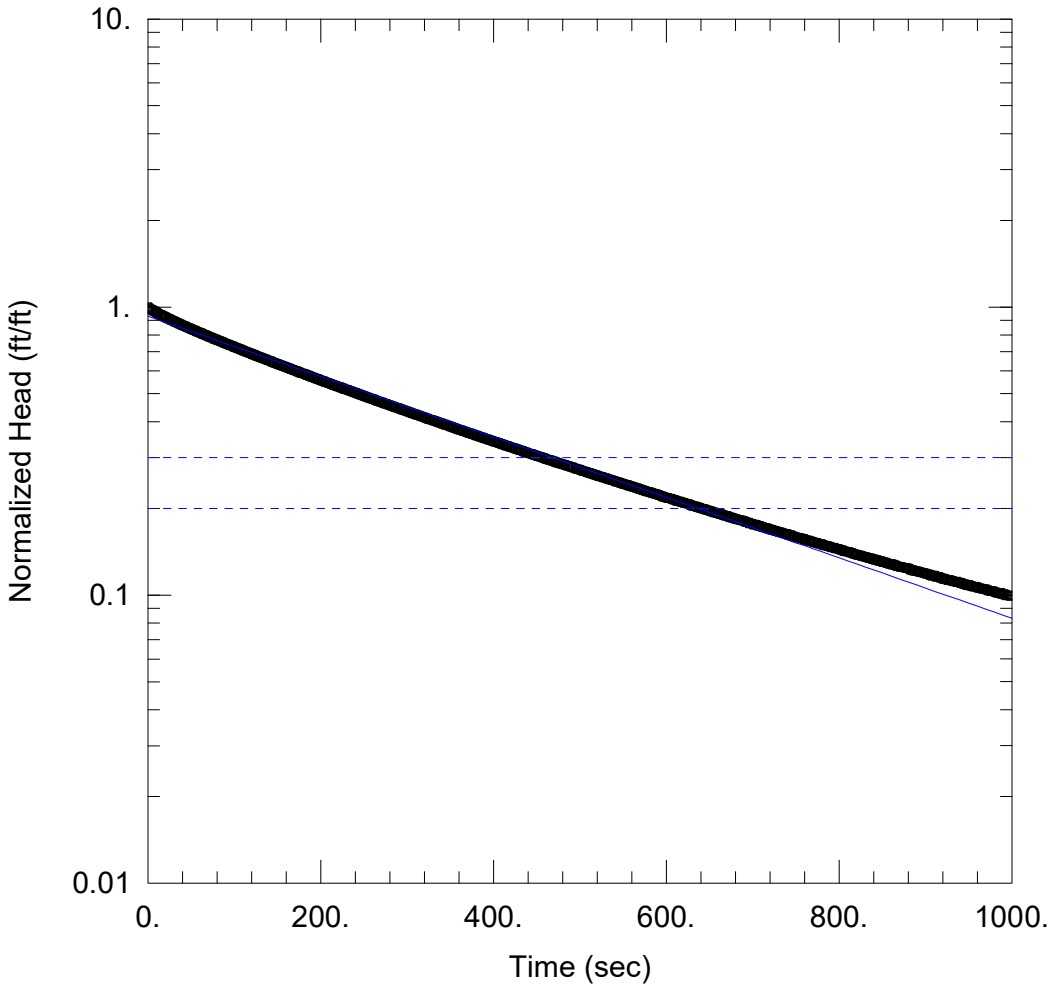
Saturated Thickness: 77. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (APC-2a Rising)

Initial Displacement: 2.181 ft
Total Well Penetration Depth: 74.1 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 77. ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3755 ft/day
y0 = 2.156 ft



WELL TEST ANALYSIS

Data Set: N:\...\PB-07_Test1_BR.aqt
Date: 01/22/21 Time: 16:41:35

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PB-07
Test Date: November 2020

AQUIFER DATA

Saturated Thickness: 60.91 ft Anisotropy Ratio (Kz/Kr): 0.1

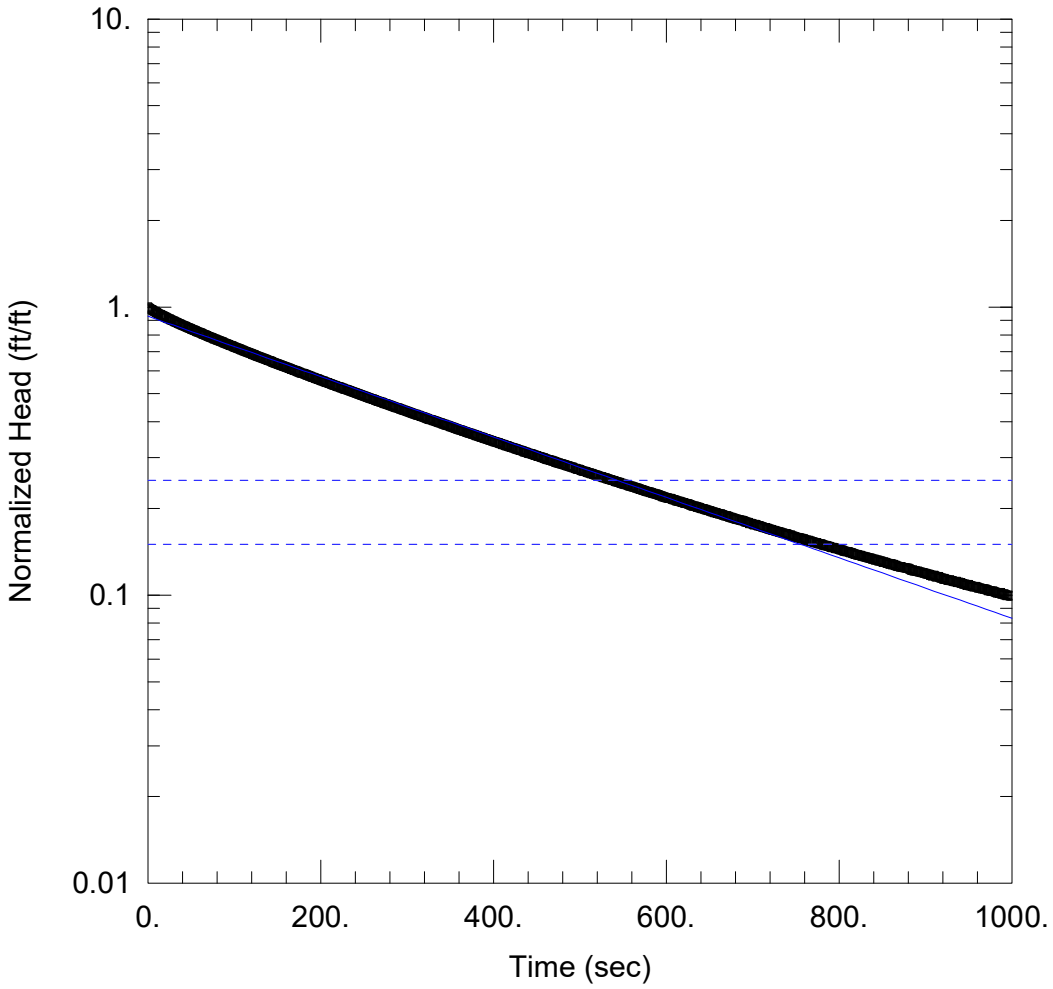
WELL DATA (PB-07_Test1)

Initial Displacement: 11.29 ft
Total Well Penetration Depth: 60.51 ft
Casing Radius: 0.083 ft
Static Water Column Height: 60.91 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.2896 ft/day y0 = 10.49 ft



WELL TEST ANALYSIS

Data Set: N:\...\PB-07_Test1_Hvorslev.aqt
Date: 01/22/21 Time: 16:43:50

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PB-07
Test Date: November 2020

AQUIFER DATA

Saturated Thickness: 60.91 ft Anisotropy Ratio (Kz/Kr): 0.1

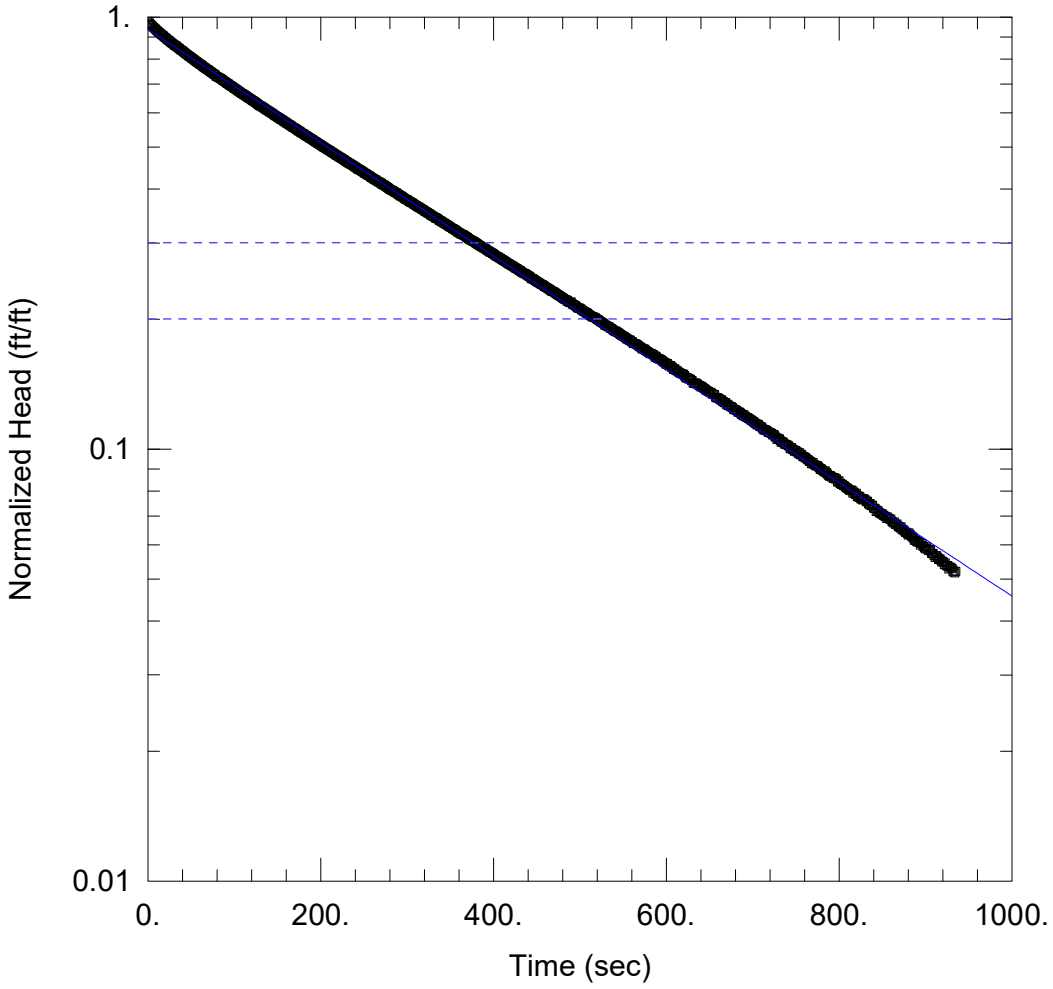
WELL DATA (PB-07_Test1)

Initial Displacement: 11.29 ft
Total Well Penetration Depth: 60.51 ft
Casing Radius: 0.083 ft
Static Water Column Height: 60.91 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 0.3024 ft/day y0 = 10.49 ft



WELL TEST ANALYSIS

Data Set: N:\...\PB-07_Test2_BR.aqt
Date: 01/22/21 Time: 16:44:54

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PB-07
Test Date: November 2020

AQUIFER DATA

Saturated Thickness: 60.91 ft Anisotropy Ratio (Kz/Kr): 0.1

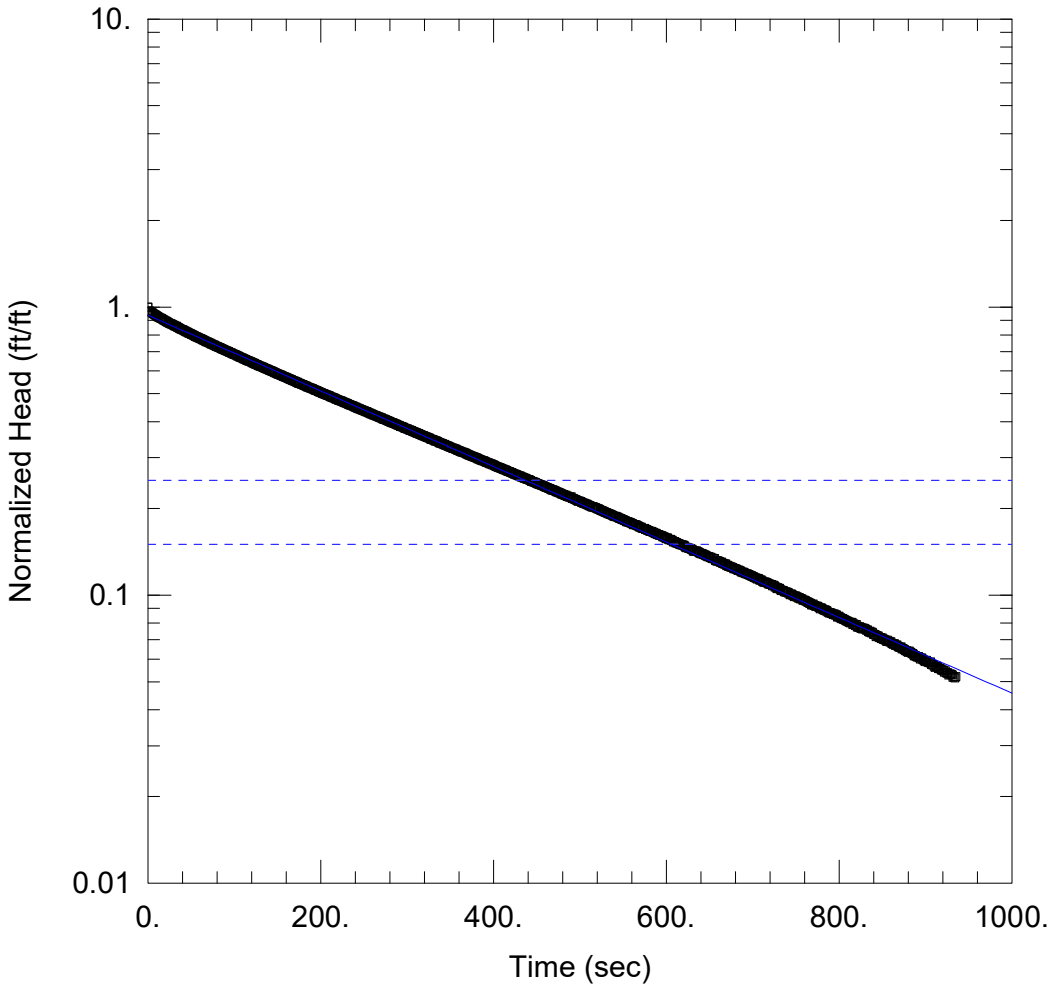
WELL DATA (PB-07_Test2)

Initial Displacement: 10.55 ft
Total Well Penetration Depth: 60.51 ft
Casing Radius: 0.083 ft
Static Water Column Height: 60.91 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3623 ft/day y0 = 9.888 ft



WELL TEST ANALYSIS

Data Set: N:\...\PB-07_Test2_Hvorslev.aqt
Date: 01/22/21 Time: 16:46:08

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PB-07
Test Date: November 2020

AQUIFER DATA

Saturated Thickness: 60.91 ft Anisotropy Ratio (Kz/Kr): 0.1

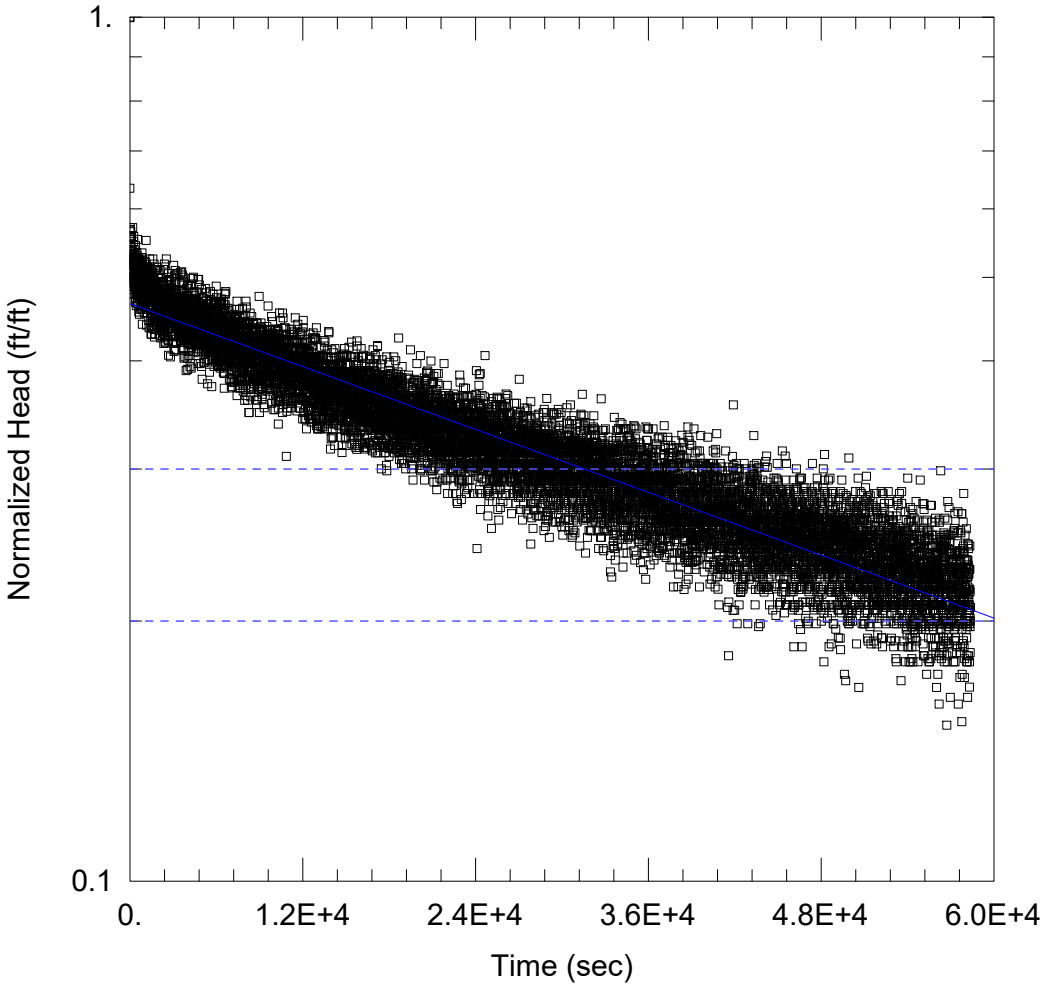
WELL DATA (PB-07_Test2)

Initial Displacement: 10.55 ft
Total Well Penetration Depth: 60.51 ft
Casing Radius: 0.083 ft
Static Water Column Height: 60.91 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 0.3783 ft/day y0 = 9.888 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-10 Test2 - Bouwer-Rice.aqt
Date: 01/22/21 Time: 15:37:56

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-10
Test Date: September 2020

AQUIFER DATA

Saturated Thickness: 3.02 ft Anisotropy Ratio (Kz/Kr): 0.1

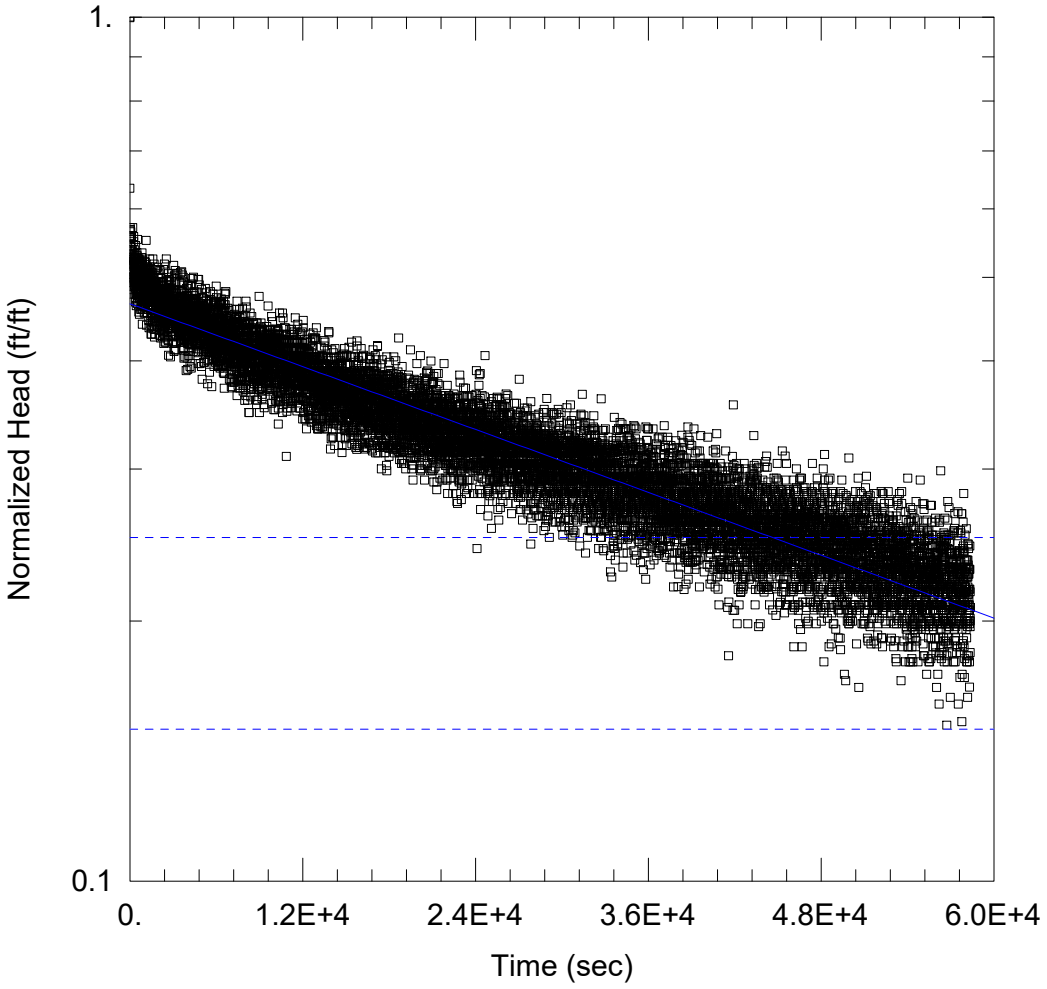
WELL DATA (PZ-10)

Initial Displacement: 0.68 ft
Total Well Penetration Depth: 10. ft
Casing Radius: 0.083 ft
Static Water Column Height: 3.02 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001647 ft/day y0 = 0.3167 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-10 Test2 - Hvorslev.aqt
Date: 01/22/21 Time: 15:41:18

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-10
Test Date: September 2020

AQUIFER DATA

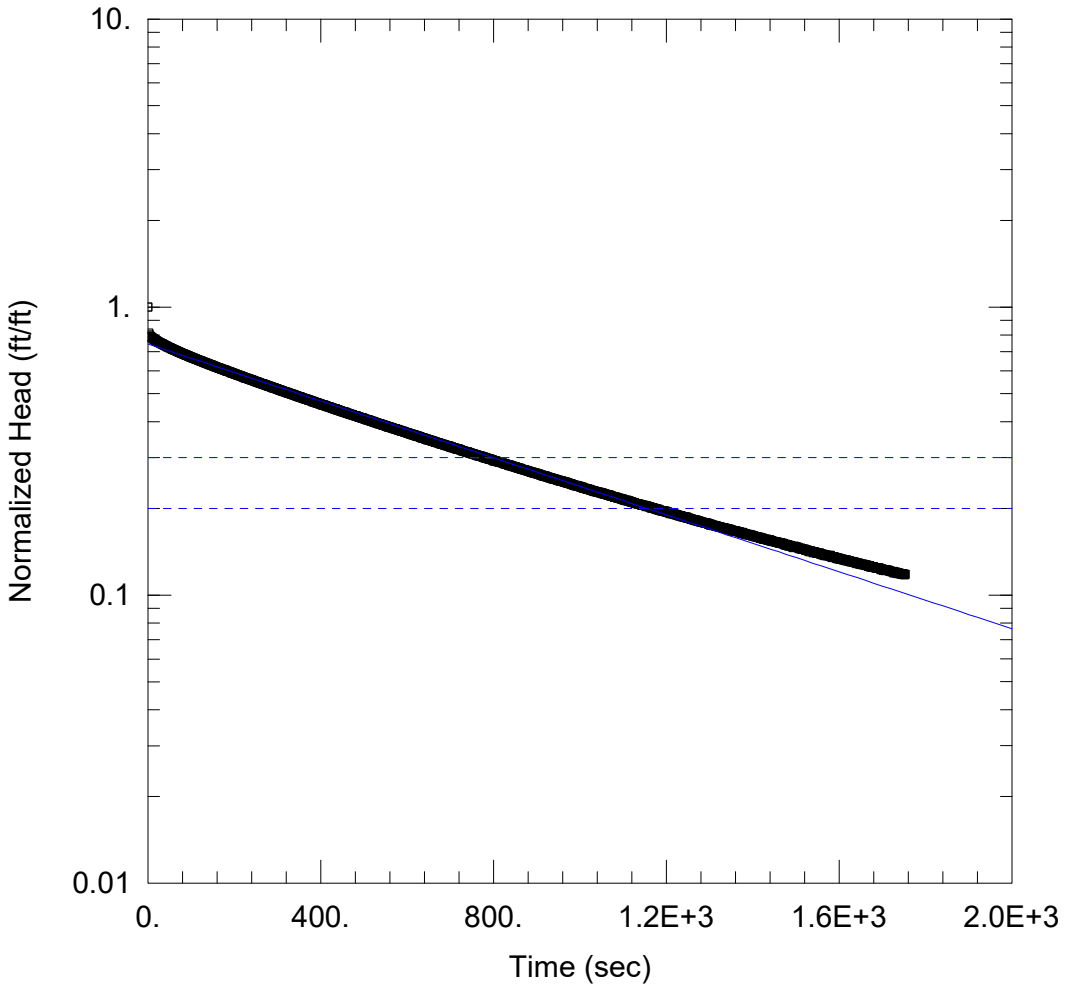
Saturated Thickness: 1.48 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-10)

Initial Displacement: 0.68 ft
Total Well Penetration Depth: 10. ft
Casing Radius: 0.083 ft
Static Water Column Height: 1.48 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.00735 ft/day
y0 = 0.3167 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-12Test1_BR.aqt
Date: 01/22/21 Time: 16:48:25

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-12
Test Date: November 2020

AQUIFER DATA

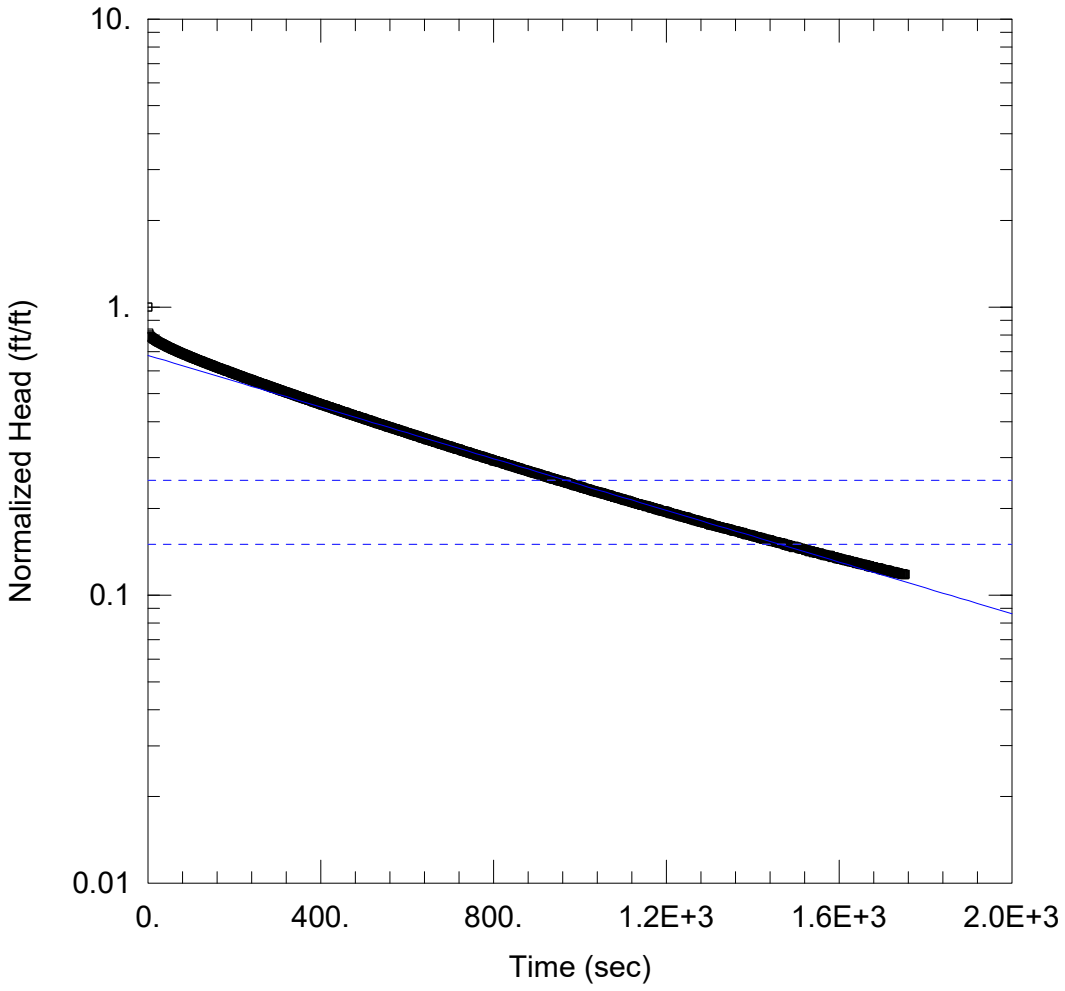
Saturated Thickness: 23.16 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-12_Test1)

Initial Displacement: 7.263 ft
Total Well Penetration Depth: 22.76 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.16 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1205 ft/day
y0 = 5.404 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-12Test1_Hvorslev.aqt
Date: 01/22/21 Time: 16:49:47

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-12
Test Date: November 2020

AQUIFER DATA

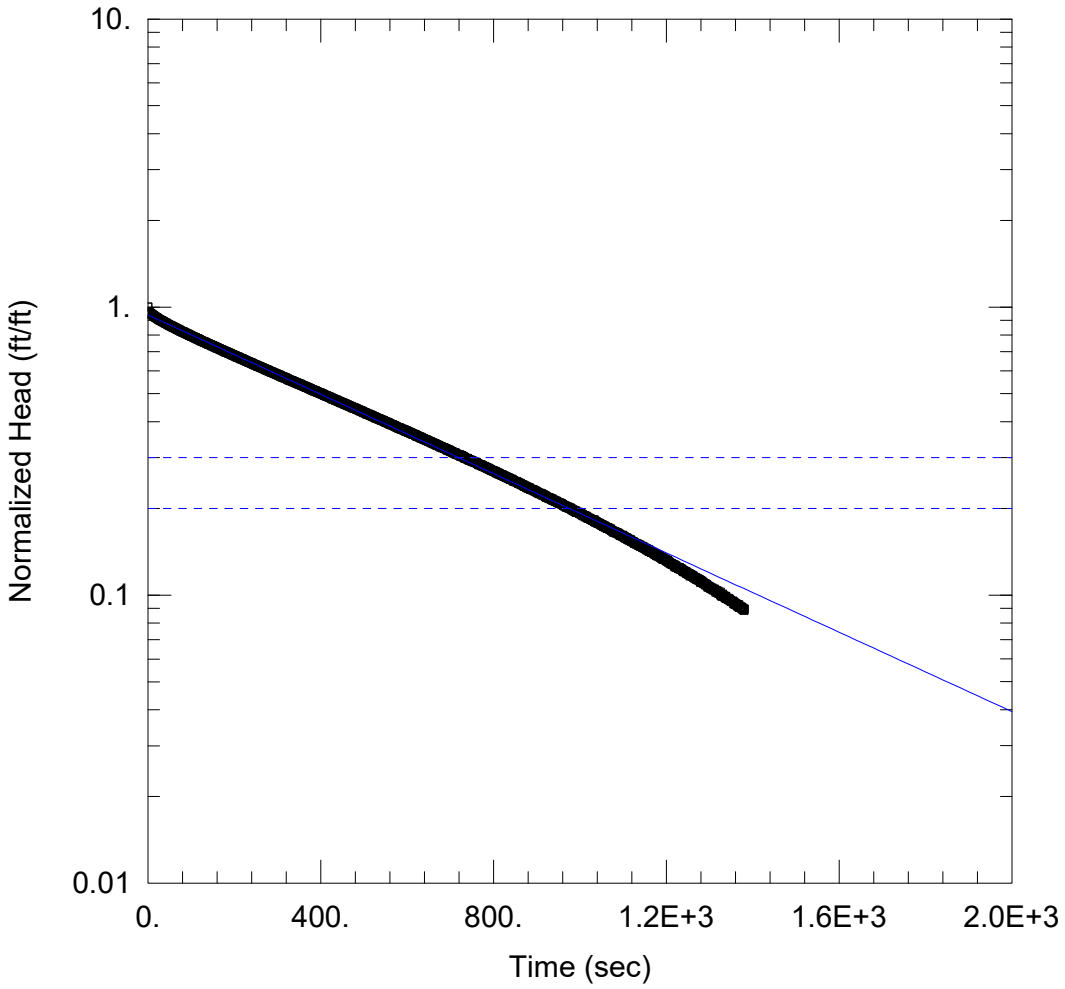
Saturated Thickness: 23.16 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-12_Test1)

Initial Displacement: 7.263 ft
Total Well Penetration Depth: 22.76 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.16 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.1294 ft/day
y0 = 4.94 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-12Test2_BR.aqt
Date: 01/22/21 Time: 16:51:26

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-12
Test Date: November 2020

AQUIFER DATA

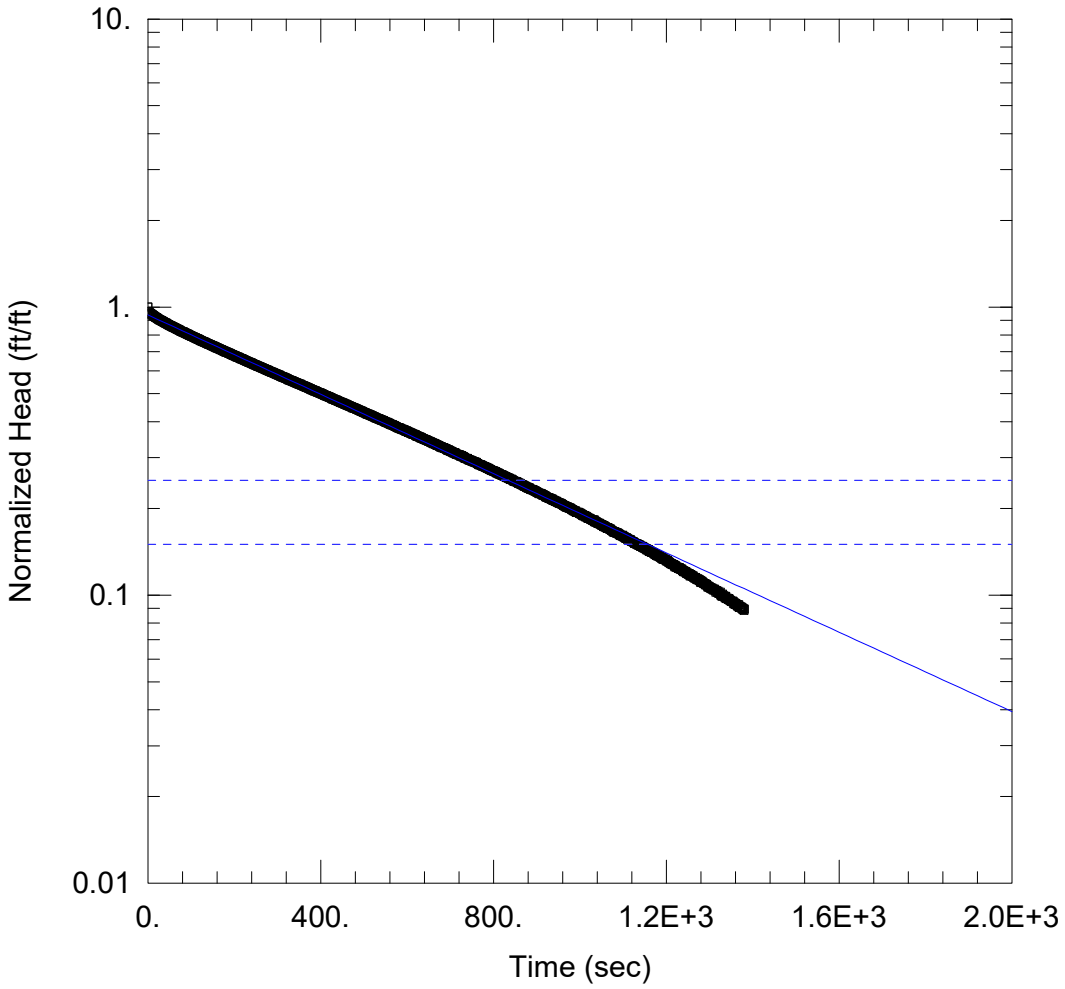
Saturated Thickness: 23.16 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-12_Test2)

Initial Displacement: 5.735 ft
Total Well Penetration Depth: 22.76 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.16 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.168 ft/day
y0 = 5.39 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-12Test2_Hvorslev.aqt
Date: 01/22/21 Time: 16:52:21

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-12
Test Date: November 2020

AQUIFER DATA

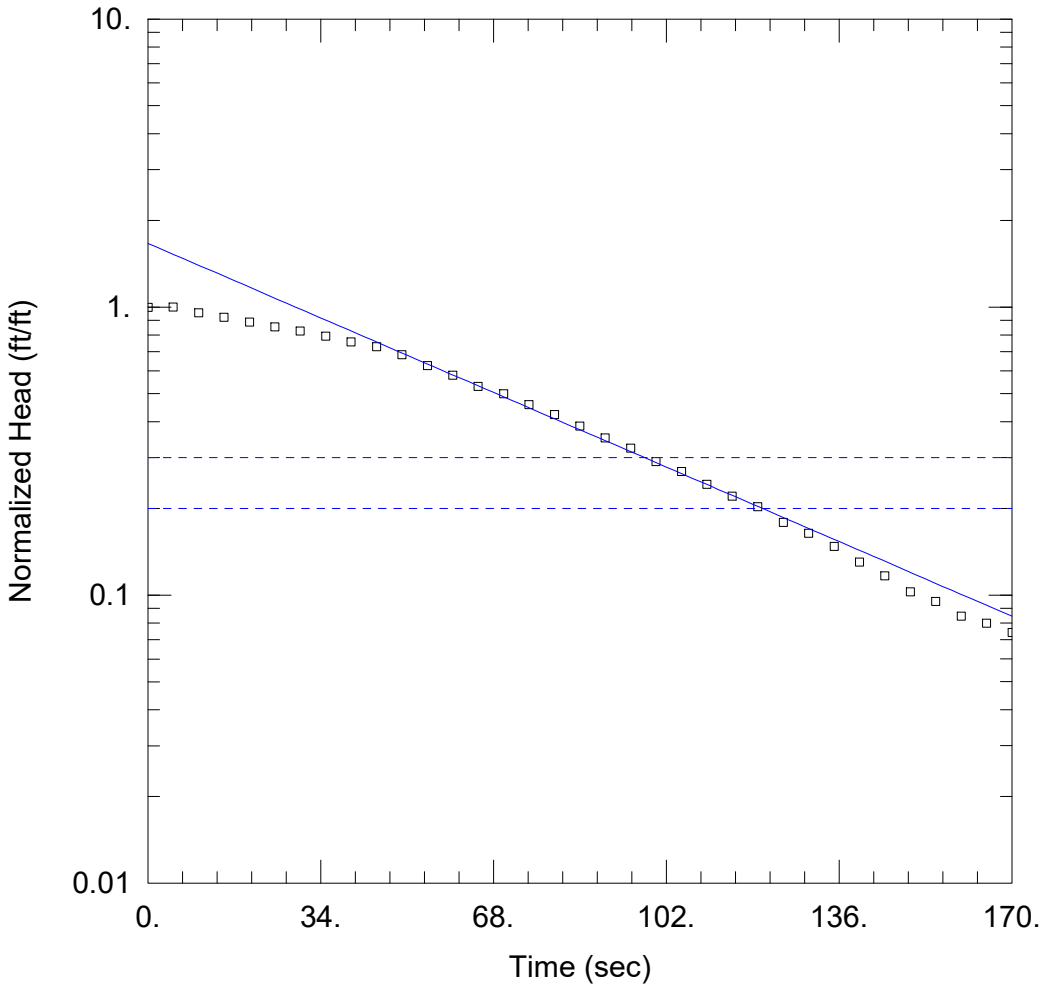
Saturated Thickness: 23.16 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-12_Test2)

Initial Displacement: 5.735 ft
Total Well Penetration Depth: 22.76 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.16 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.1987 ft/day
y0 = 5.39 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-17 Test 1 - Bouwer-Rice.aqt
Date: 01/22/21 Time: 15:44:54

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-17
Test Date: September 2020

AQUIFER DATA

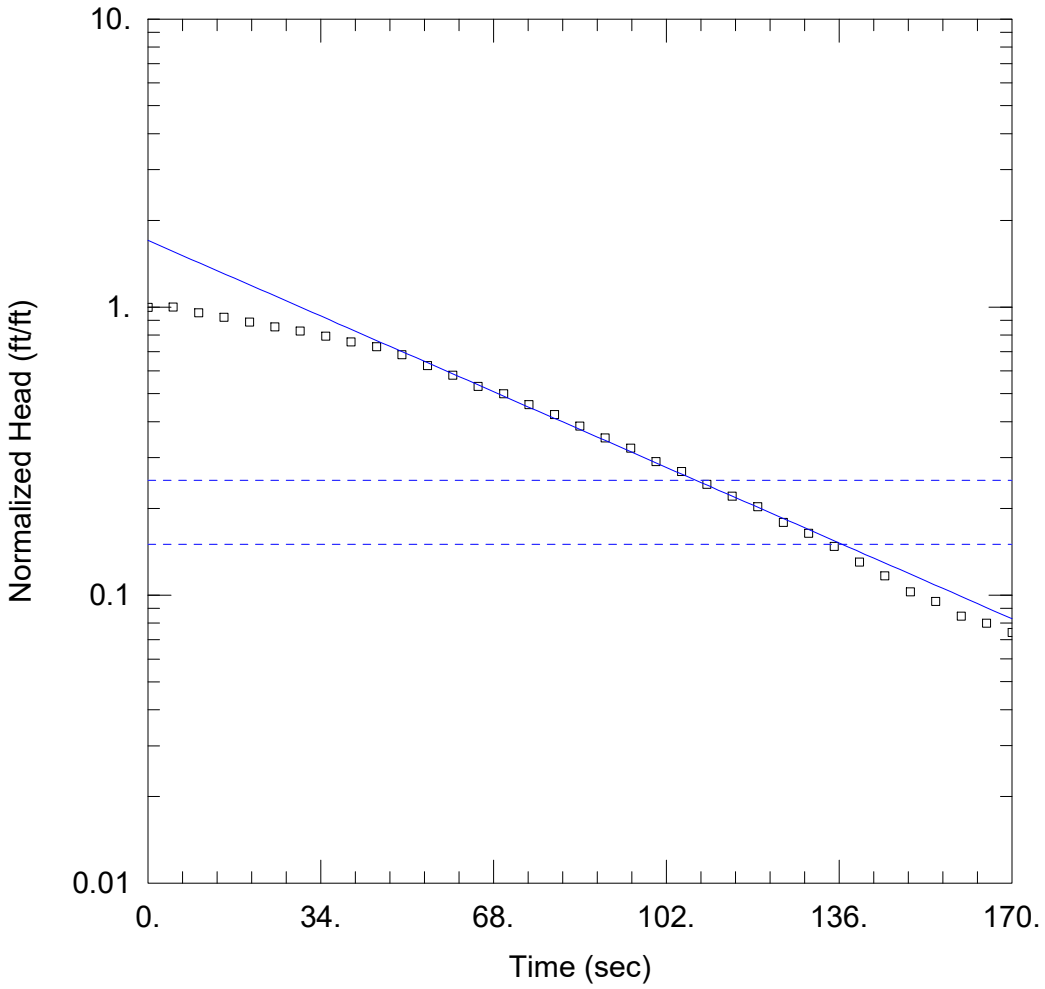
Saturated Thickness: 14.87 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-17)

Initial Displacement: 5.654 ft
Total Well Penetration Depth: 14.47 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.87 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.736 ft/day
y0 = 9.413 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-17 Test 1 - Hvorslev.aqt
Date: 01/22/21 Time: 15:48:51

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-17
Test Date: September 2020

AQUIFER DATA

Saturated Thickness: 14.87 ft Anisotropy Ratio (Kz/Kr): 0.1

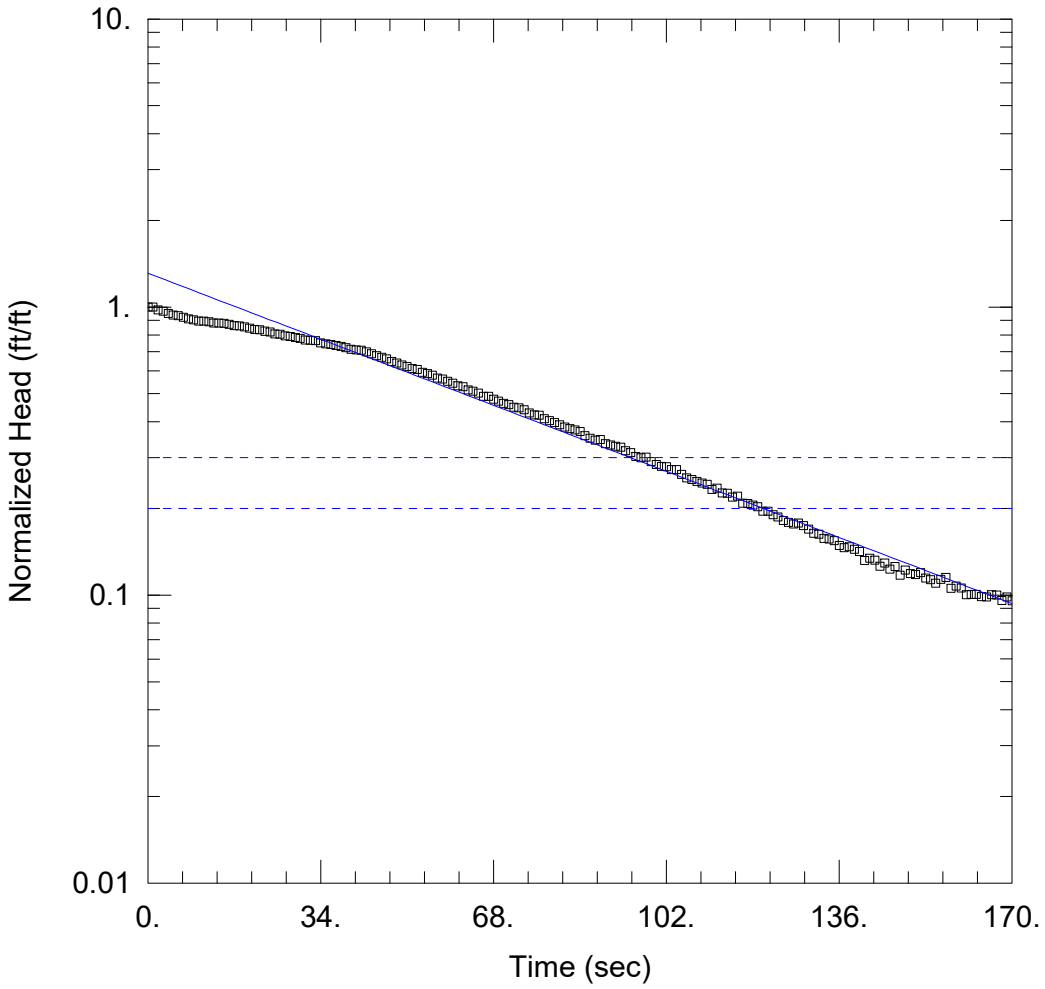
WELL DATA (PZ-17)

Initial Displacement: 5.654 ft
Total Well Penetration Depth: 14.47 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.87 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 2.228 ft/day y0 = 9.639 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-17 Test 2 - Bouwer-Rice.aqt
Date: 01/22/21 Time: 16:01:39

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-17
Test Date: September 2020

AQUIFER DATA

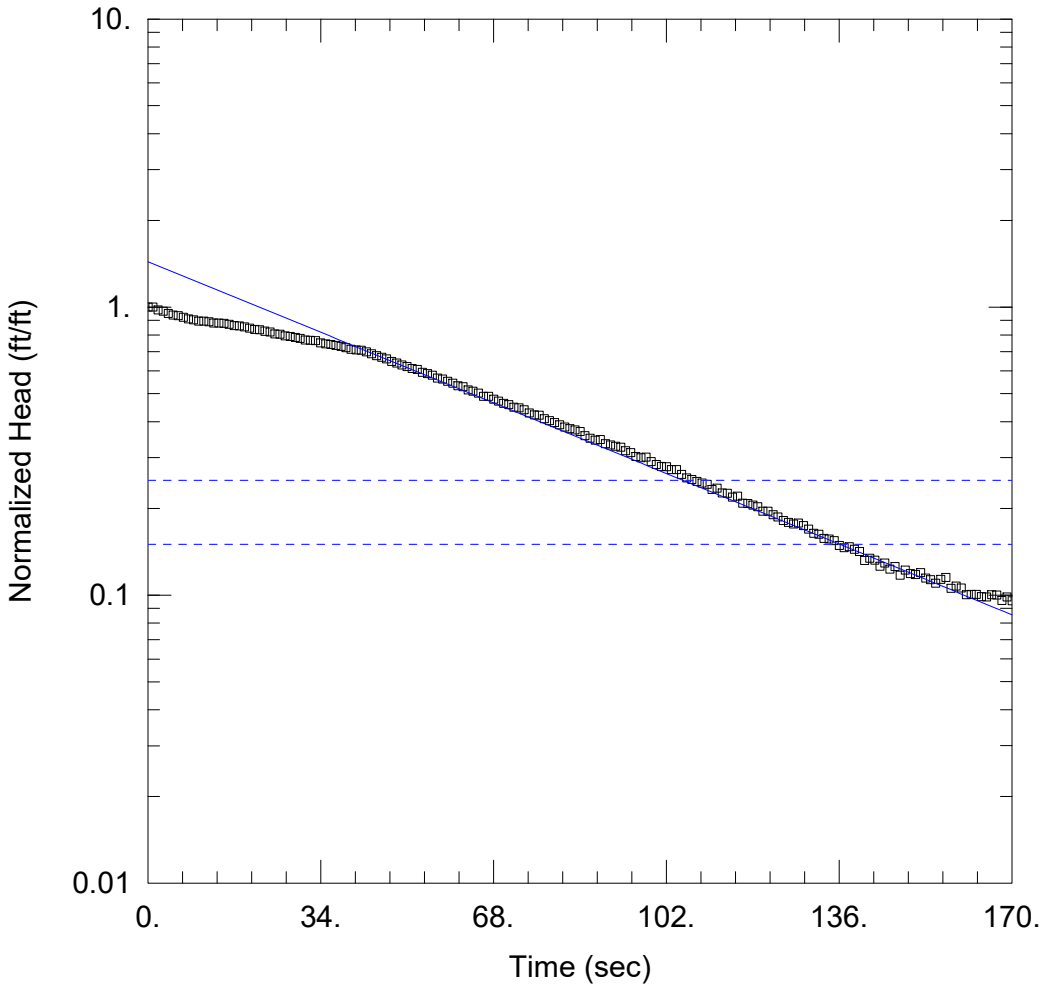
Saturated Thickness: 14.87 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-17)

Initial Displacement: 5.92 ft
Total Well Penetration Depth: 14.47 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.87 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.539 ft/day
y0 = 7.762 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-17 Test 2 - Hvorslev.aqt
Date: 01/22/21 Time: 16:03:04

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-17
Test Date: September 2020

AQUIFER DATA

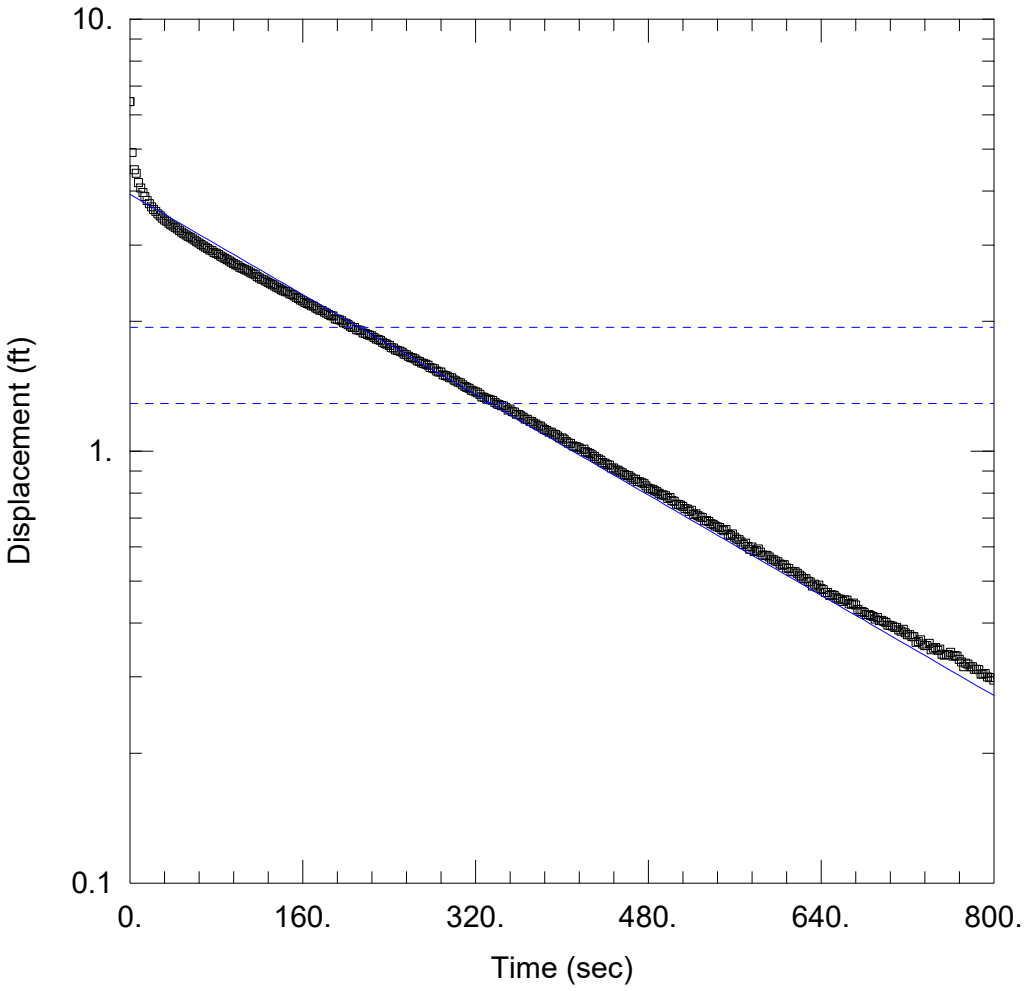
Saturated Thickness: 14.87 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-17)

Initial Displacement: 5.92 ft
Total Well Penetration Depth: 14.47 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.87 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 2.078 ft/day
y0 = 8.505 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-22Test1_BR.aqt
Date: 01/22/21 Time: 17:01:13

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-22
Test Date: November 2020

AQUIFER DATA

Saturated Thickness: 17. ft Anisotropy Ratio (Kz/Kr): 0.1

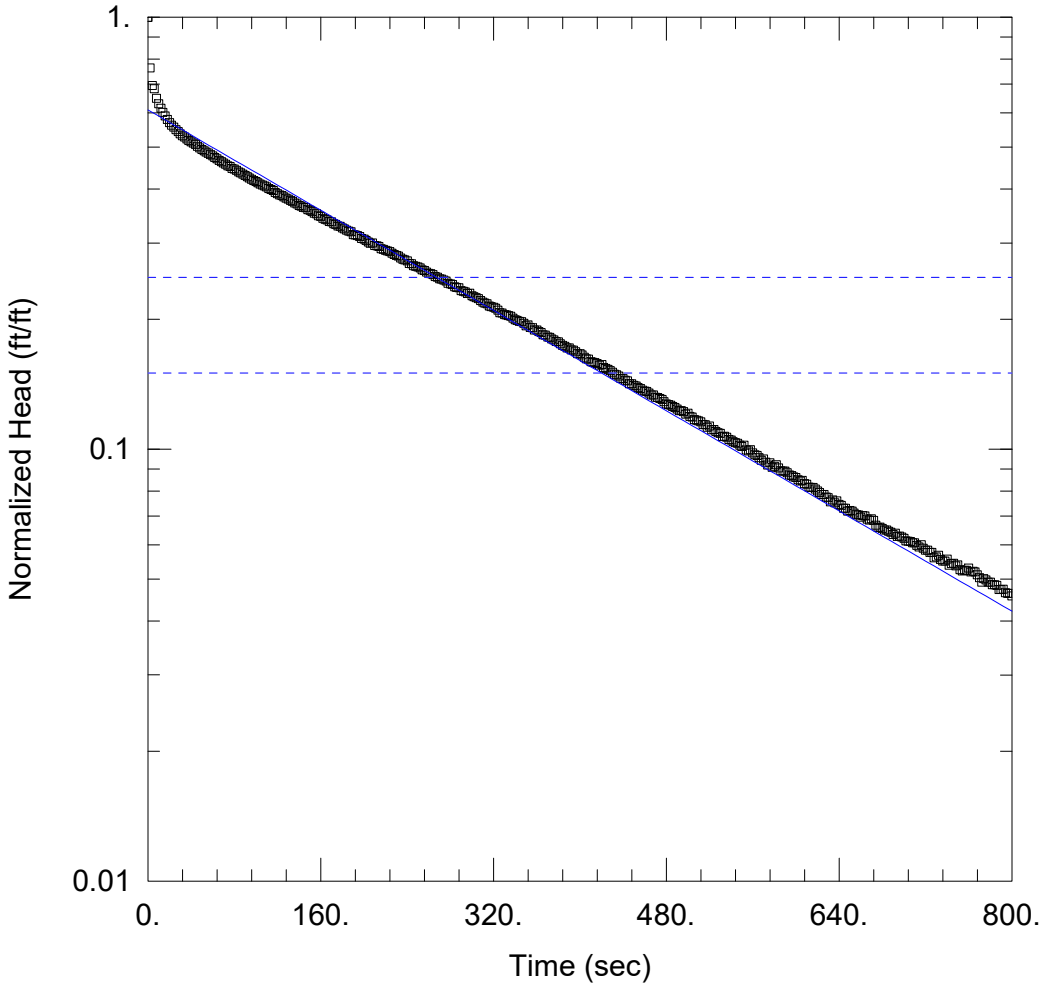
WELL DATA (PZ-22_Test1)

Initial Displacement: 6.45 ft
Total Well Penetration Depth: 16.6 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17. ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3378 ft/day y0 = 3.933 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-22Test1_Hvorslev.aqt
Date: 01/22/21 Time: 17:02:26

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-22
Test Date: November 2020

AQUIFER DATA

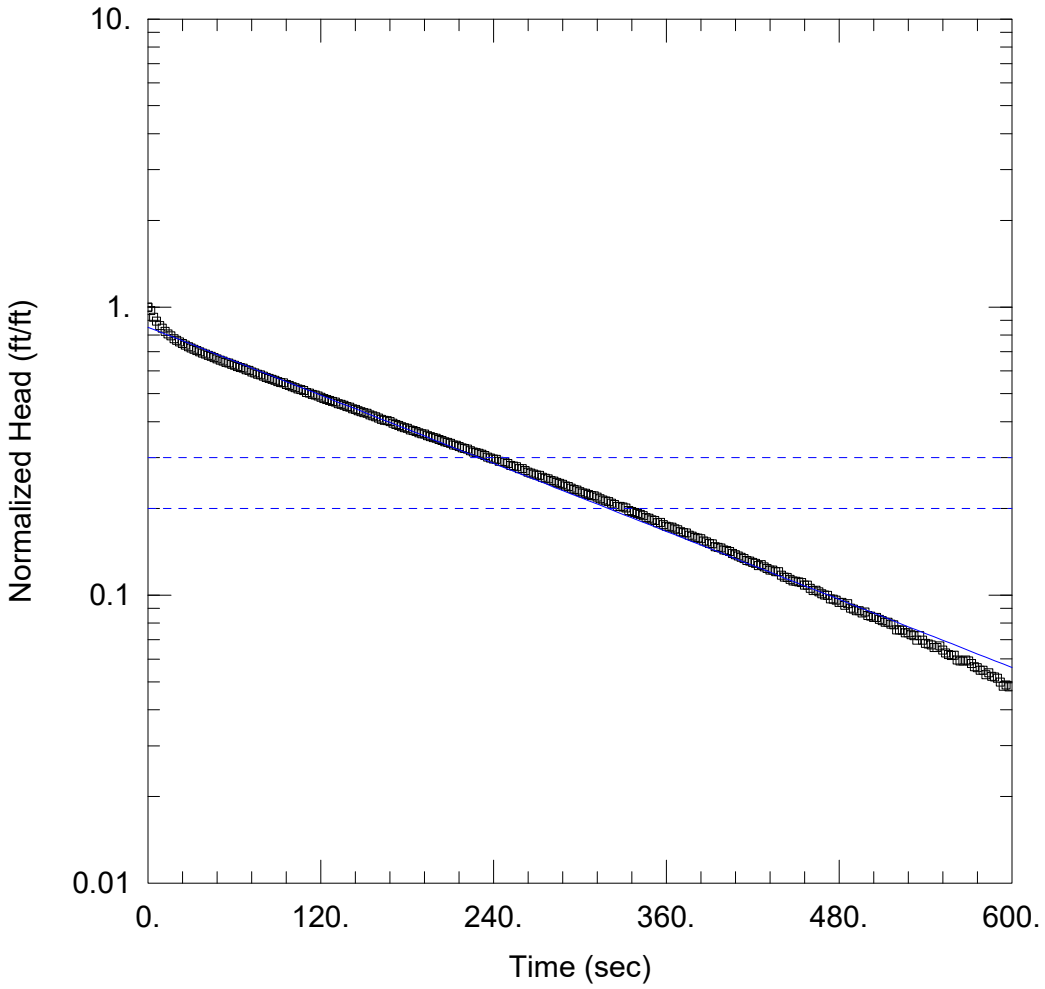
Saturated Thickness: 17. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-22_Test1)

Initial Displacement: 6.45 ft
Total Well Penetration Depth: 16.6 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17. ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.4183 ft/day
y0 = 3.933 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-22Test2_BR.aqt
Date: 01/22/21 Time: 17:04:15

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-22
Test Date: November 2020

AQUIFER DATA

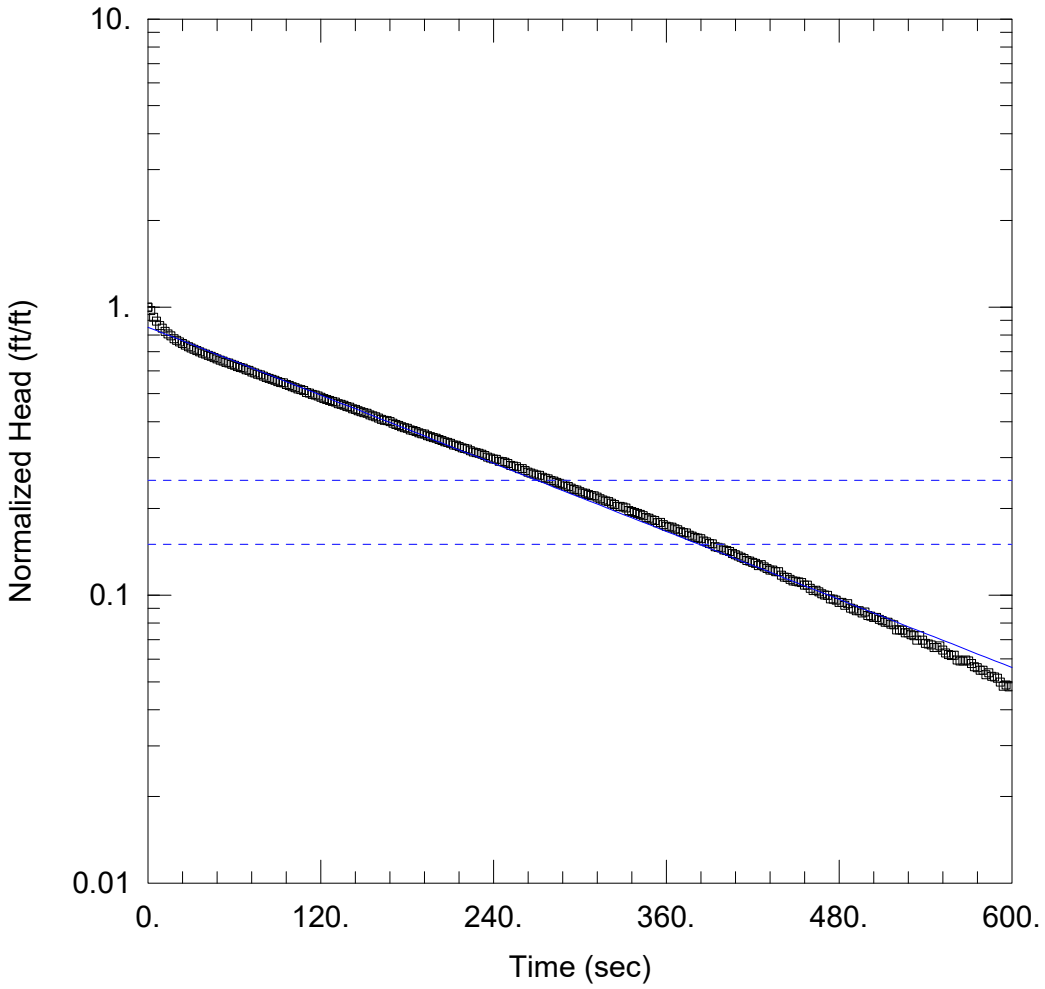
Saturated Thickness: 17. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-22_Test2)

Initial Displacement: 3.829 ft
Total Well Penetration Depth: 16.6 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17. ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.4588 ft/day
y0 = 3.263 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-22Test2_Hvorslev.aqt
Date: 01/22/21 Time: 17:05:11

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PZ-22
Test Date: November 2020

AQUIFER DATA

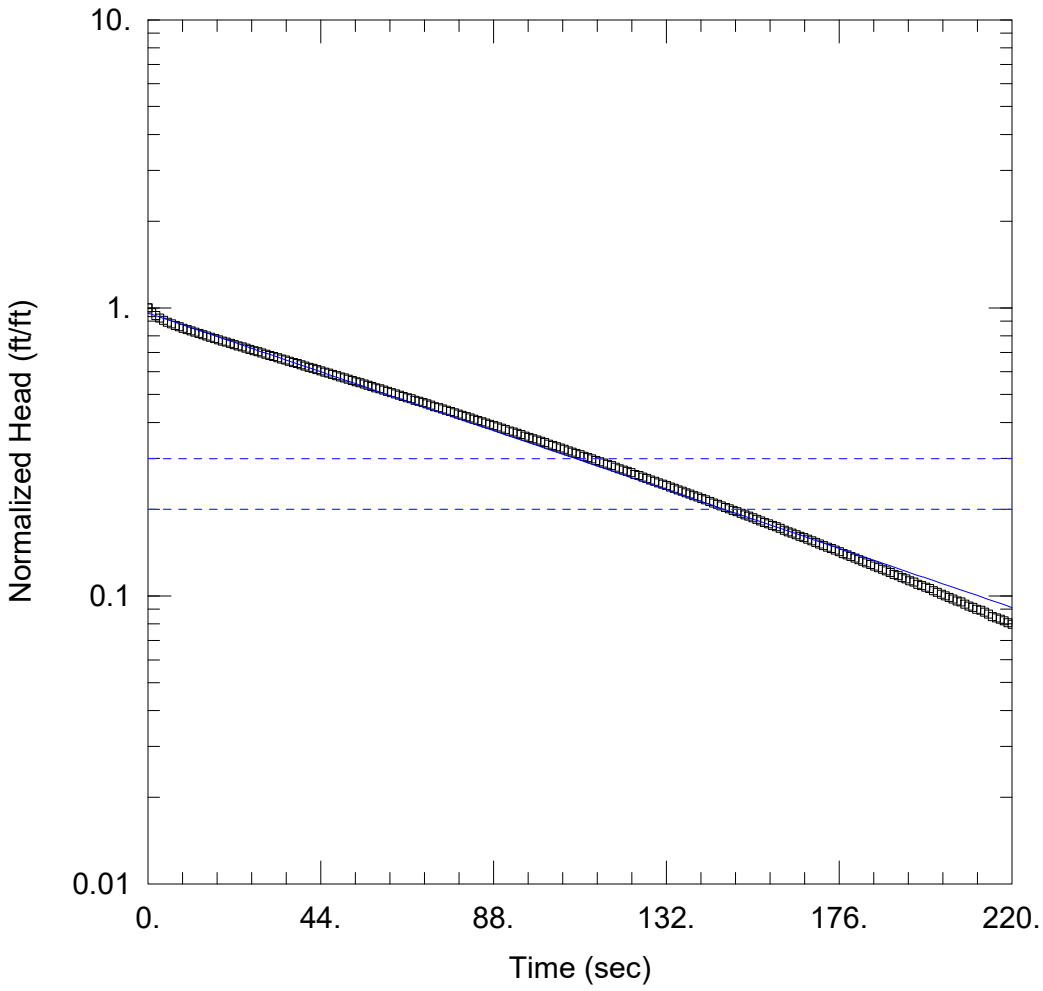
Saturated Thickness: 17. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-22_Test2)

Initial Displacement: 3.829 ft
Total Well Penetration Depth: 16.6 ft
Casing Radius: 0.083 ft
Static Water Column Height: 17. ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.568 ft/day
y0 = 3.263 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-23DTest1_BR.aqt
Date: 01/22/21 Time: 17:07:37

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-23D
Test Date: 11/5/2020

AQUIFER DATA

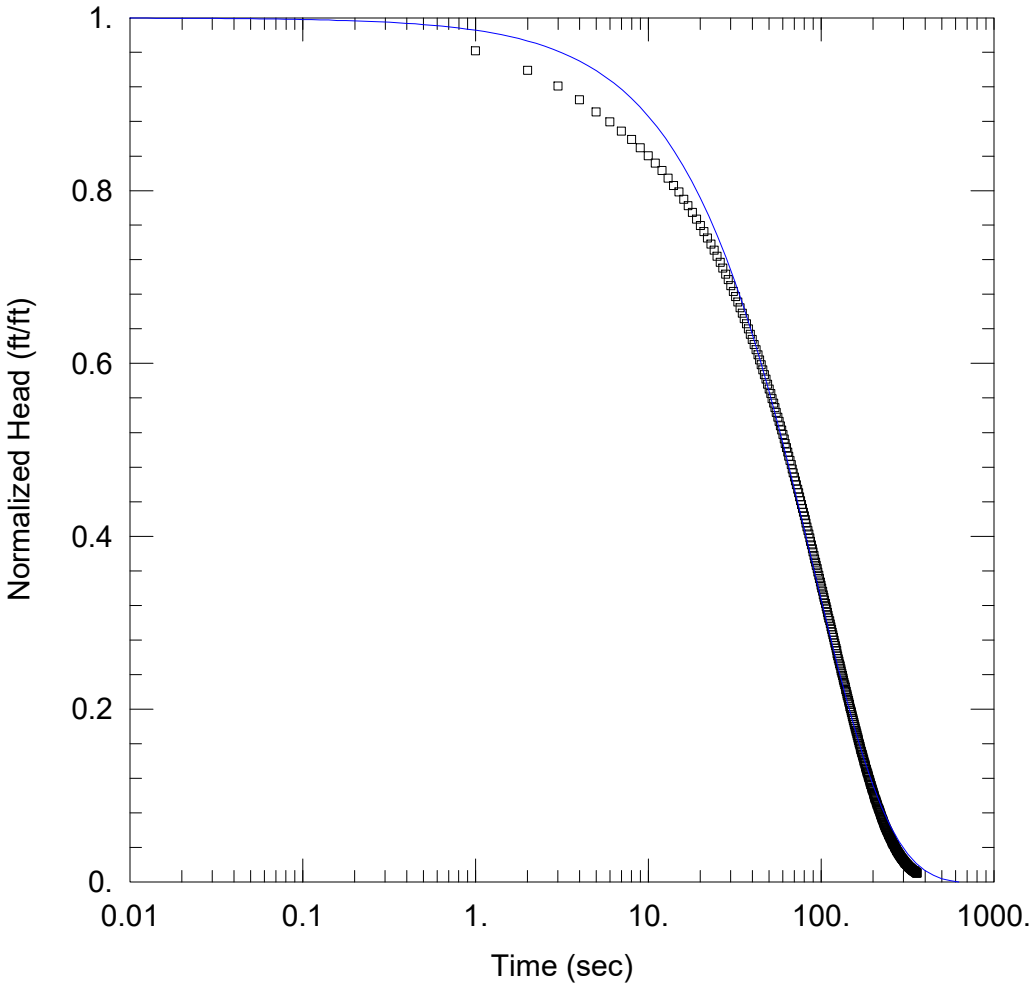
Saturated Thickness: 44.59 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-23D_Test1)

Initial Displacement: 16.79 ft
Total Well Penetration Depth: 44.19 ft
Casing Radius: 0.083 ft
Static Water Column Height: 44.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.236 ft/day
y0 = 16.12 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-23DTest1_KGS.aqt
Date: 01/22/21 Time: 17:10:33

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-23D
Test Date: 11/5/2020

AQUIFER DATA

Saturated Thickness: 44.59 ft

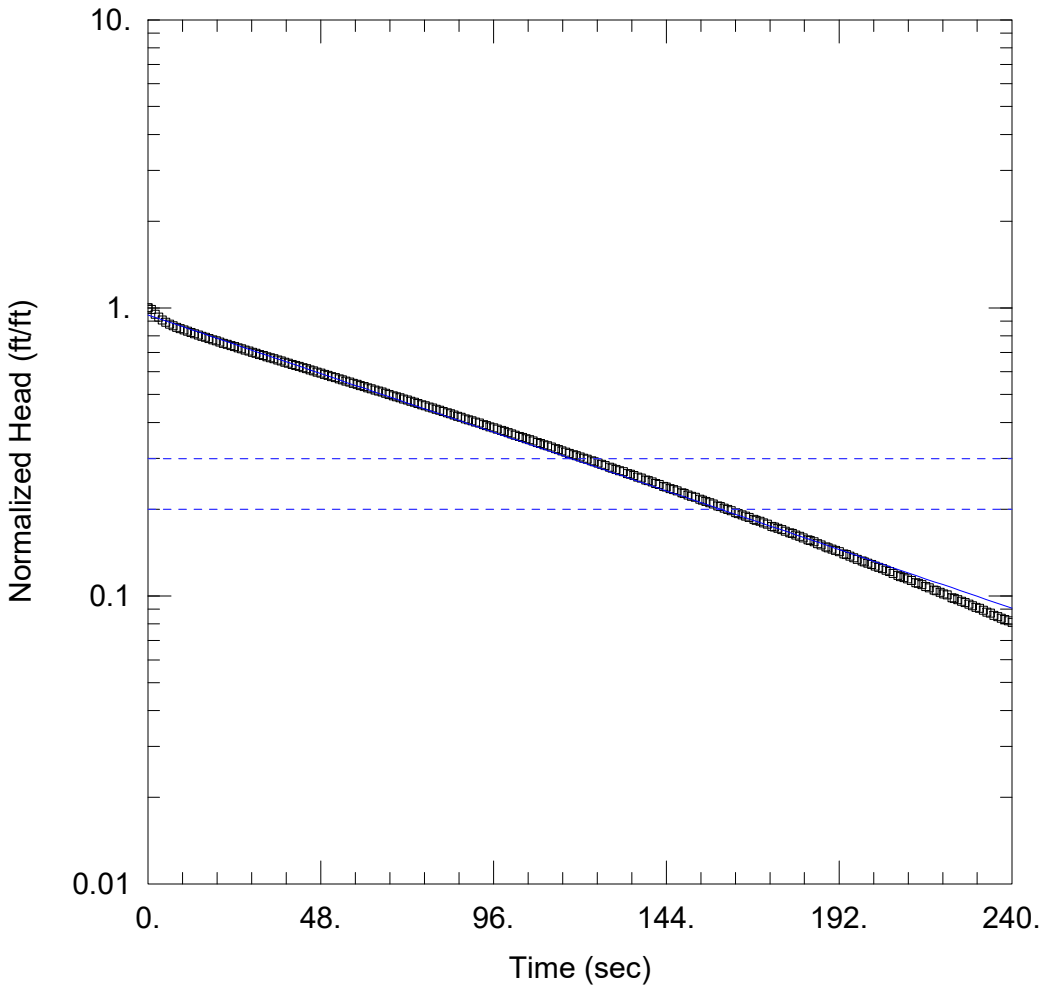
WELL DATA (PZ-23D_Test1)

Initial Displacement: 16.79 ft
Total Well Penetration Depth: 44.19 ft
Casing Radius: 0.083 ft
Static Water Column Height: 44.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.432 ft/day
Kz/Kr = 0.1
Ss = 5.955E-8 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-23DTest2_BR.aqt
Date: 01/22/21 Time: 17:12:56

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-23D
Test Date: 11/5/2020

AQUIFER DATA

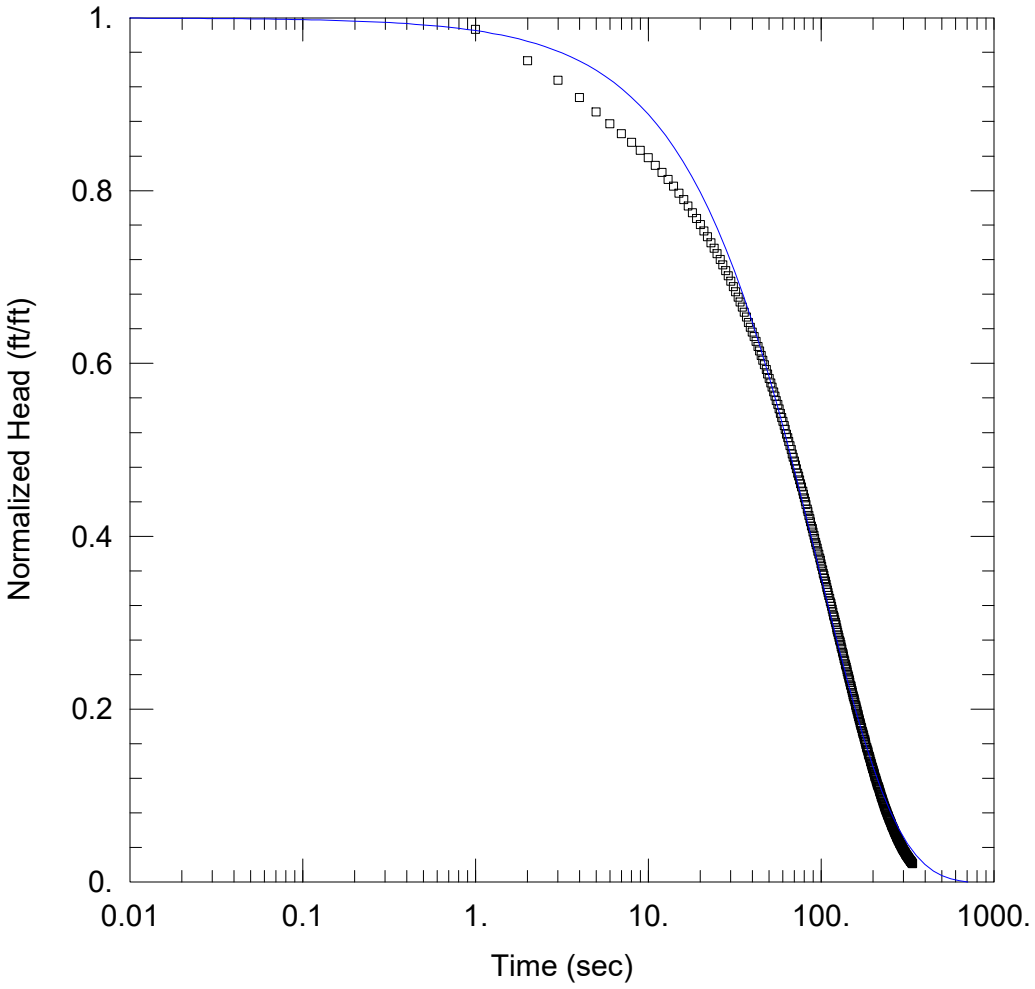
Saturated Thickness: 44.59 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-23D_Test2)

Initial Displacement: 17.92 ft
Total Well Penetration Depth: 44.19 ft
Casing Radius: 0.083 ft
Static Water Column Height: 44.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.128 ft/day
y0 = 16.95 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-23DTest2_KGS.aqt
Date: 01/22/21 Time: 17:14:14

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-23D
Test Date: 11/5/2020

AQUIFER DATA

Saturated Thickness: 44.59 ft

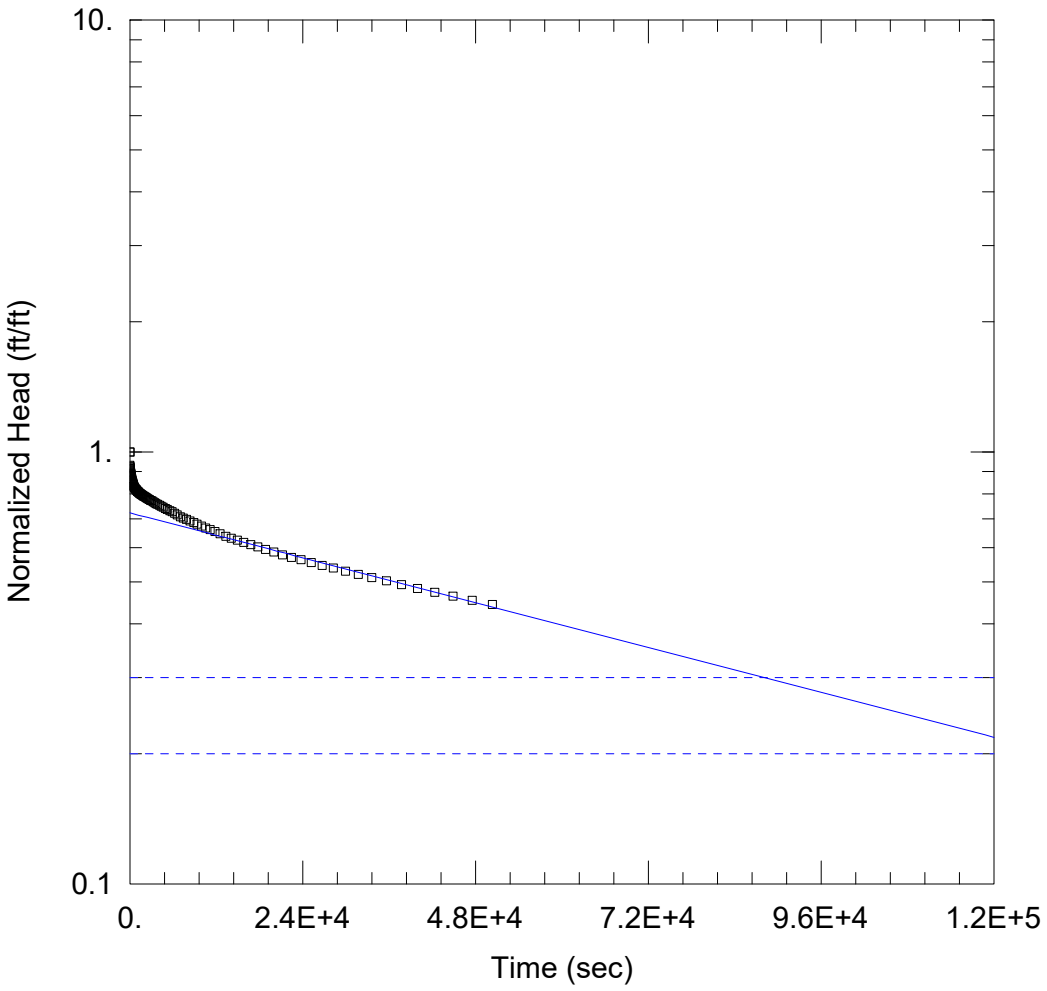
WELL DATA (PZ-23D_Test2)

Initial Displacement: 17.92 ft
Total Well Penetration Depth: 44.19 ft
Casing Radius: 0.083 ft
Static Water Column Height: 44.59 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.321 ft/day
Kz/Kr = 0.1
Ss = 1.51E-7 ft^{-1}



PZ-23S

Data Set: N:\...\PZ-23S_BR.aqt
Date: 01/27/21 Time: 12:29:03

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-23S
Test Date: 1/13/2021 - 1/14/2021

AQUIFER DATA

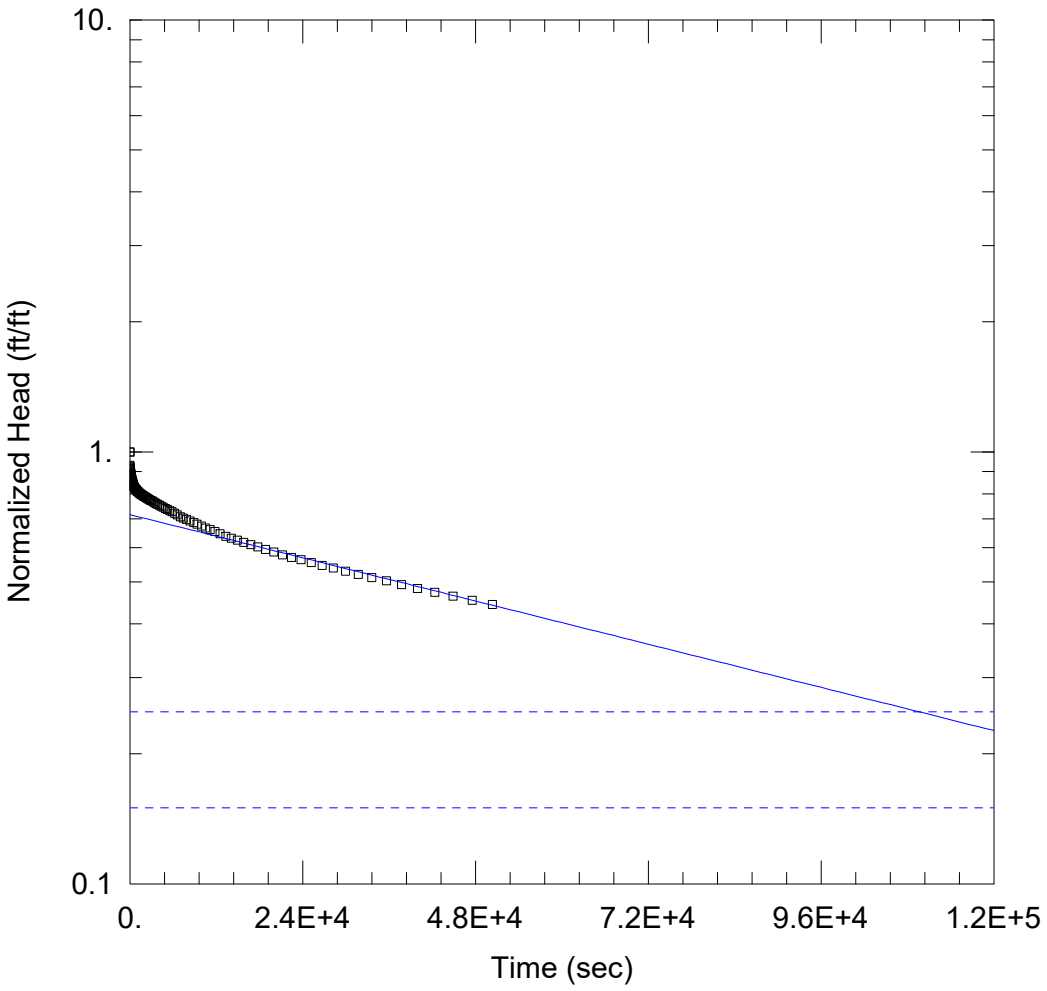
Saturated Thickness: 22.5 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-23S)

Initial Displacement: 10.67 ft
Total Well Penetration Depth: 22.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.5 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002218 ft/day
y0 = 7.706 ft



PZ-23S

Data Set: N:\...\PZ-23S_Hvorslev.aqt
Date: 01/27/21 Time: 12:28:29

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-23S
Test Date: 1/13/2021 - 1/14/2021

AQUIFER DATA

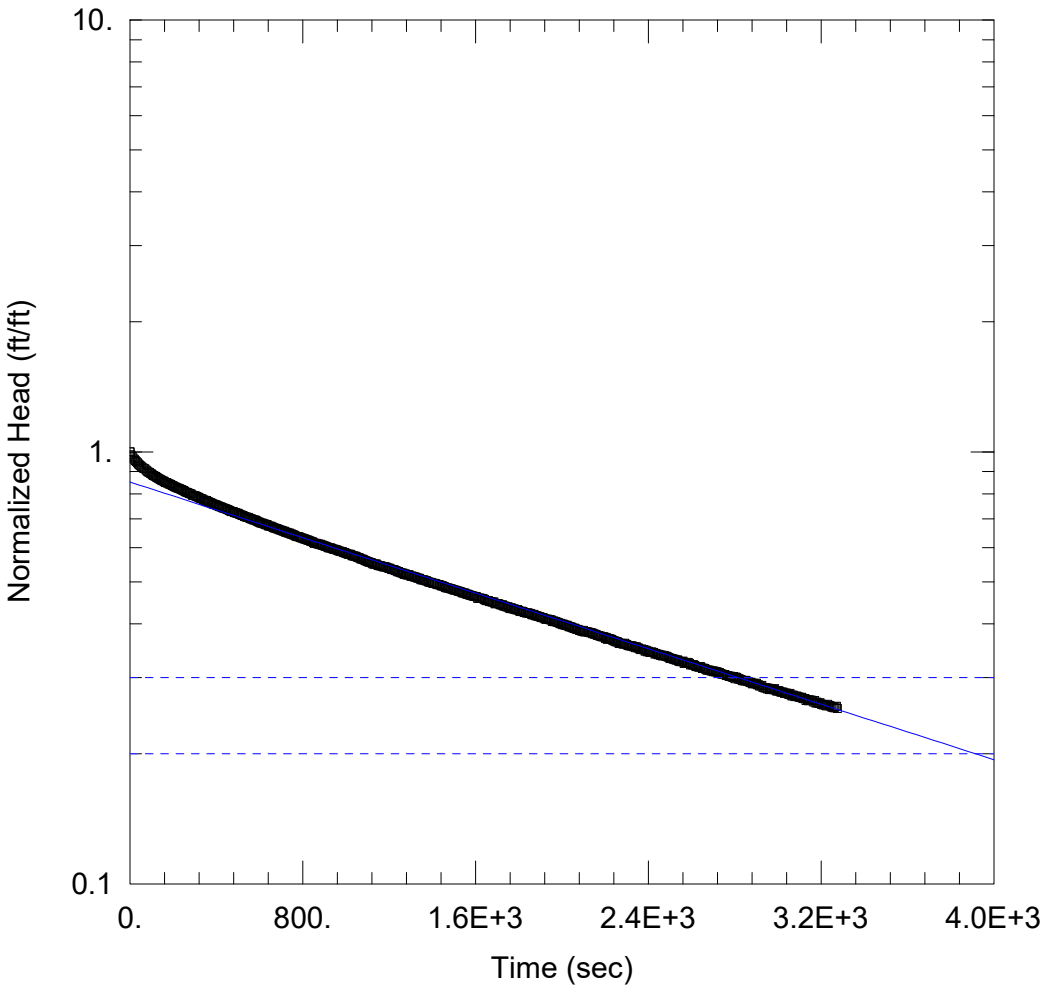
Saturated Thickness: 22.5 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-23S)

Initial Displacement: 10.67 ft
Total Well Penetration Depth: 22.1 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.5 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.0002536 ft/day
y0 = 7.64 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-24_BR.aqt
Date: 01/27/21 Time: 12:38:26

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-24 Test 1
Test Date: 1/13/2021

AQUIFER DATA

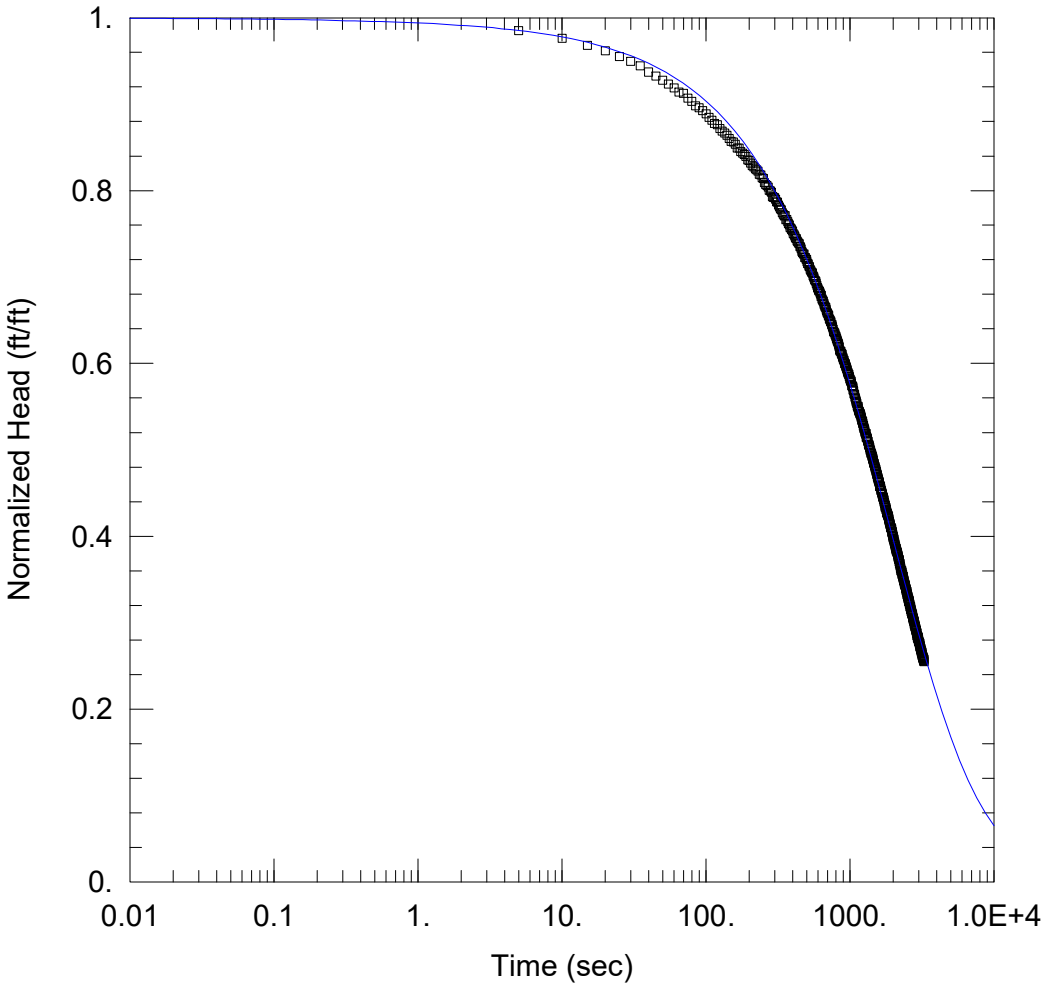
Saturated Thickness: 26.77 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-24)

Initial Displacement: 4.1 ft
Total Well Penetration Depth: 26.37 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.77 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03997 ft/day
y0 = 3.49 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-24_KGS.aqt
Date: 01/27/21 Time: 12:40:14

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-24
Test Date: 1/13/2021

AQUIFER DATA

Saturated Thickness: 26.77 ft

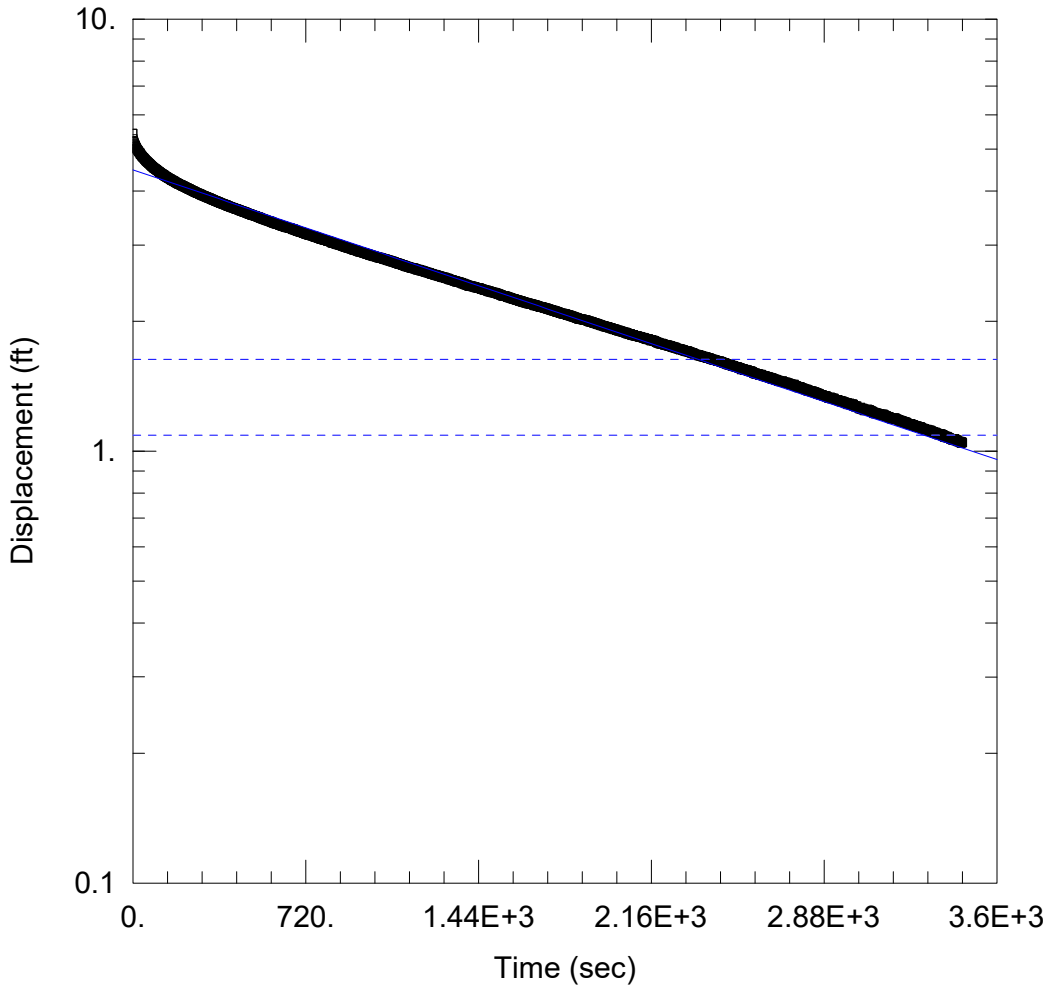
WELL DATA (PZ-24)

Initial Displacement: 4.1 ft
Total Well Penetration Depth: 26.37 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.77 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.03286 ft/day
Kz/Kr = 0.1
Ss = 8.068E-5 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-24Test2_BR.aqt
Date: 01/22/21 Time: 17:36:14

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PB-07
Test Date: November 2020

AQUIFER DATA

Saturated Thickness: 26.01 ft Anisotropy Ratio (Kz/Kr): 0.1

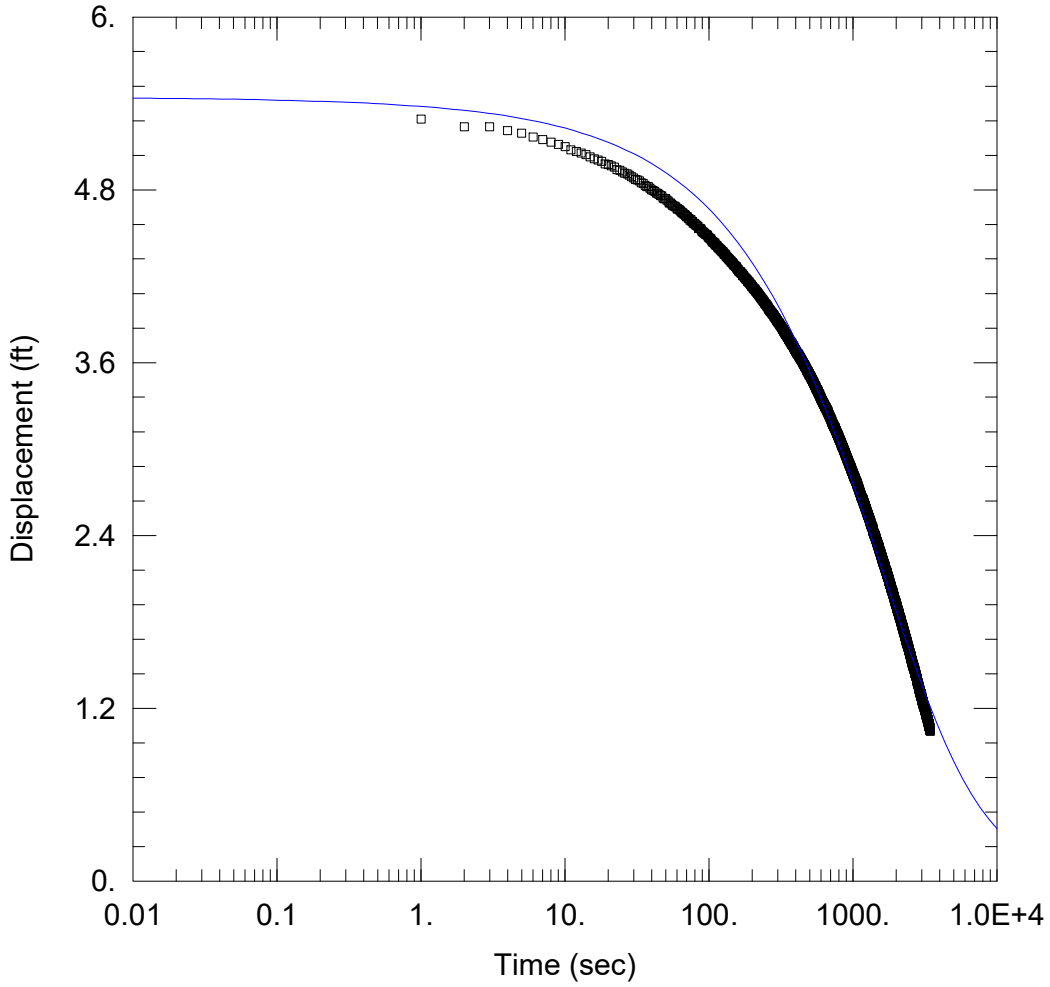
WELL DATA (PZ-24_Test2)

Initial Displacement: 5.443 ft
Total Well Penetration Depth: 25.61 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.01 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.04617 ft/day y0 = 4.475 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-24Test2_KGS.aqt
Date: 01/27/21 Time: 12:43:56

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: PB-07
Test Date: November 2020

AQUIFER DATA

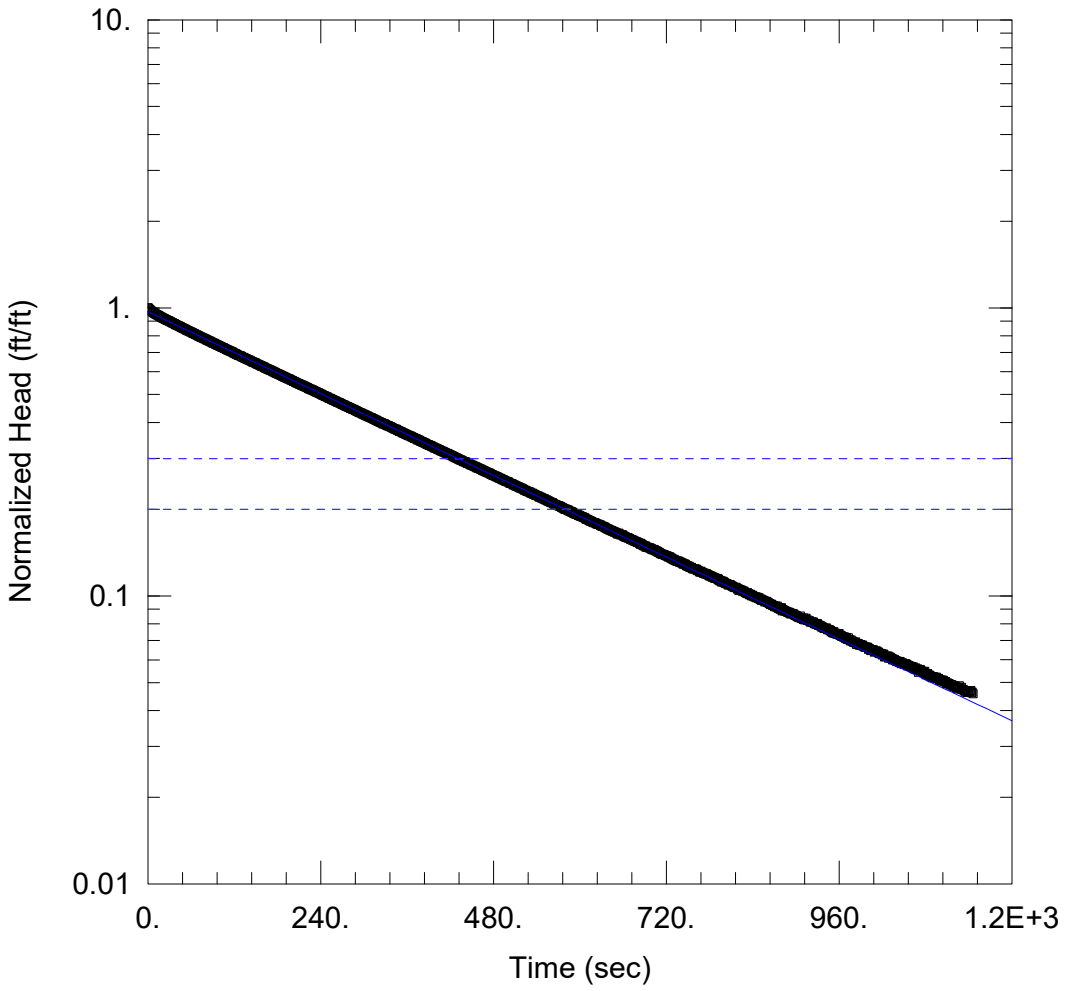
Saturated Thickness: 26.01 ft

WELL DATA (PZ-24_Test2)

Initial Displacement: 5.443 ft
Total Well Penetration Depth: 25.61 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.01 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model
Kr = 0.02774 ft/day
Kz/Kr = 0.1
Ss = 0.0004319 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-25STest1_BR.aqt
Date: 01/22/21 Time: 17:39:54

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-25S
Test Date: 11/5/2020

AQUIFER DATA

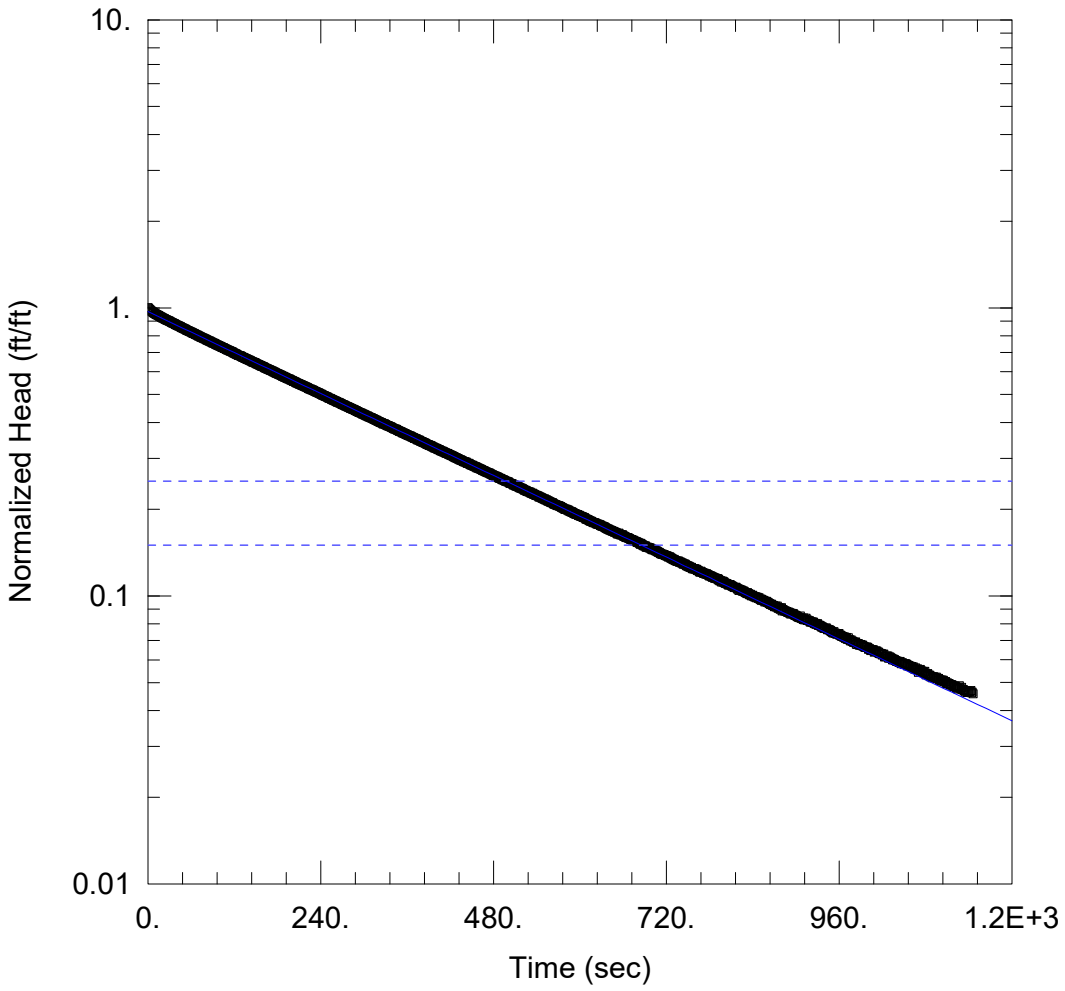
Saturated Thickness: 22.86 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-25S_Test1)

Initial Displacement: 9.113 ft
Total Well Penetration Depth: 22.46 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.86 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2881 ft/day
y0 = 8.838 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-25STest1_Hvorslev.aqt
Date: 01/22/21 Time: 17:41:33

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-25S
Test Date: 11/5/2020

AQUIFER DATA

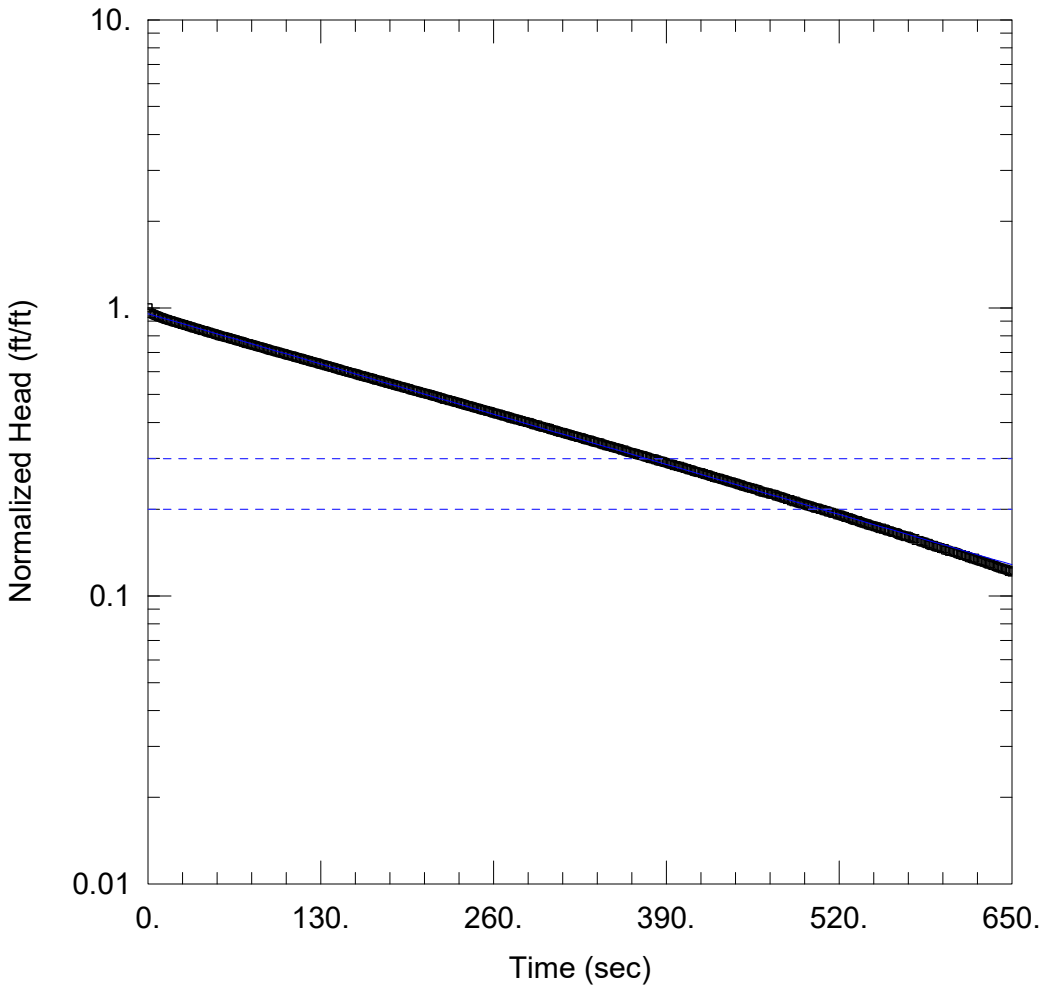
Saturated Thickness: 22.86 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-25S_Test1)

Initial Displacement: 9.113 ft
Total Well Penetration Depth: 22.46 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.86 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.3413 ft/day
y0 = 8.838 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-25STest2_BR.aqt
Date: 01/22/21 Time: 17:42:58

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-25S
Test Date: 11/5/2020

AQUIFER DATA

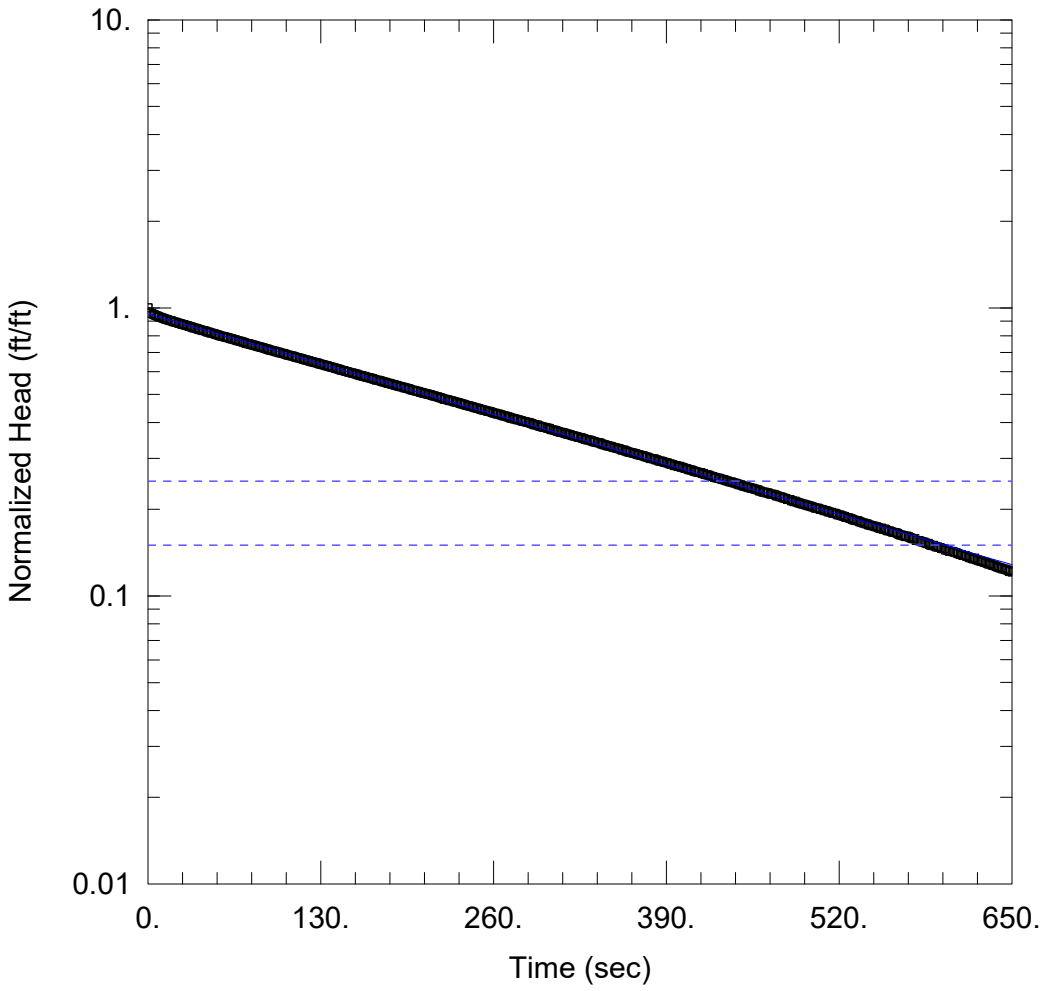
Saturated Thickness: 22.86 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-25S_Test2)

Initial Displacement: 7.094 ft
Total Well Penetration Depth: 22.46 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.86 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3263 ft/day
y0 = 6.767 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-25STest2_Hvorslev.aqt
Date: 01/22/21 Time: 17:43:46

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-25S
Test Date: 11/5/2020

AQUIFER DATA

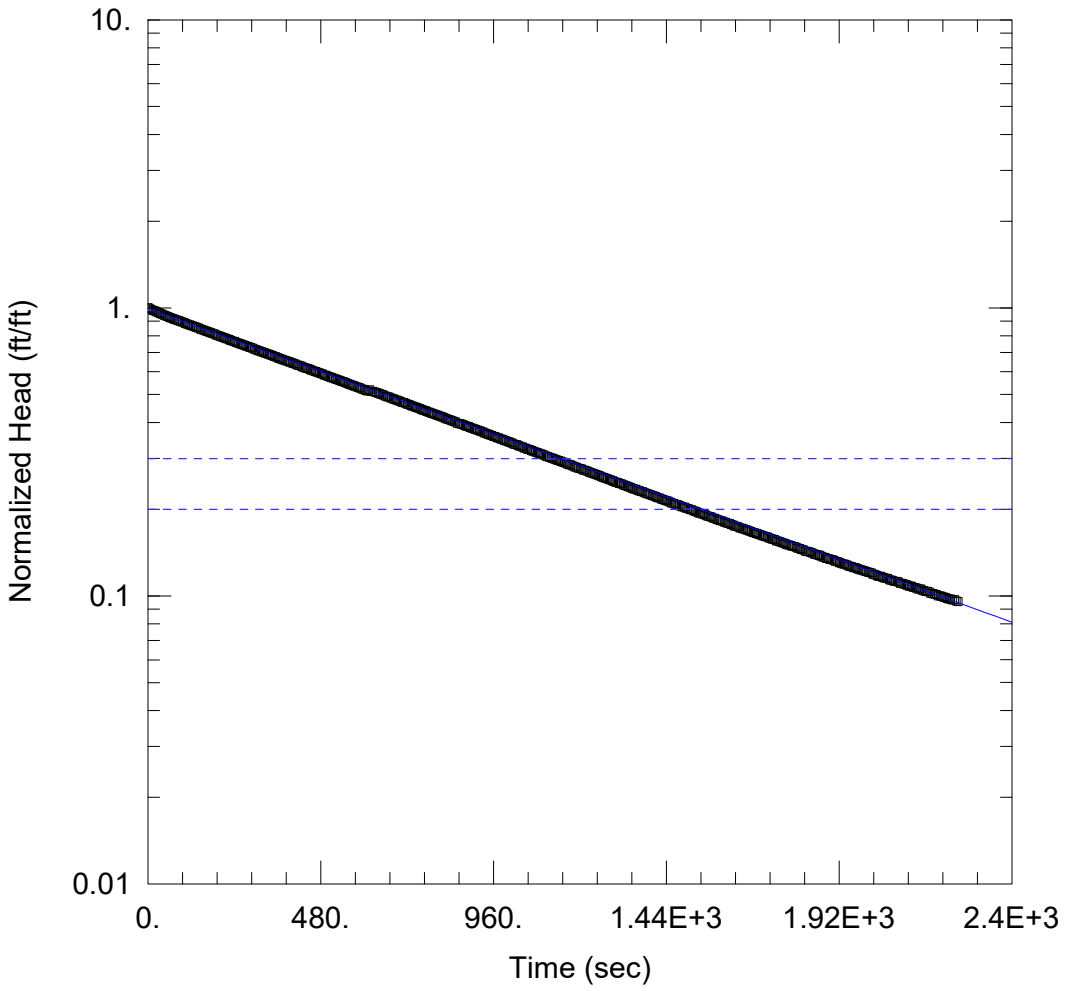
Saturated Thickness: 22.86 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-25S_Test2)

Initial Displacement: 7.094 ft
Total Well Penetration Depth: 22.46 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.86 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.3866 ft/day
y0 = 6.767 ft



PZ-26D TEST 1

Data Set: N:\...\PZ-26D_BR_Test1.aqt
Date: 01/24/21 Time: 21:44:17

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26D
Test Date: 1/13/2021

AQUIFER DATA

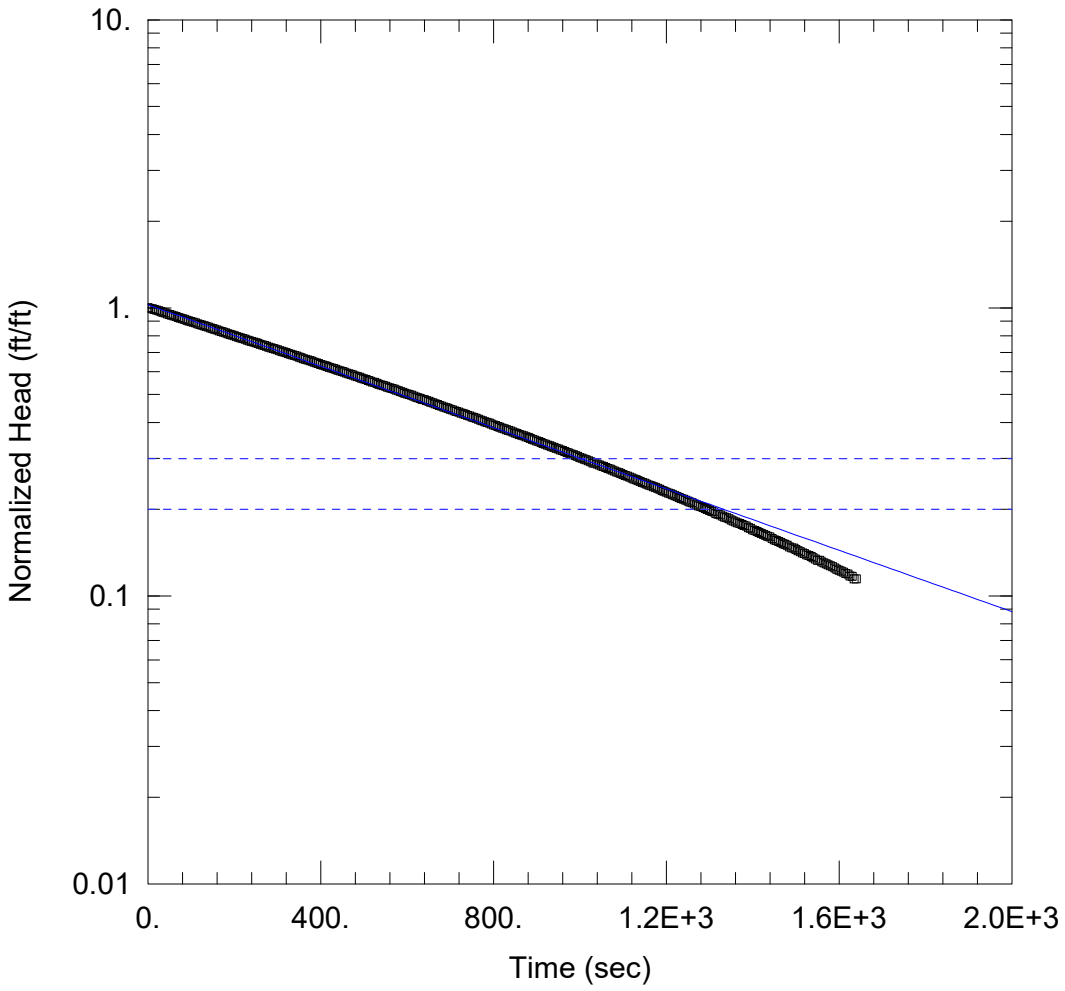
Saturated Thickness: 61.99 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26D)

Initial Displacement: 14.13 ft
Total Well Penetration Depth: 61.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.99 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02647 ft/day
y0 = 14. ft



PZ-26D TEST 2

Data Set: N:\...\PZ-26D_BR_Test2.aqt
Date: 01/24/21 Time: 21:49:18

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26D
Test Date: 1/13/2021

AQUIFER DATA

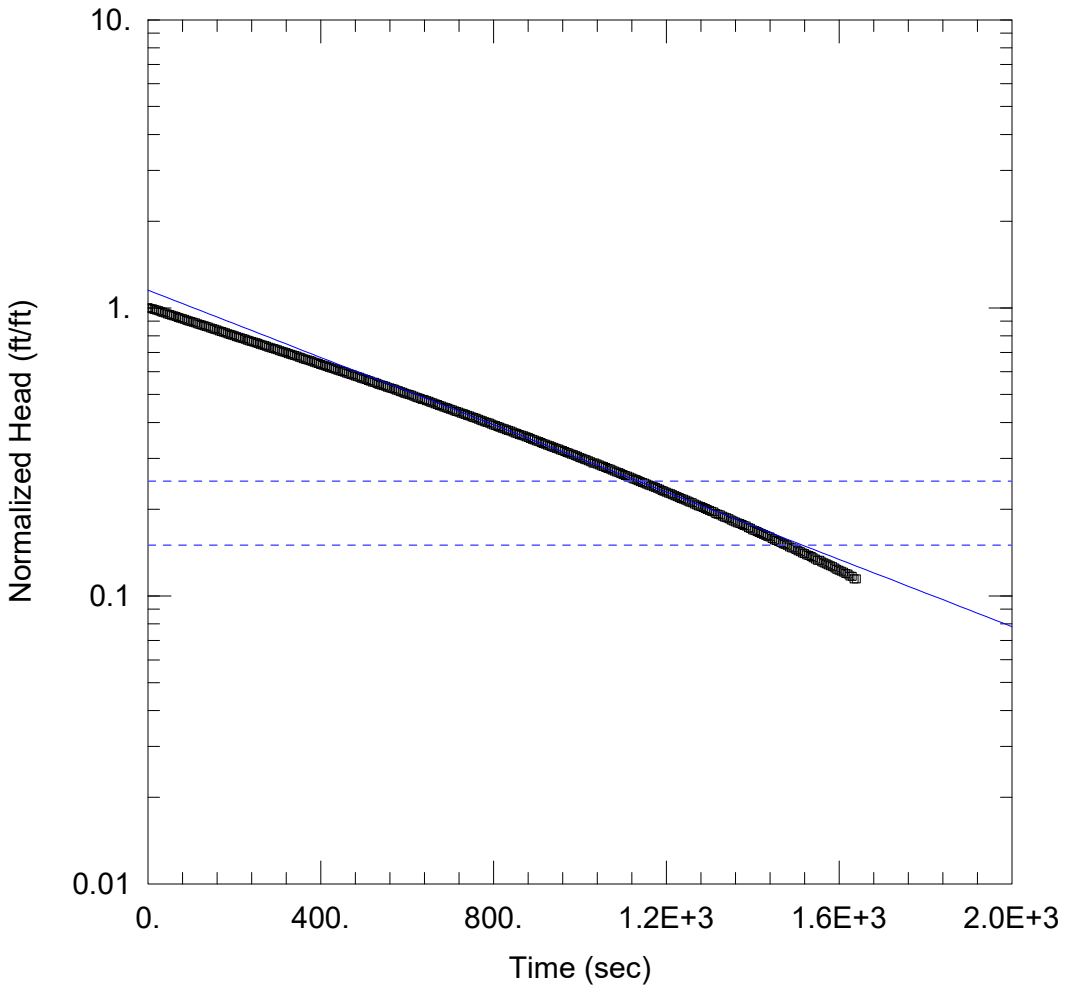
Saturated Thickness: 61.99 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26D)

Initial Displacement: 12.84 ft
Total Well Penetration Depth: 61.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.99 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03111 ft/day
y0 = 13.15 ft



PZ-26D TEST 2

Data Set: N:\...\PZ-26D_Hvorslev_Test2.aqt
Date: 01/24/21 Time: 21:50:20

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26D
Test Date: 1/13/2021

AQUIFER DATA

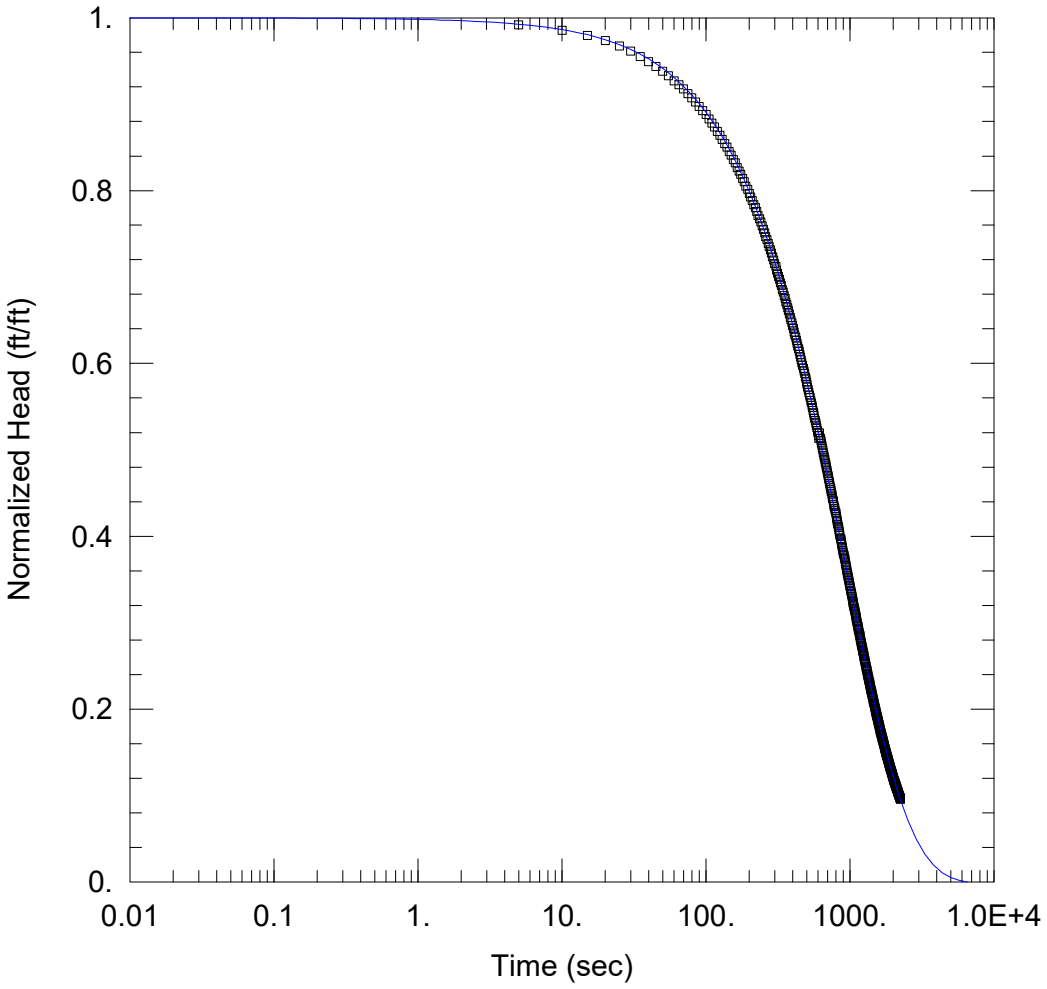
Saturated Thickness: 61.99 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26D)

Initial Displacement: 12.84 ft
Total Well Penetration Depth: 61.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.99 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.03556 ft/day
y0 = 14.81 ft



PZ-26D TEST 1

Data Set: N:\...\PZ-26D_KGS_Test1.aqt
Date: 01/24/21 Time: 21:46:08

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26D
Test Date: 1/13/2021

AQUIFER DATA

Saturated Thickness: 61.99 ft

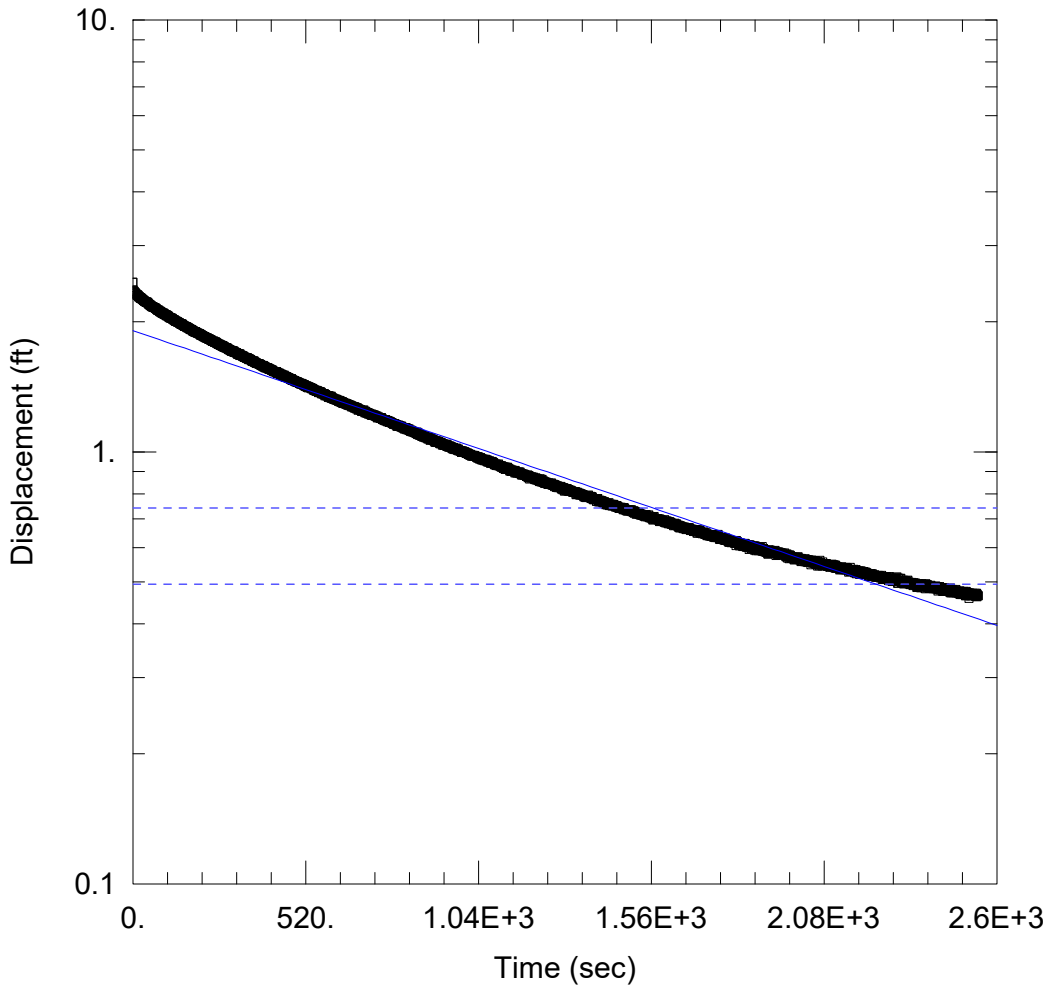
WELL DATA (PZ-26D)

Initial Displacement: 14.13 ft
Total Well Penetration Depth: 61.59 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.99 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.02924 ft/day
Kz/Kr = 0.1
Ss = 8.924E-9 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-26DTest1_BR.aqt
Date: 01/27/21 Time: 12:57:01

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26D
Test Date: 11/4/2020

AQUIFER DATA

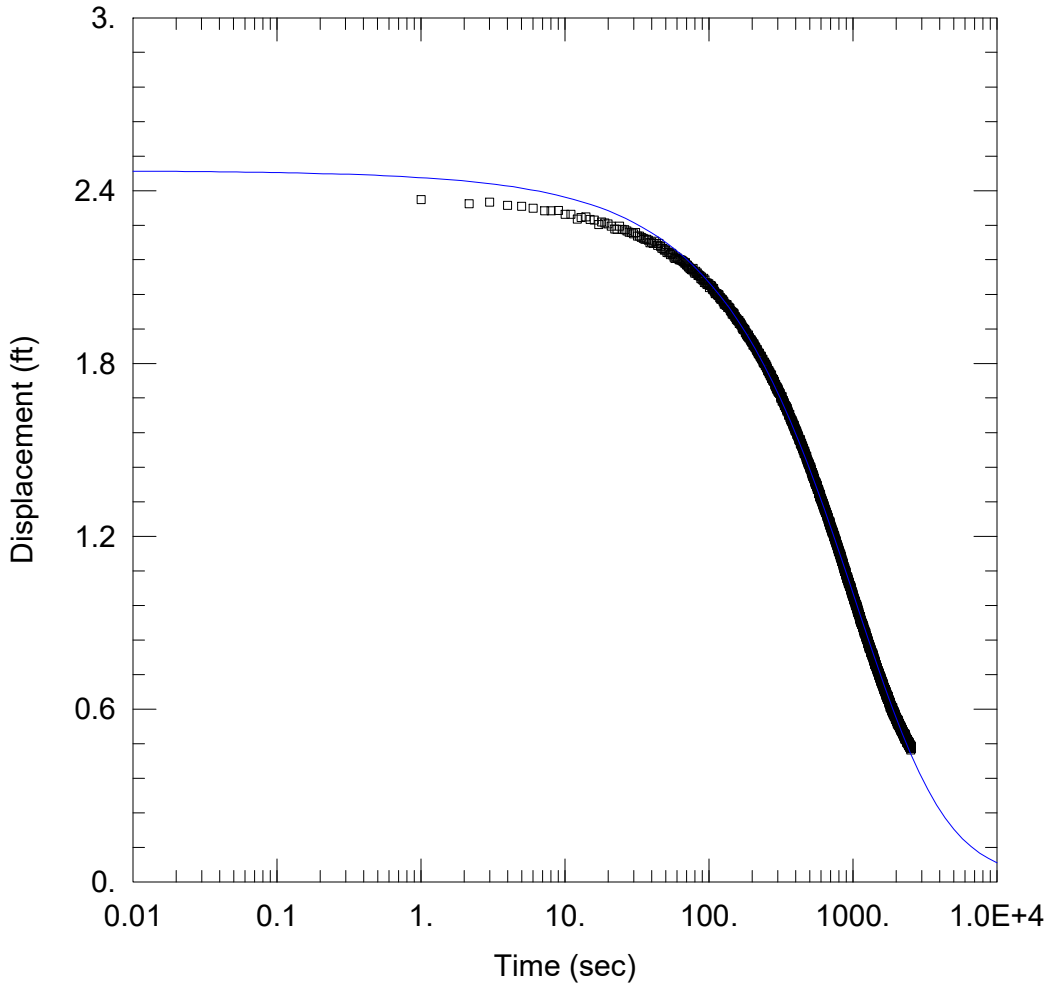
Saturated Thickness: 65.03 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26D_Test1)

Initial Displacement: 2.47 ft
Total Well Penetration Depth: 63.73 ft
Casing Radius: 0.083 ft
Static Water Column Height: 65.03 ft
Screen Length: 9.1 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.07646 ft/day
y0 = 1.91 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-26DTest1_KGS.aqt
Date: 01/27/21 Time: 13:00:01

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26D
Test Date: 11/4/2020

AQUIFER DATA

Saturated Thickness: 65.03 ft

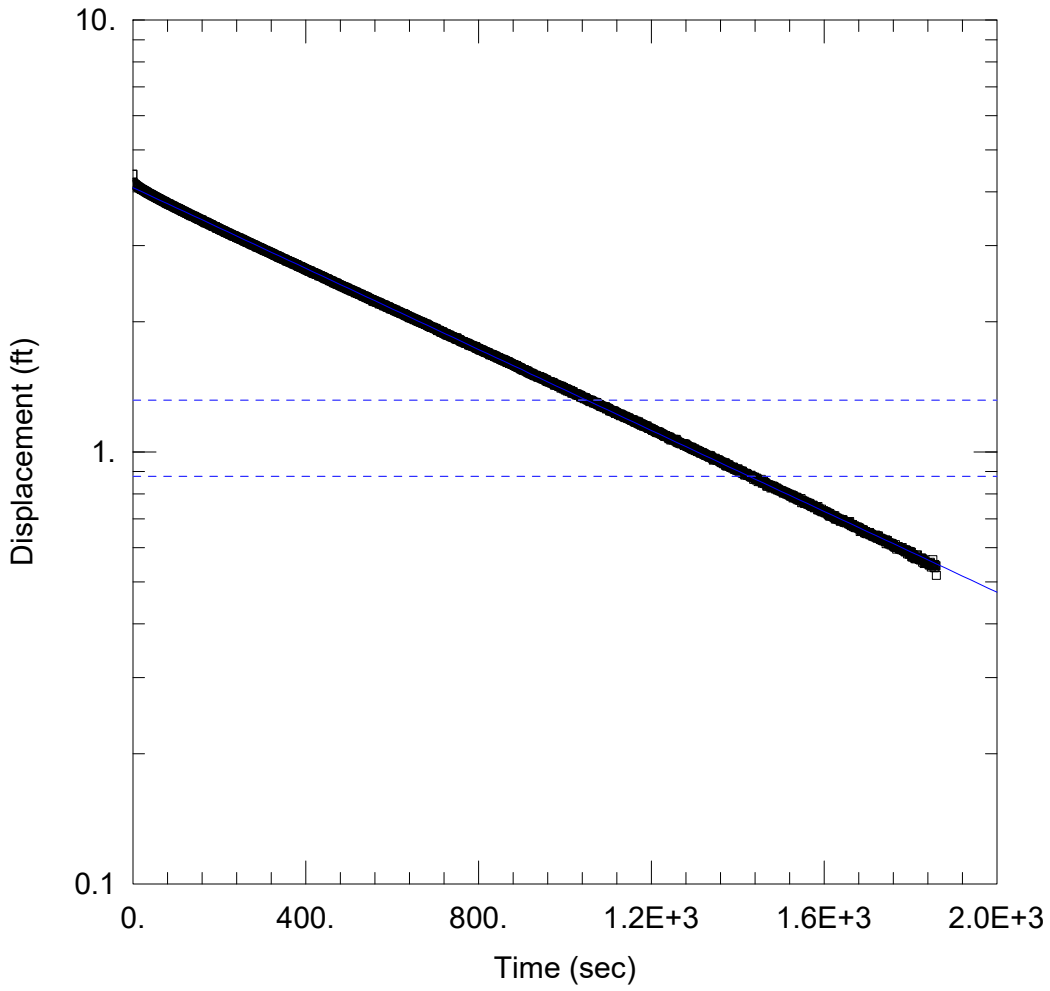
WELL DATA (PZ-26D_Test1)

Initial Displacement: 2.47 ft
Total Well Penetration Depth: 64.63 ft
Casing Radius: 0.083 ft
Static Water Column Height: 65.03 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.05778 ft/day
Kz/Kr = 0.1
Ss = 0.0001273 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-26DTest2_BR.aqt
Date: 01/22/21 Time: 17:53:24

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26D
Test Date: 11/4/2020

AQUIFER DATA

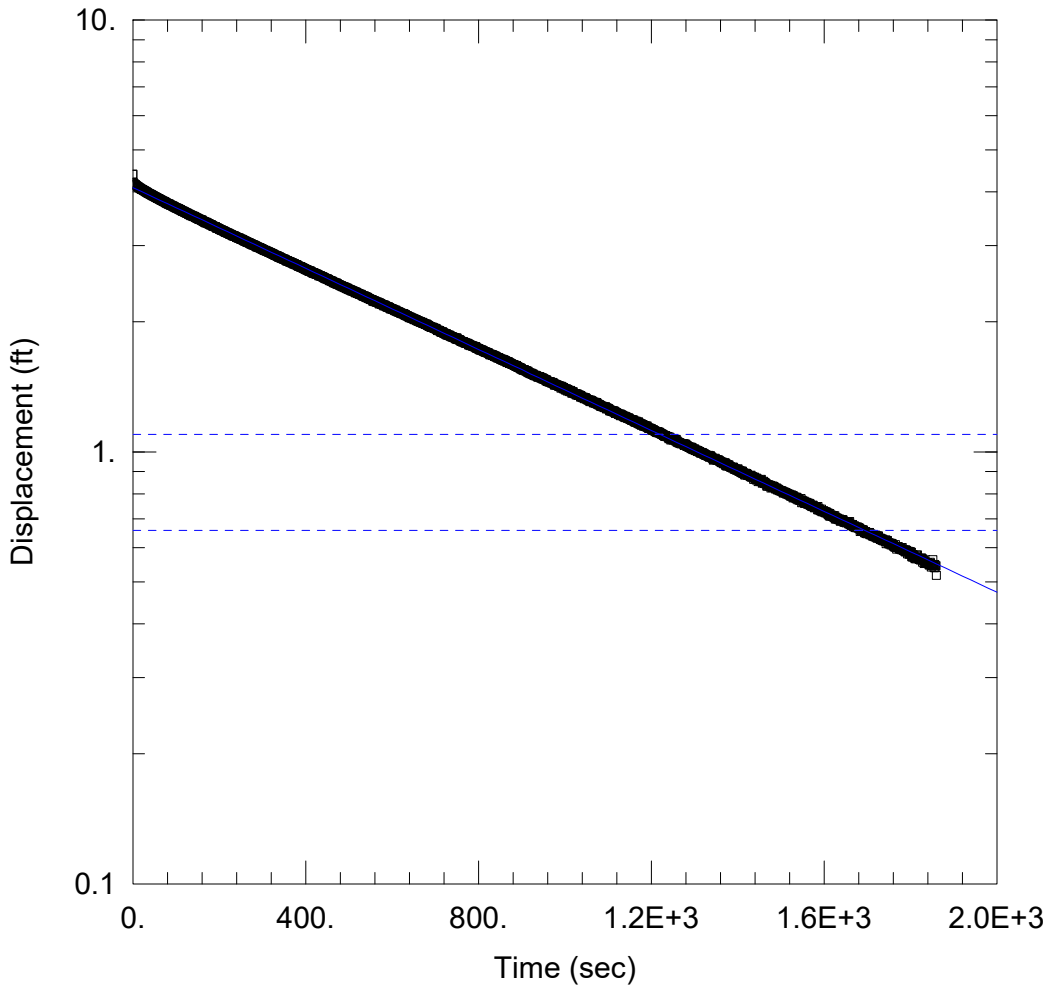
Saturated Thickness: 65.03 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26D_Test2)

Initial Displacement: 4.392 ft
Total Well Penetration Depth: 64.63 ft
Casing Radius: 0.083 ft
Static Water Column Height: 65.03 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1304 ft/day
y0 = 4.094 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-26DTest2_Hvorslev.aqt
Date: 01/22/21 Time: 17:54:31

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26D
Test Date: 11/4/2020

AQUIFER DATA

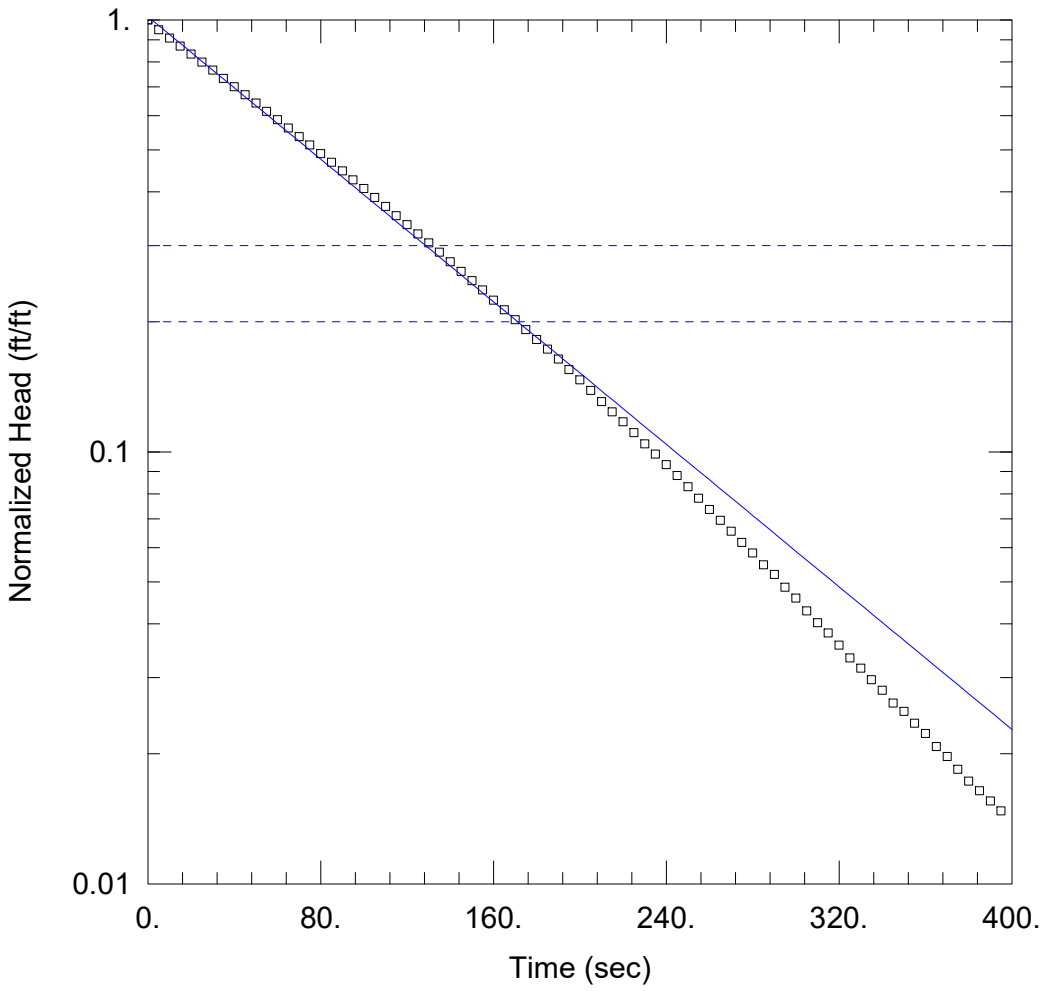
Saturated Thickness: 65.03 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26D_Test2)

Initial Displacement: 4.392 ft
Total Well Penetration Depth: 64.63 ft
Casing Radius: 0.083 ft
Static Water Column Height: 65.03 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.1351 ft/day
y0 = 4.094 ft



PZ-26S TEST 1

Data Set: N:\...\PZ-26S_BR_Test1.aqt
Date: 01/24/21 Time: 21:30:41

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26S
Test Date: 1/13/2021

AQUIFER DATA

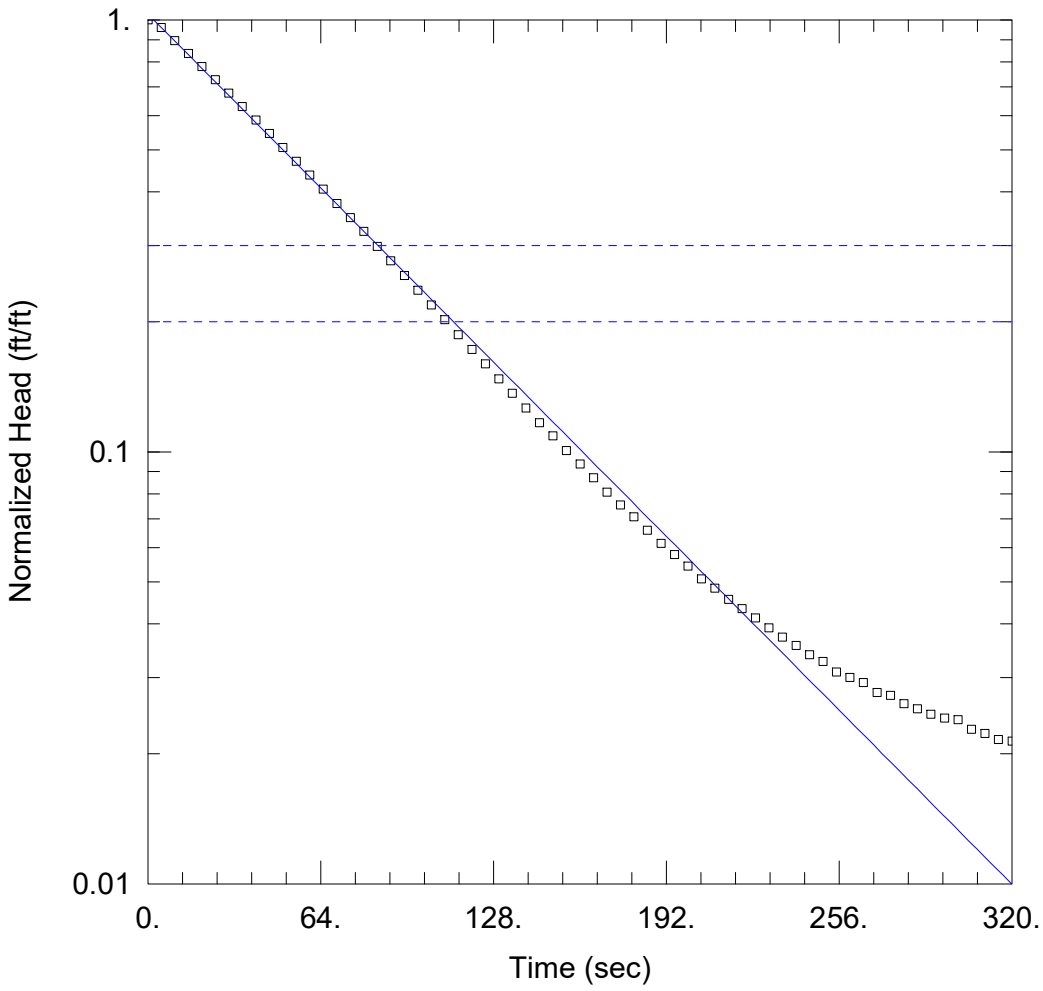
Saturated Thickness: 26.82 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26S)

Initial Displacement: 16.01 ft
Total Well Penetration Depth: 26.42 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.82 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.027 ft/day
y0 = 16.29 ft



PZ-26S TEST 2

Data Set: N:\...\PZ-26S_BR_Test2.aqt
Date: 01/24/21 Time: 21:36:35

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26S
Test Date: 1/13/2021

AQUIFER DATA

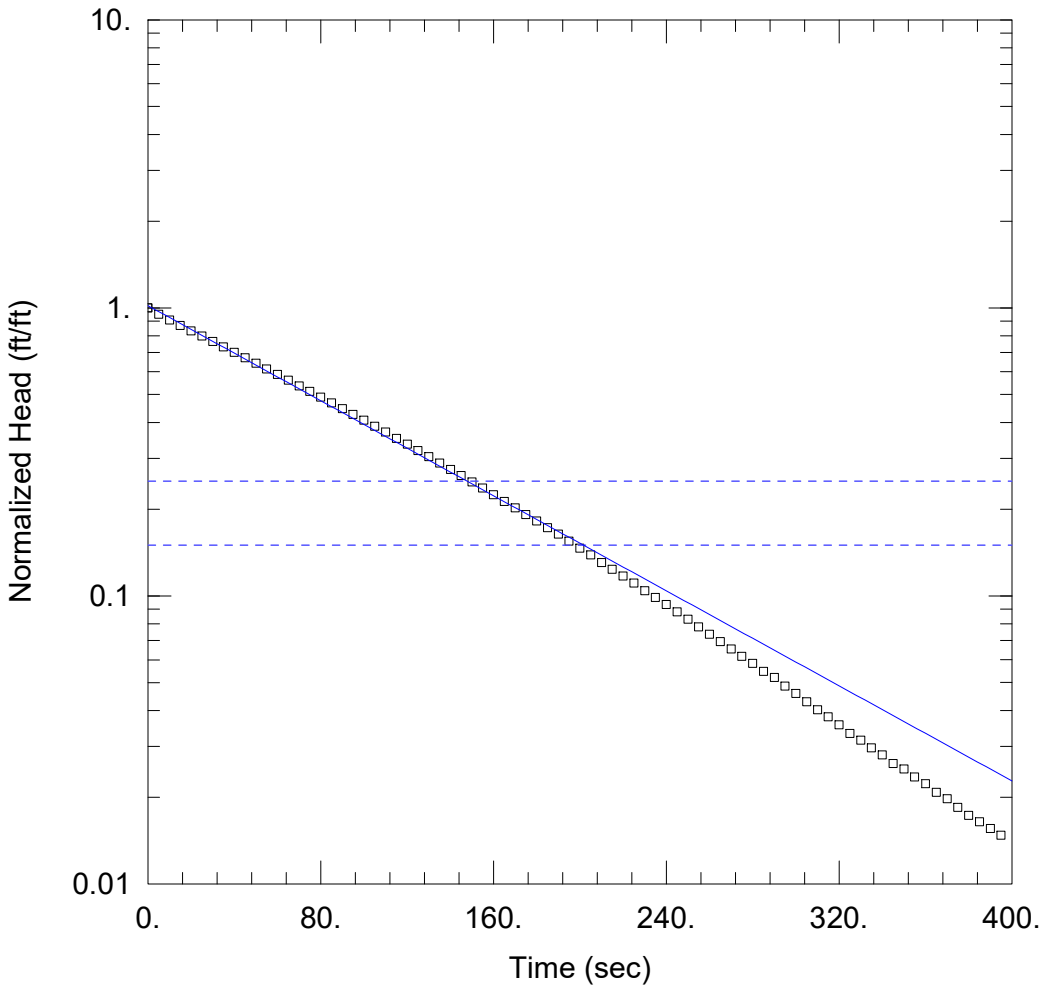
Saturated Thickness: 27.81 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26S)

Initial Displacement: 9.96 ft
Total Well Penetration Depth: 27.41 ft
Casing Radius: 0.083 ft
Static Water Column Height: 27.81 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3323 ft/day
y0 = 10.28 ft



PZ-26S TEST 1

Data Set: N:\...\PZ-26S_Hvorslev_Test1.aqt
Date: 01/24/21 Time: 21:29:24

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26S
Test Date: 1/13/2021

AQUIFER DATA

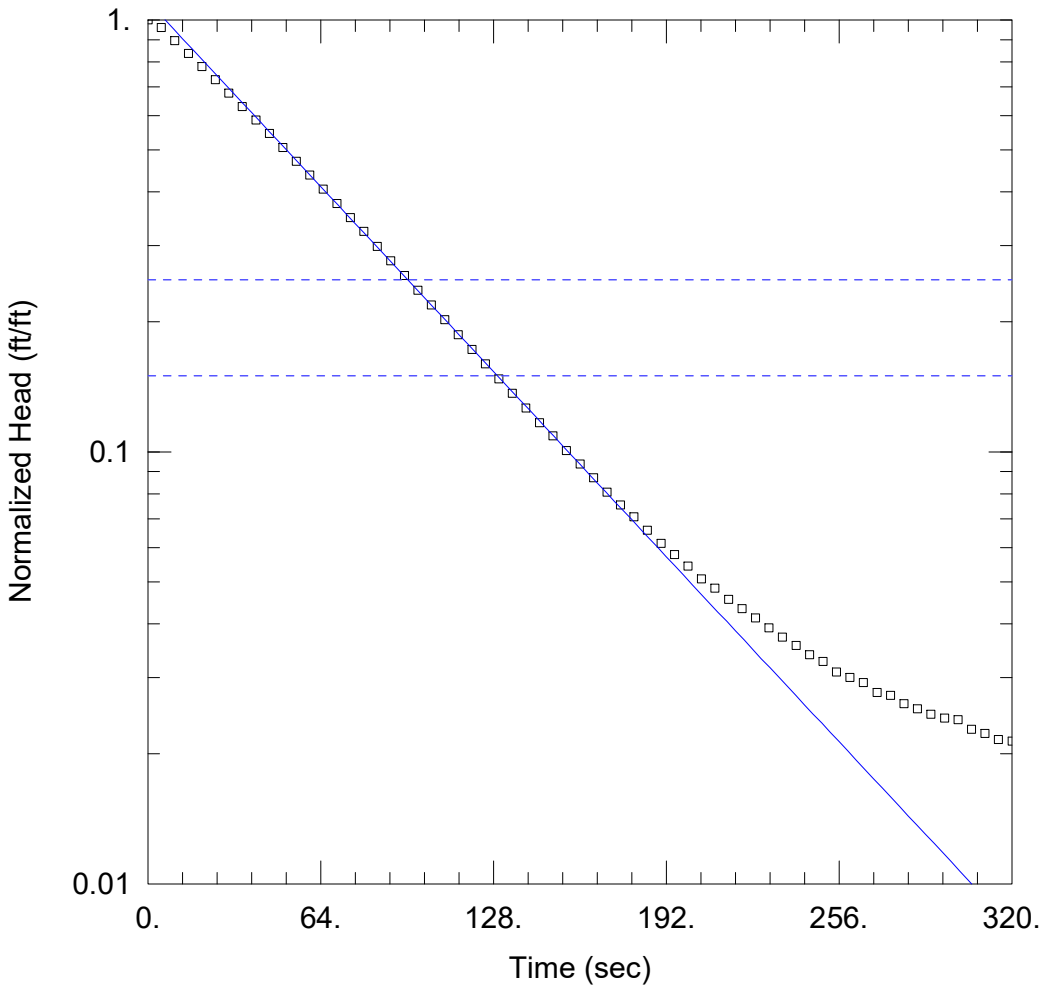
Saturated Thickness: 26.82 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26S)

Initial Displacement: 16.01 ft
Total Well Penetration Depth: 26.42 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.82 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 1.19 ft/day
y0 = 16.29 ft



PZ-26S TEST 2

Data Set: N:\...\PZ-26S_Hvorslev_Test2.aqt
Date: 01/24/21 Time: 21:37:30

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: PZ-26S
Test Date: 1/13/2021

AQUIFER DATA

Saturated Thickness: 27.81 ft Anisotropy Ratio (Kz/Kr): 0.1

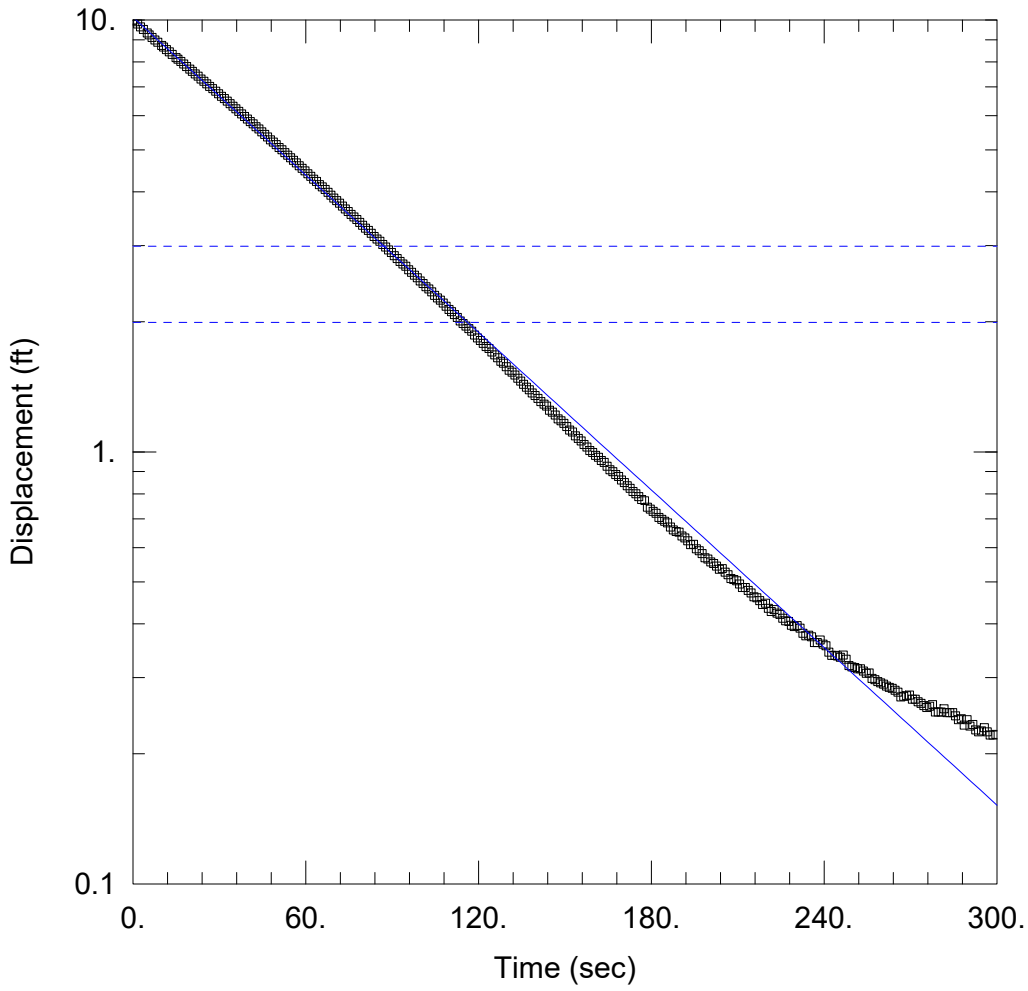
WELL DATA (PZ-26S)

Initial Displacement: 9.96 ft
Total Well Penetration Depth: 27.41 ft
Casing Radius: 0.083 ft
Static Water Column Height: 27.81 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 0.4073 ft/day y0 = 10.98 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-26STest1_BR.aqt
Date: 01/22/21 Time: 17:57:48

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26S
Test Date: 11/4/2020

AQUIFER DATA

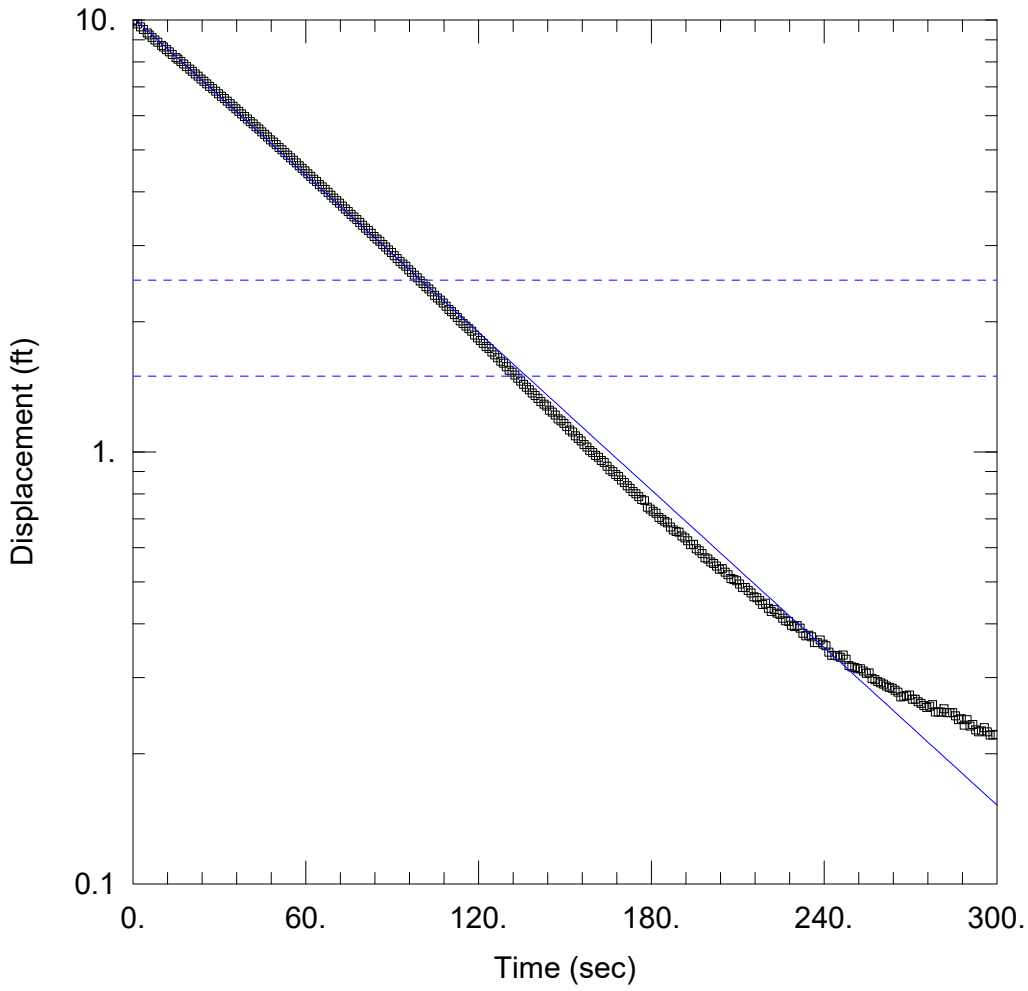
Saturated Thickness: 26.61 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26S_Test1)

Initial Displacement: 9.981 ft
Total Well Penetration Depth: 26.21 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.61 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.319 ft/day
y0 = 10.13 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-26STest1_Hvorslev.aqt
Date: 01/22/21 Time: 17:59:22

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26S
Test Date: 11/4/2020

AQUIFER DATA

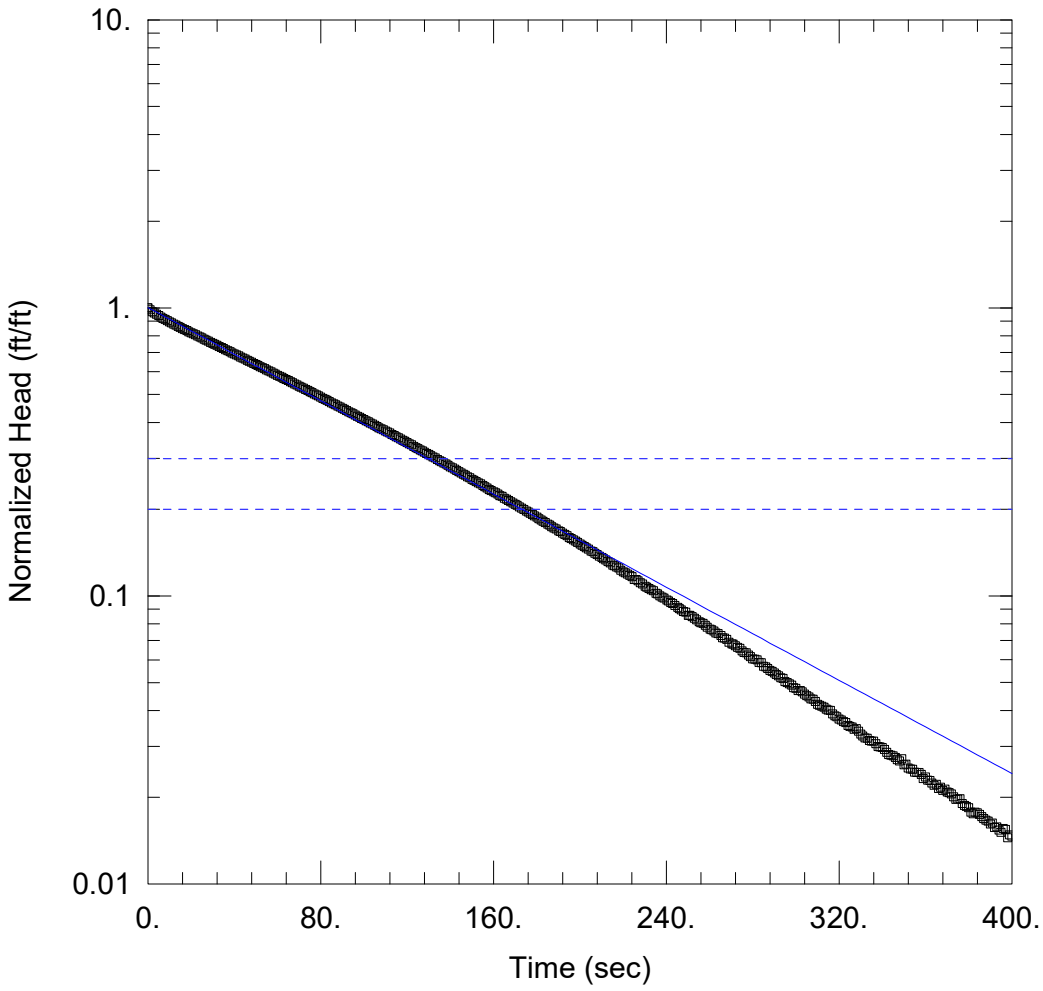
Saturated Thickness: 26.61 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26S_Test1)

Initial Displacement: 9.981 ft
Total Well Penetration Depth: 26.21 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.61 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.3699 ft/day
y0 = 10.13 ft



PZ-26S PNEUMATIC SLUG TEST 2

Data Set: N:\...\PZ-26STest2_BR.aqt
Date: 01/22/21 Time: 18:04:04

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26S
Test Date: 11/4/2020

AQUIFER DATA

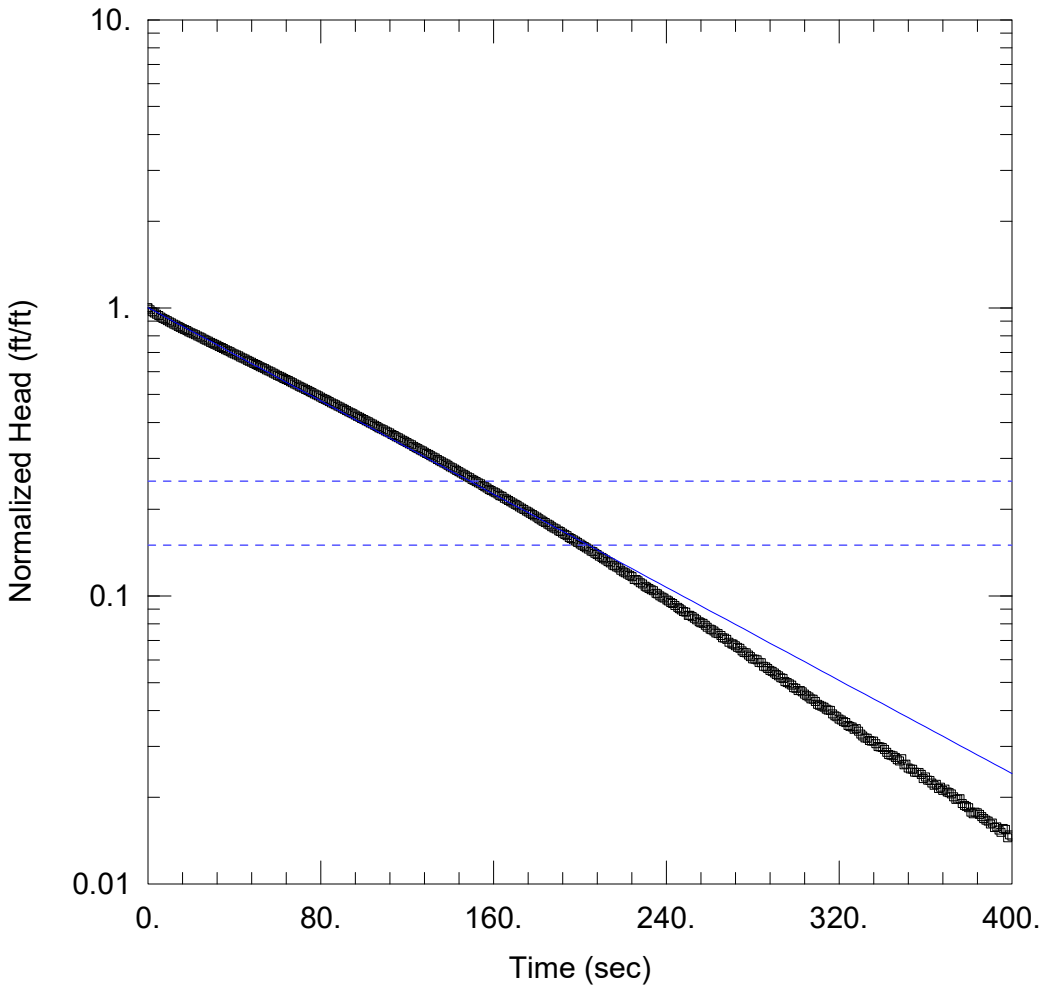
Saturated Thickness: 26.61 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26S_Test2)

Initial Displacement: 15.49 ft
Total Well Penetration Depth: 26.21 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.61 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.006 ft/day
y0 = 15.53 ft



PZ-26S PNEUMATIC SLUG TEST 2

Data Set: N:\...\PZ-26STest2_Hvorslev.aqt
Date: 01/22/21 Time: 18:06:04

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-26S
Test Date: 11/4/2020

AQUIFER DATA

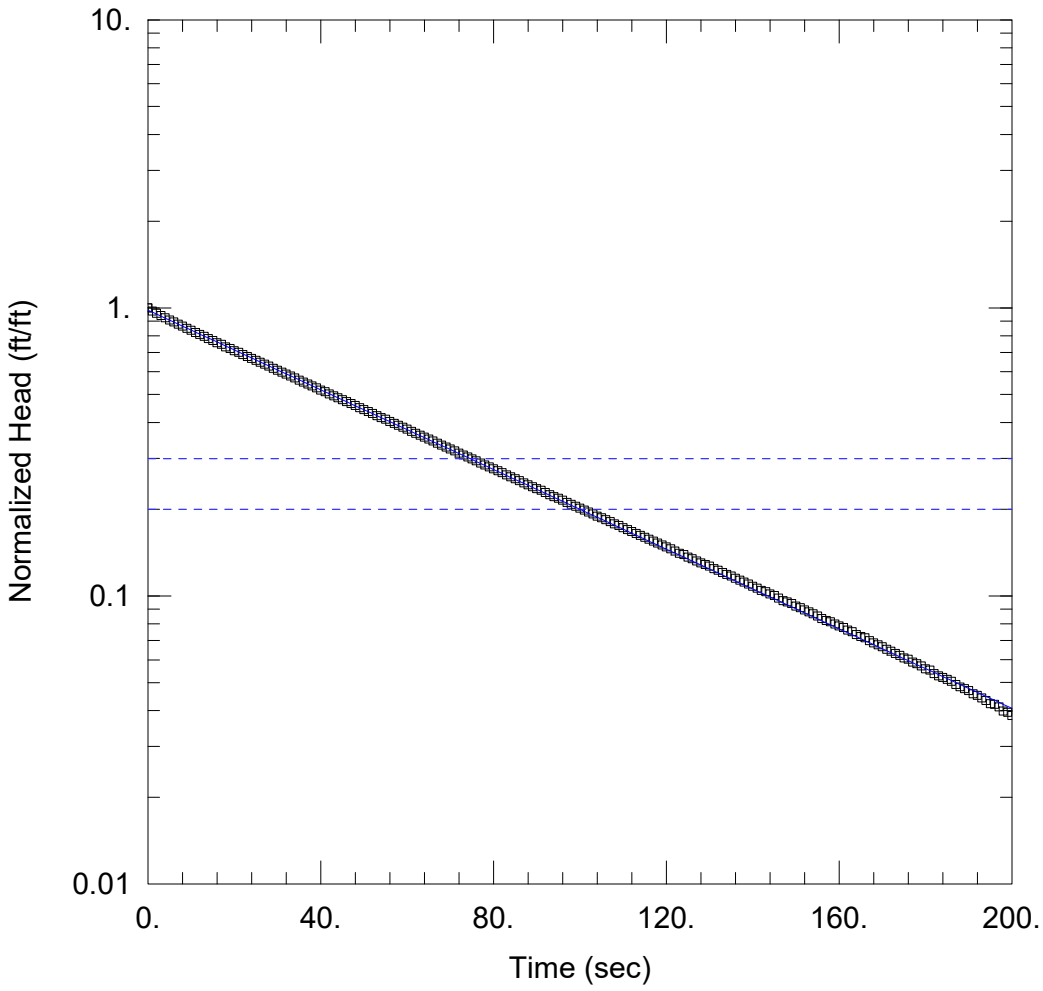
Saturated Thickness: 26.61 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-26S_Test2)

Initial Displacement: 15.49 ft
Total Well Penetration Depth: 26.21 ft
Casing Radius: 0.083 ft
Static Water Column Height: 26.61 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 1.167 ft/day
y0 = 15.53 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-27DTest1_BR.aqt
Date: 01/22/21 Time: 18:11:02

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27D
Test Date: 11/4/2020

AQUIFER DATA

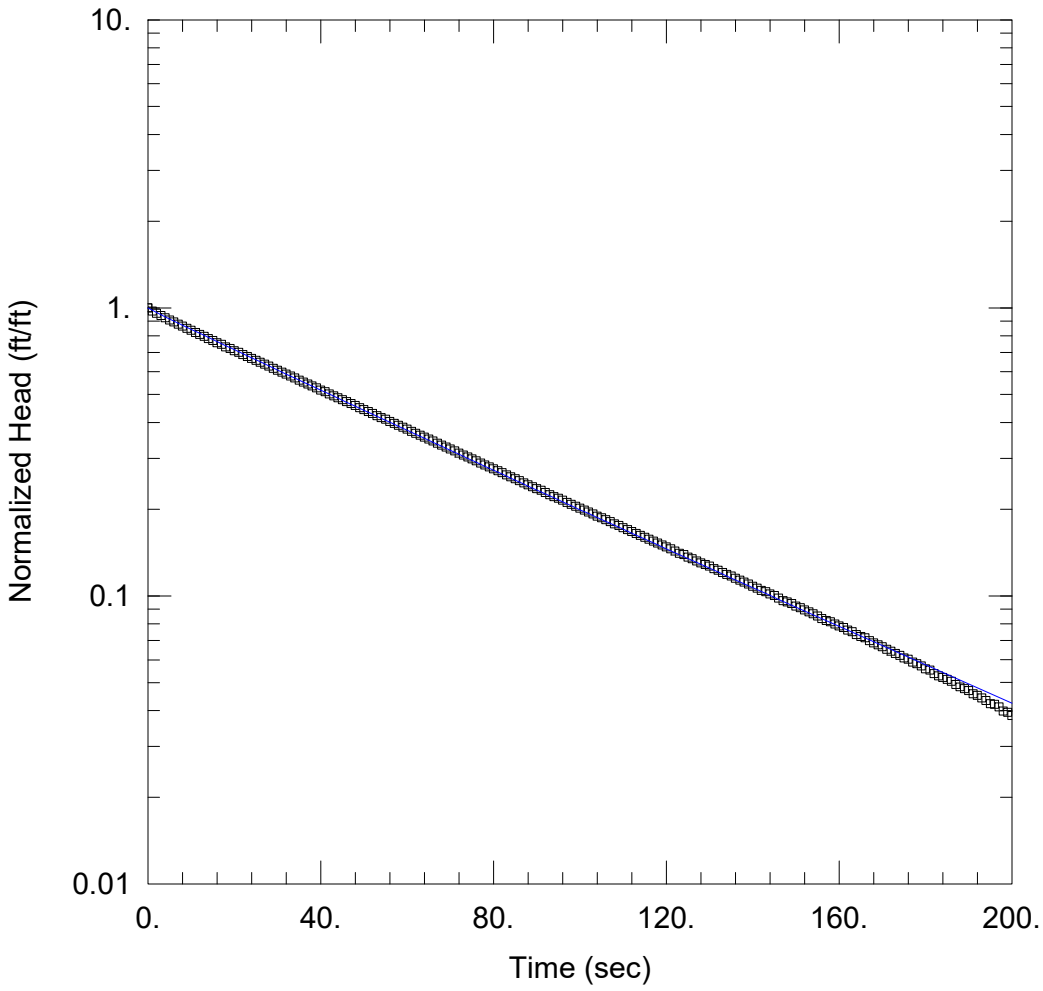
Saturated Thickness: 61.7 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-27D_Test1)

Initial Displacement: 15.37 ft
Total Well Penetration Depth: 61.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 1.912 ft/day
y0 = 15.11 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-27DTest1_KGS.aqt
Date: 01/22/21 Time: 18:14:04

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27D
Test Date: 11/4/2020

AQUIFER DATA

Saturated Thickness: 61.7 ft

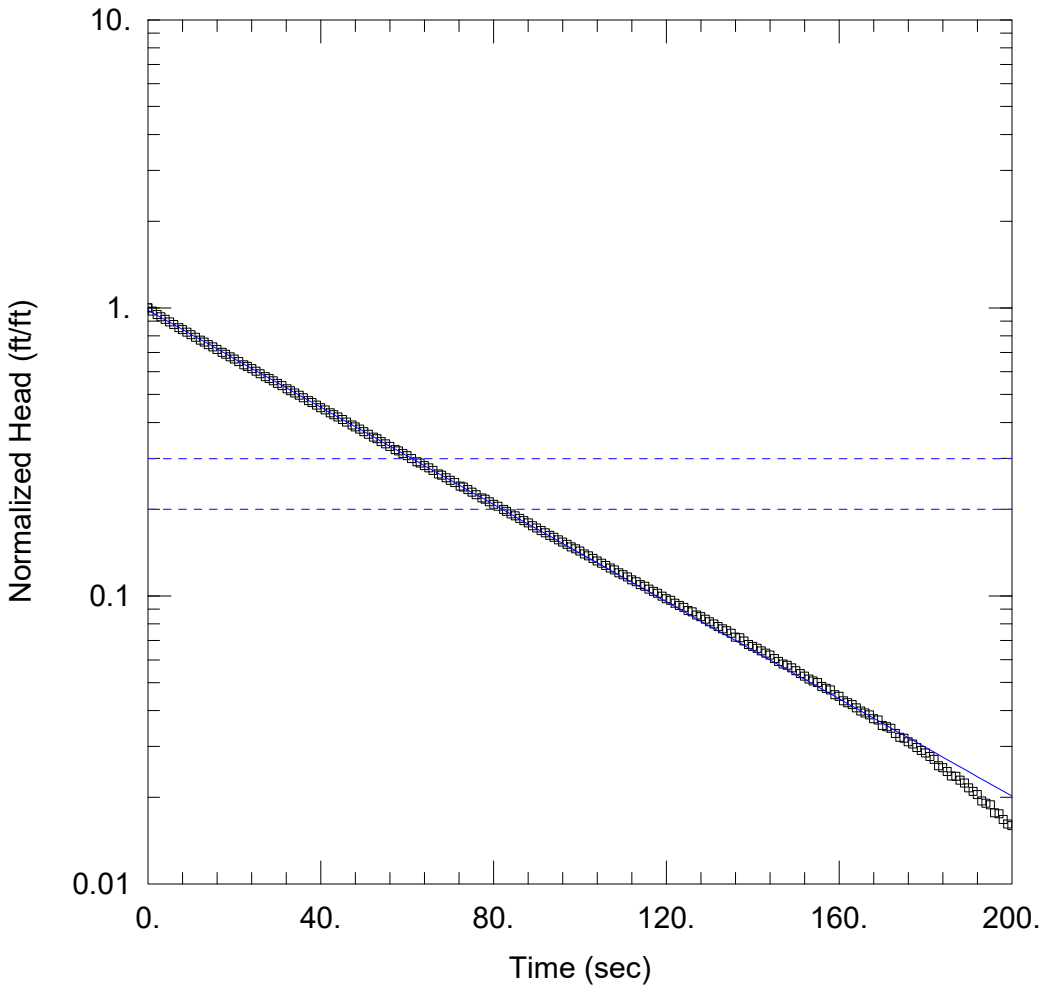
WELL DATA (PZ-27D_Test1)

Initial Displacement: 15.37 ft
Total Well Penetration Depth: 61.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 2.1 ft/day
Kz/Kr = 0.1
Ss = 4.015E-8 ft^{-1}



PZ-27D PNEUMATIC SLUG TEST 2

Data Set: N:\...\PZ-27DTest2_BR.aqt
Date: 01/22/21 Time: 18:15:23

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27D
Test Date: 11/4/2020

AQUIFER DATA

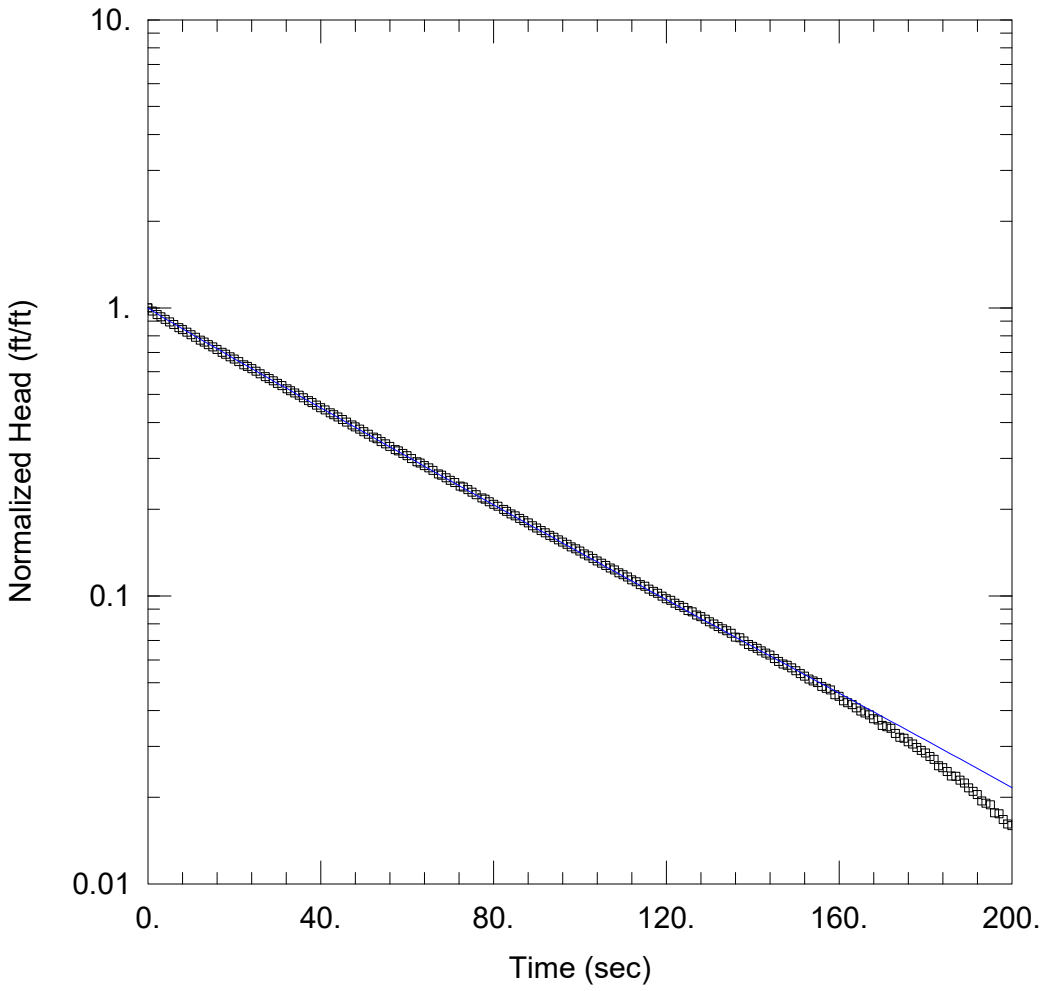
Saturated Thickness: 61.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-27D_Test2)

Initial Displacement: 11.6 ft
Total Well Penetration Depth: 61.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 2.333 ft/day
y0 = 11.41 ft



PZ-27D PNEUMATIC SLUG TEST 2

Data Set: N:\...\PZ-27DTest2_KGS.aqt
Date: 01/22/21 Time: 18:17:31

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27D
Test Date: 11/4/2020

AQUIFER DATA

Saturated Thickness: 61.7 ft

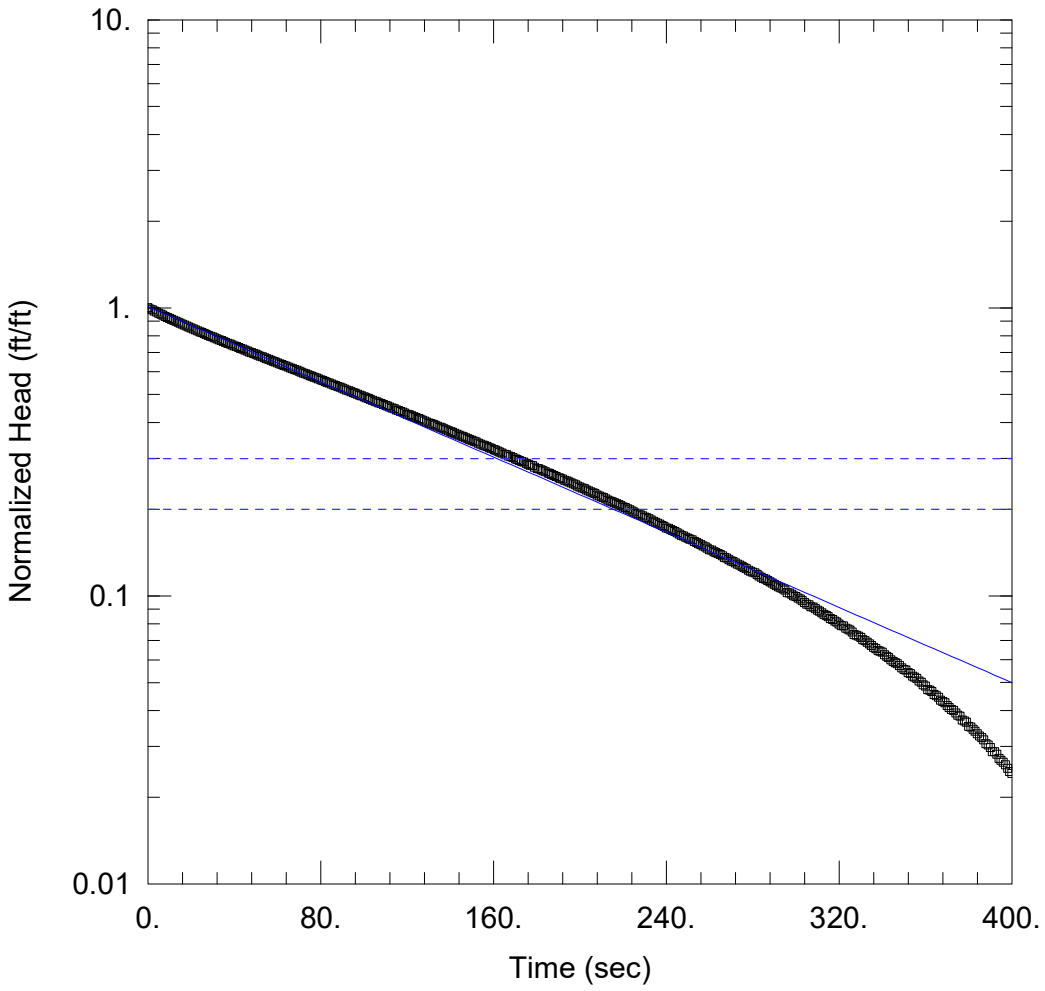
WELL DATA (PZ-27D_Test2)

Initial Displacement: 11.6 ft
Total Well Penetration Depth: 61.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 61.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 2.561 ft/day
Kz/Kr = 0.1
Ss = 4.407E-8 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-27STest1_BR.aqt
Date: 01/22/21 Time: 18:19:05

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27S
Test Date: 11/4/2020

AQUIFER DATA

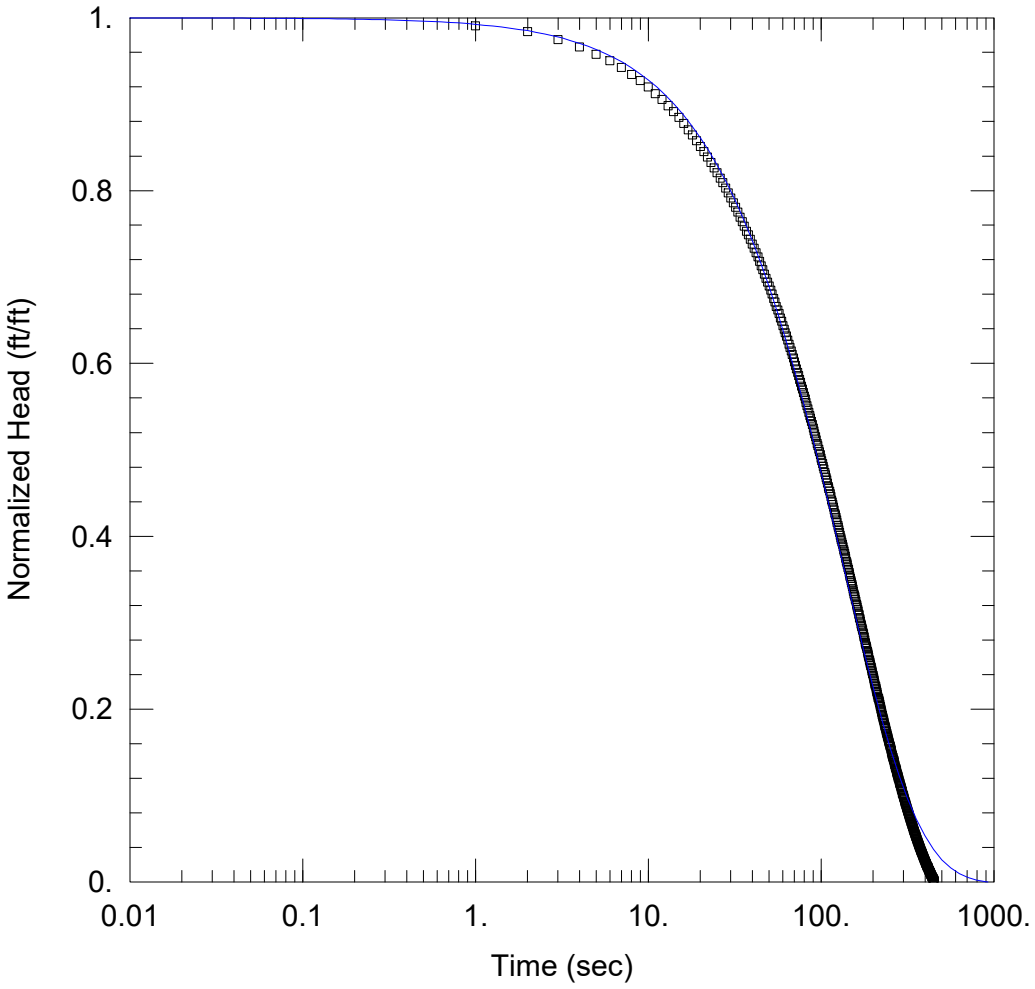
Saturated Thickness: 22.31 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-27S_Test1)

Initial Displacement: 11.93 ft
Total Well Penetration Depth: 21.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.31 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.7916 ft/day
y0 = 12.05 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-27STest1_KGS.aqt
Date: 01/22/21 Time: 18:21:28

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27S
Test Date: 11/4/2020

AQUIFER DATA

Saturated Thickness: 22.31 ft

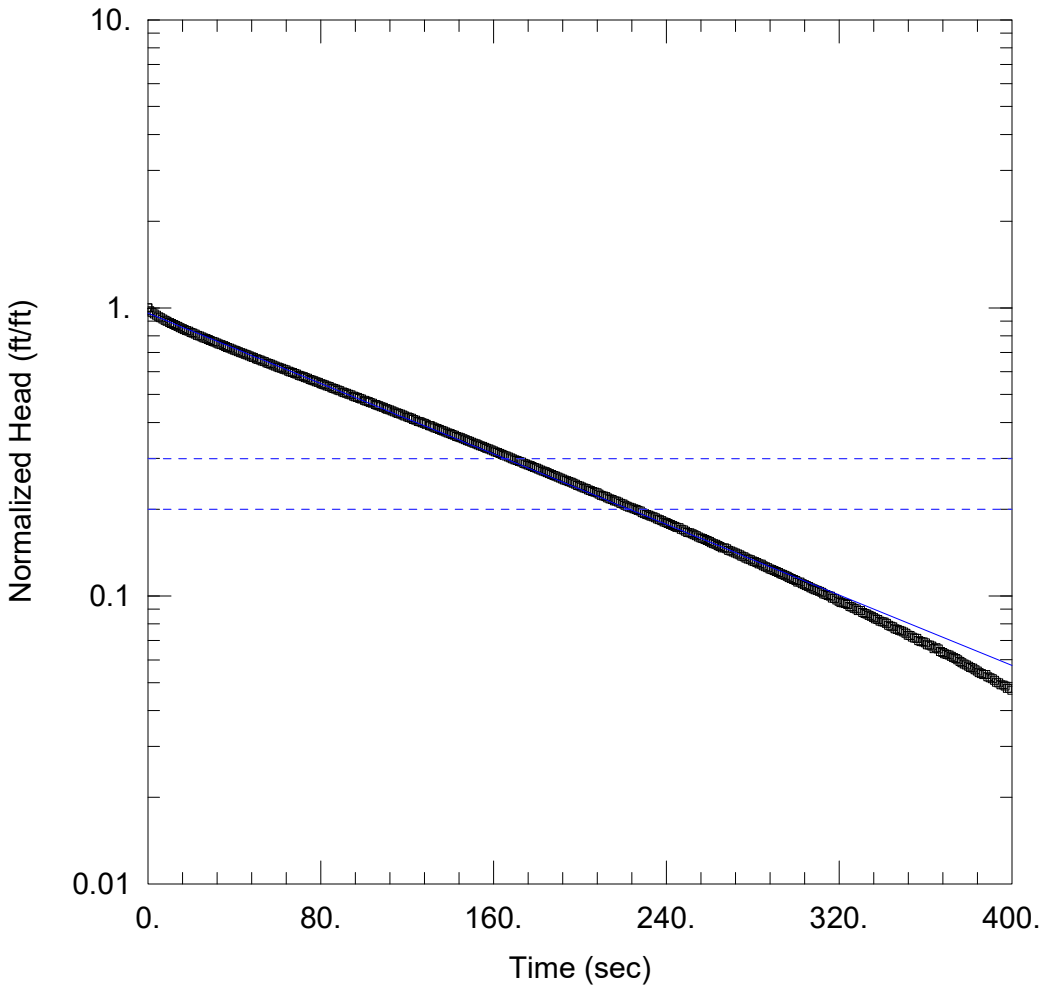
WELL DATA (PZ-27S_Test1)

Initial Displacement: 11.93 ft
Total Well Penetration Depth: 21.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.31 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.9257 ft/day
Kz/Kr = 0.1
Ss = 5.308E-12 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-27STest2_BR.aqt
Date: 01/22/21 Time: 18:22:32

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27S
Test Date: 11/4/2020

AQUIFER DATA

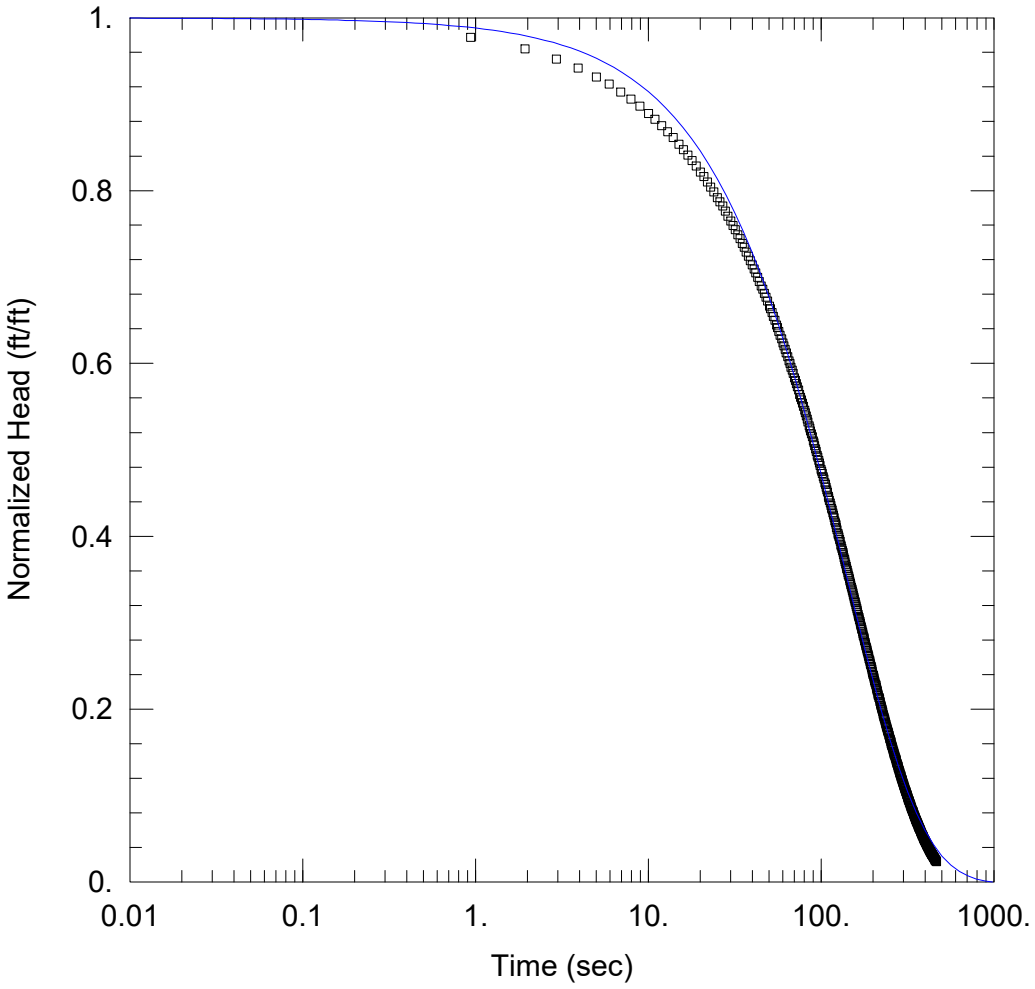
Saturated Thickness: 22.31 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-27S_Test2)

Initial Displacement: 11.8 ft
Total Well Penetration Depth: 21.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.31 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.7412 ft/day
y0 = 11.31 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-27STest2_KGS.aqt
Date: 01/22/21 Time: 18:24:23

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-27S
Test Date: 11/4/2020

AQUIFER DATA

Saturated Thickness: 22.31 ft

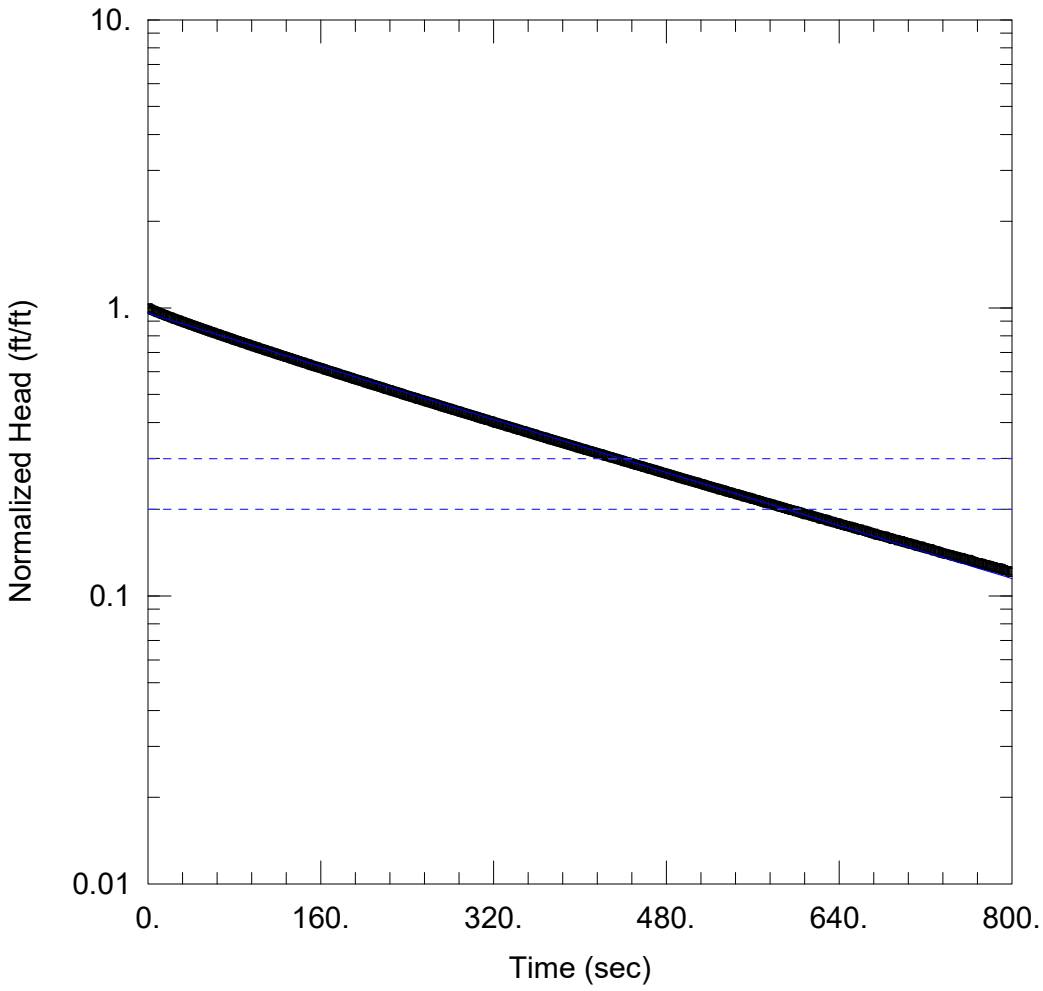
WELL DATA (PZ-27S_Test2)

Initial Displacement: 11.8 ft
Total Well Penetration Depth: 21.91 ft
Casing Radius: 0.083 ft
Static Water Column Height: 22.31 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.9094 ft/day
Kz/Kr = 0.1
Ss = 3.251E-7 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\PZ-28Test1_BR.aqt
Date: 01/22/21 Time: 18:26:06

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-28
Test Date: 11/5/2020

AQUIFER DATA

Saturated Thickness: 43.77 ft Anisotropy Ratio (Kz/Kr): 0.1

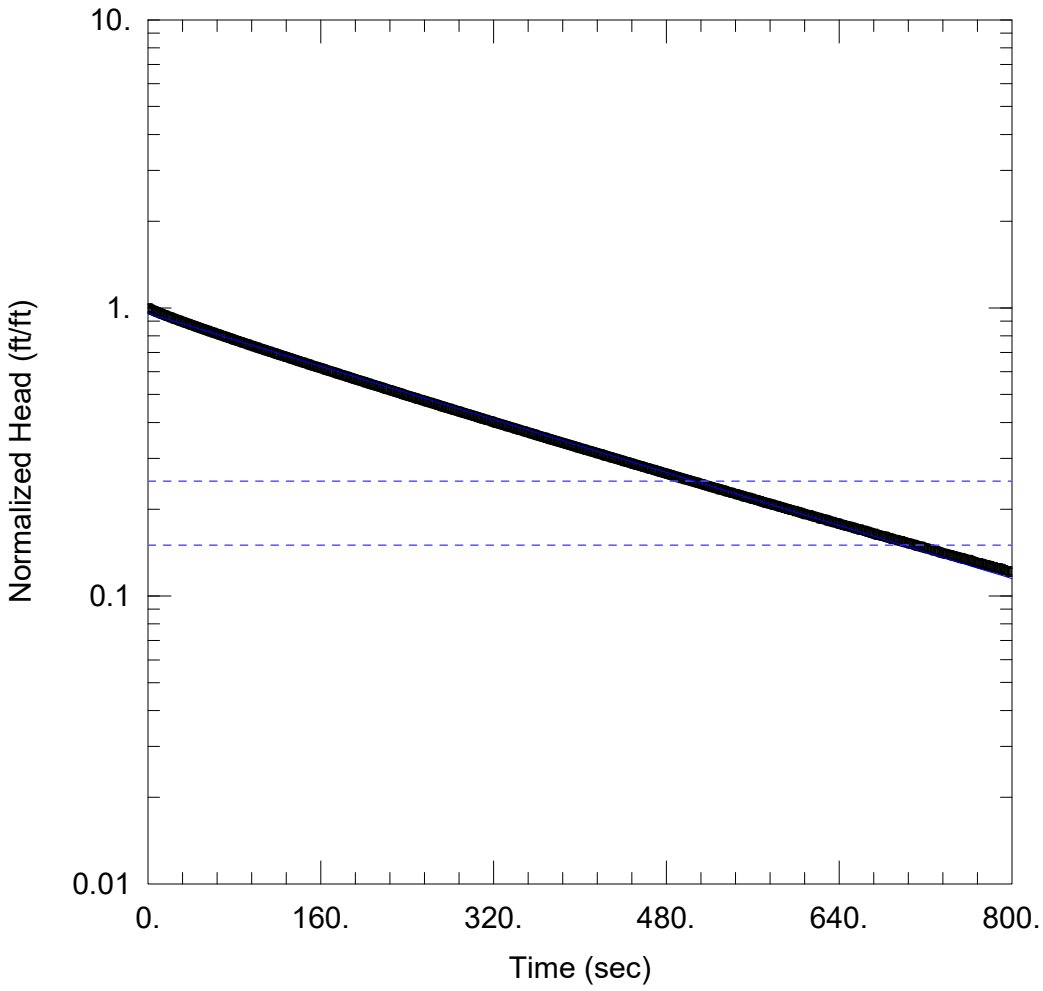
WELL DATA (PZ-28_Test1)

Initial Displacement: 10.41 ft
Total Well Penetration Depth: 43.37 ft
Casing Radius: 0.083 ft
Static Water Column Height: 43.77 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3057 ft/day y0 = 9.974 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-28Test1_Hvorslev.aqt
Date: 01/22/21 Time: 18:27:06

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-28
Test Date: 11/5/2020

AQUIFER DATA

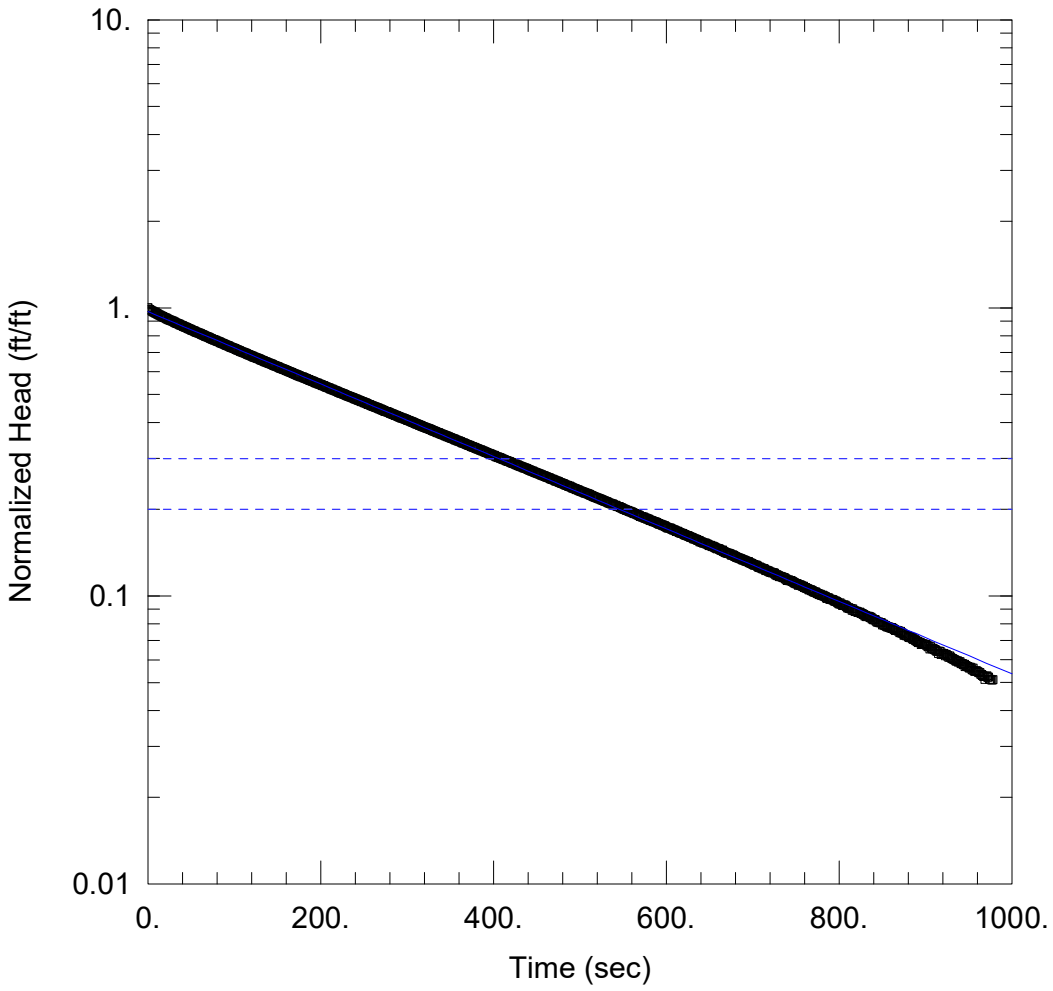
Saturated Thickness: 43.77 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-28_Test1)

Initial Displacement: 10.41 ft
Total Well Penetration Depth: 43.37 ft
Casing Radius: 0.083 ft
Static Water Column Height: 43.77 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.3322 ft/day
y0 = 9.974 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-28Test2_BR.aqt
Date: 01/22/21 Time: 18:28:04

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-28
Test Date: 11/5/2020

AQUIFER DATA

Saturated Thickness: 43.77 ft Anisotropy Ratio (Kz/Kr): 0.1

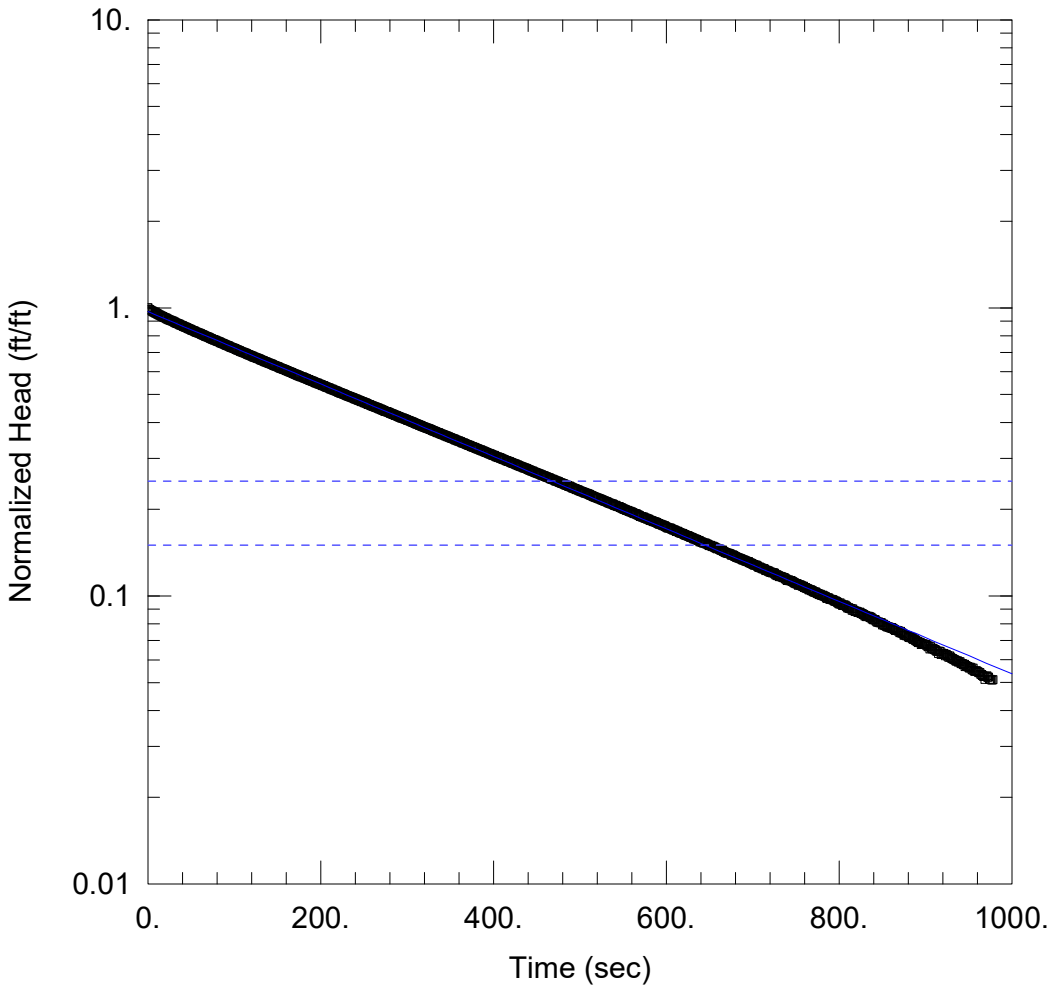
WELL DATA (PZ-28_Test2)

Initial Displacement: 10.25 ft
Total Well Penetration Depth: 43.37 ft
Casing Radius: 0.083 ft
Static Water Column Height: 43.77 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.3338 ft/day y0 = 9.957 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-28Test2_Hvorslev.aqt
Date: 01/22/21 Time: 18:28:57

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-28
Test Date: 11/5/2020

AQUIFER DATA

Saturated Thickness: 43.77 ft Anisotropy Ratio (Kz/Kr): 0.1

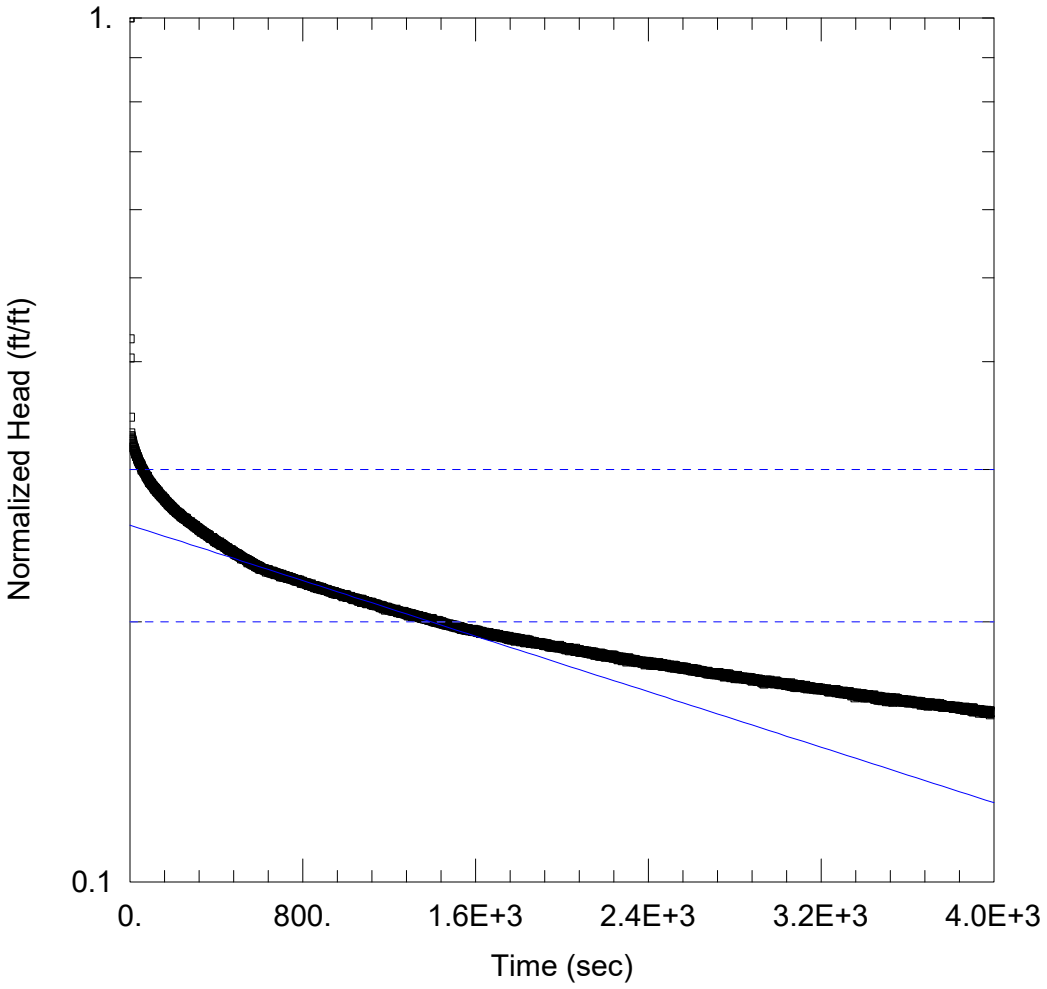
WELL DATA (PZ-28_Test2)

Initial Displacement: 10.25 ft
Total Well Penetration Depth: 43.37 ft
Casing Radius: 0.083 ft
Static Water Column Height: 43.77 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 0.3627 ft/day y0 = 9.957 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-29DTest1_BR.aqt
Date: 01/22/21 Time: 18:31:45

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-29D
Test Date: 11/11/2020

AQUIFER DATA

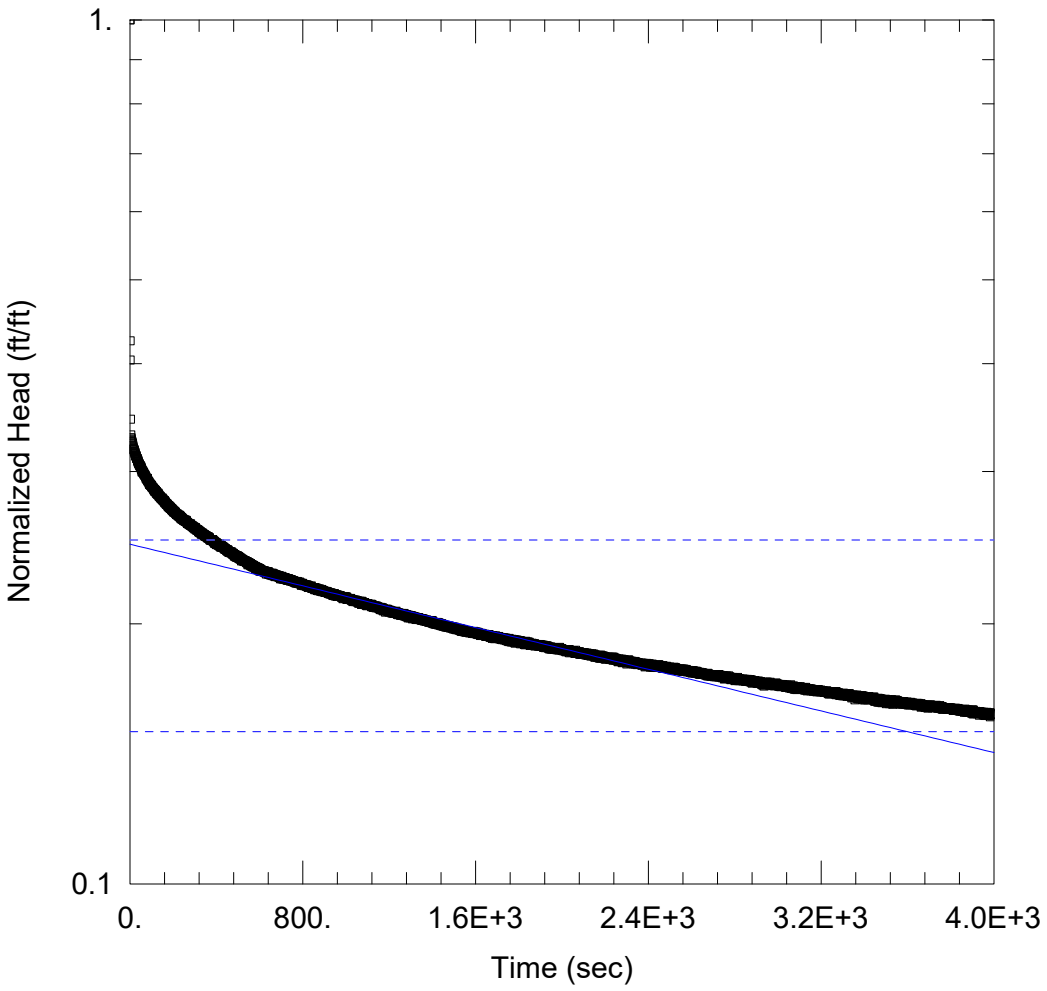
Saturated Thickness: 105.7 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-29D_Test1)

Initial Displacement: 10.85 ft
Total Well Penetration Depth: 105.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 105.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02359 ft/day
y0 = 2.808 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-29DTest1_Hvorslev.aqt
Date: 01/22/21 Time: 18:32:51

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-29D
Test Date: 11/11/2020

AQUIFER DATA

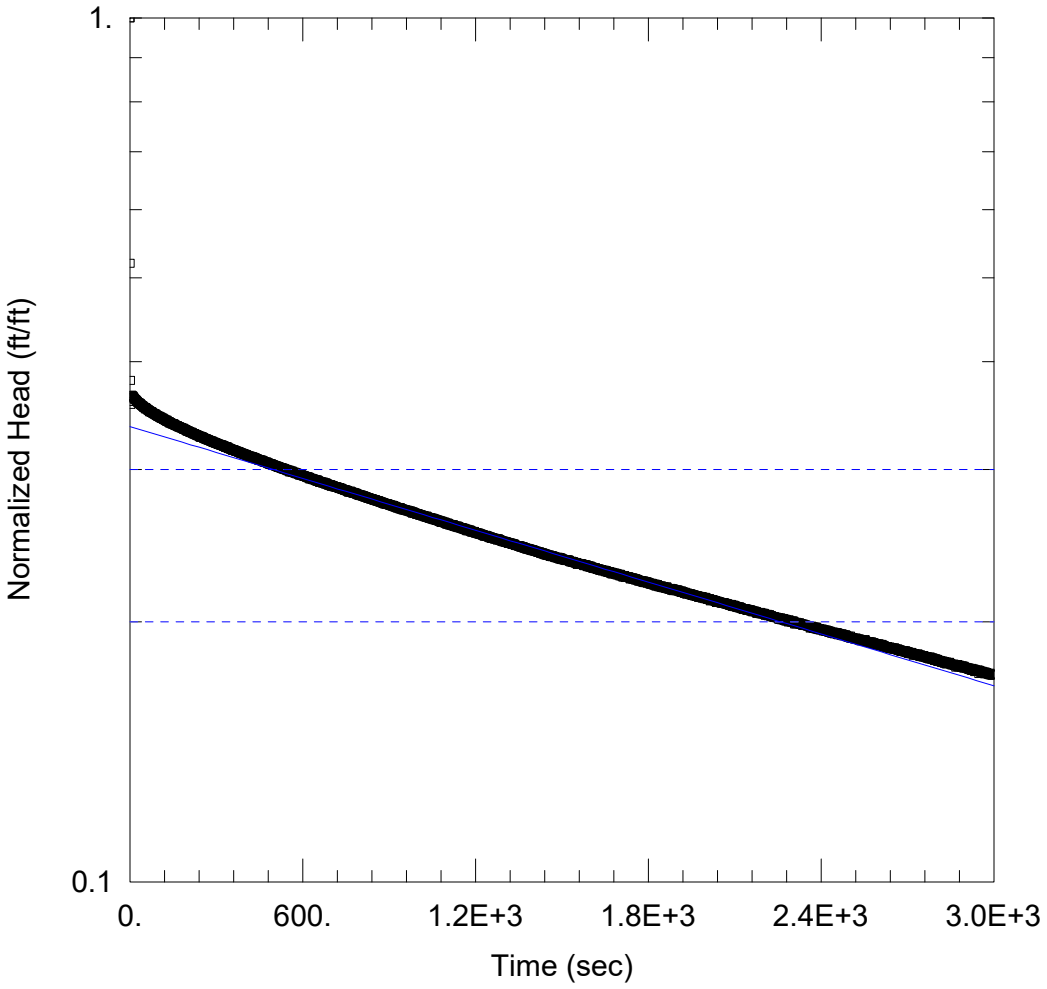
Saturated Thickness: 105.7 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-29D_Test1)

Initial Displacement: 10.85 ft
Total Well Penetration Depth: 105.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 105.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.01739 ft/day
y0 = 2.682 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-29DTest2_BR.aqt
Date: 01/22/21 Time: 18:36:38

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-29D
Test Date: 11/11/2020

AQUIFER DATA

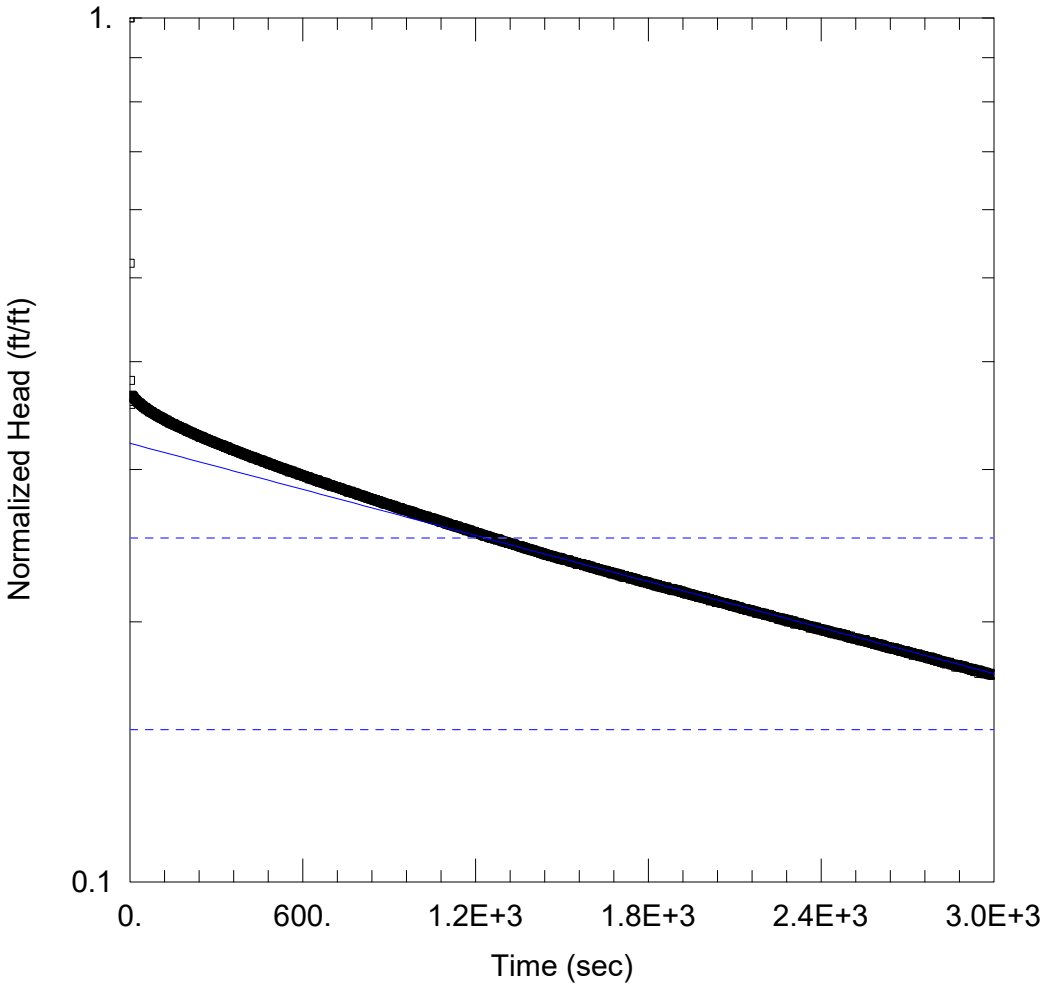
Saturated Thickness: 105.7 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (PZ-29D_Test2)

Initial Displacement: 15.36 ft
Total Well Penetration Depth: 105.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 105.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02936 ft/day
y0 = 5.169 ft



WELL TEST ANALYSIS

Data Set: N:\...\PZ-29DTest2_Hvorslev.aqt
Date: 01/22/21 Time: 18:37:43

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: PZ-29D
Test Date: 11/11/2020

AQUIFER DATA

Saturated Thickness: 105.7 ft Anisotropy Ratio (Kz/Kr): 0.1

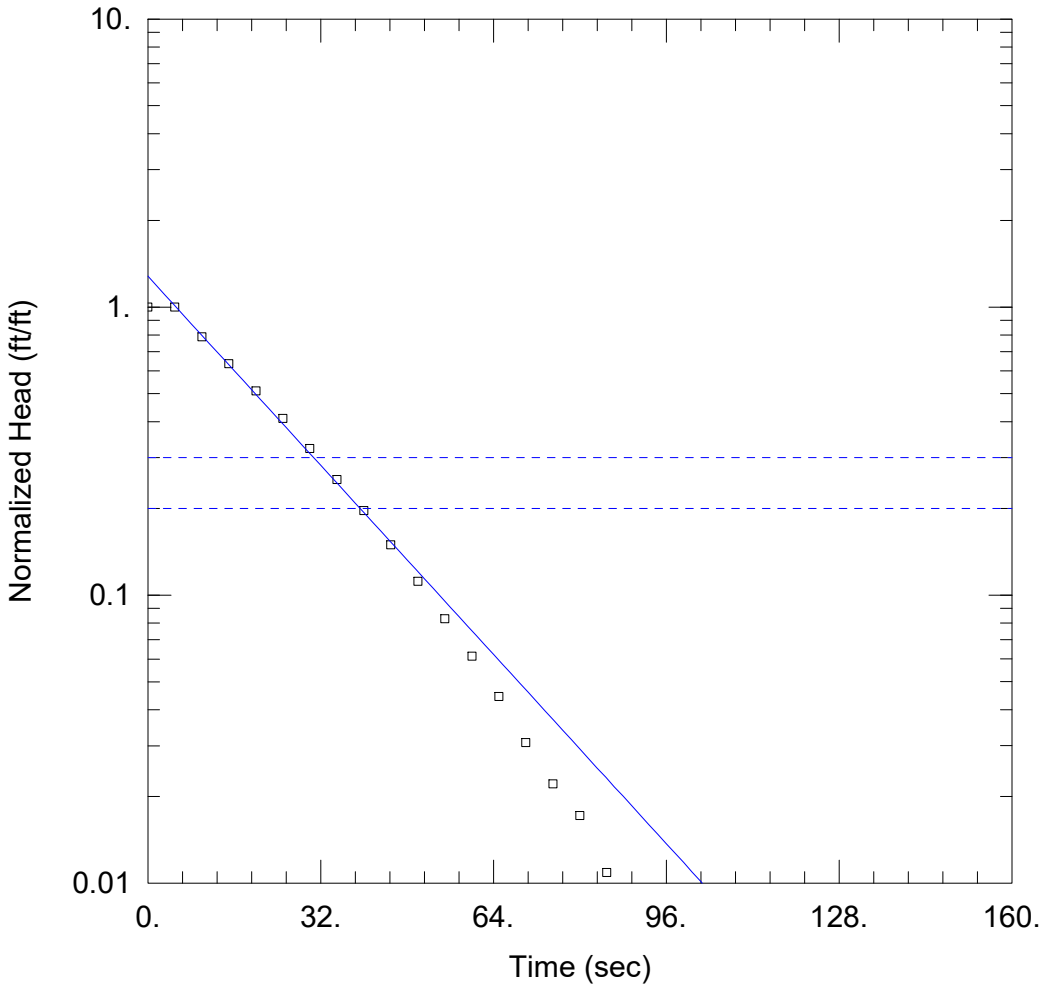
WELL DATA (PZ-29D_Test2)

Initial Displacement: 15.36 ft
Total Well Penetration Depth: 105.3 ft
Casing Radius: 0.083 ft
Static Water Column Height: 105.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 0.02564 ft/day y0 = 4.942 ft



WELL TEST ANALYSIS

Data Set: N:\...\WGWA-1 Test 1 - Bouwer-Rice.aqt
Date: 01/22/21 Time: 16:08:36

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWA-1
Test Date: September 2020

AQUIFER DATA

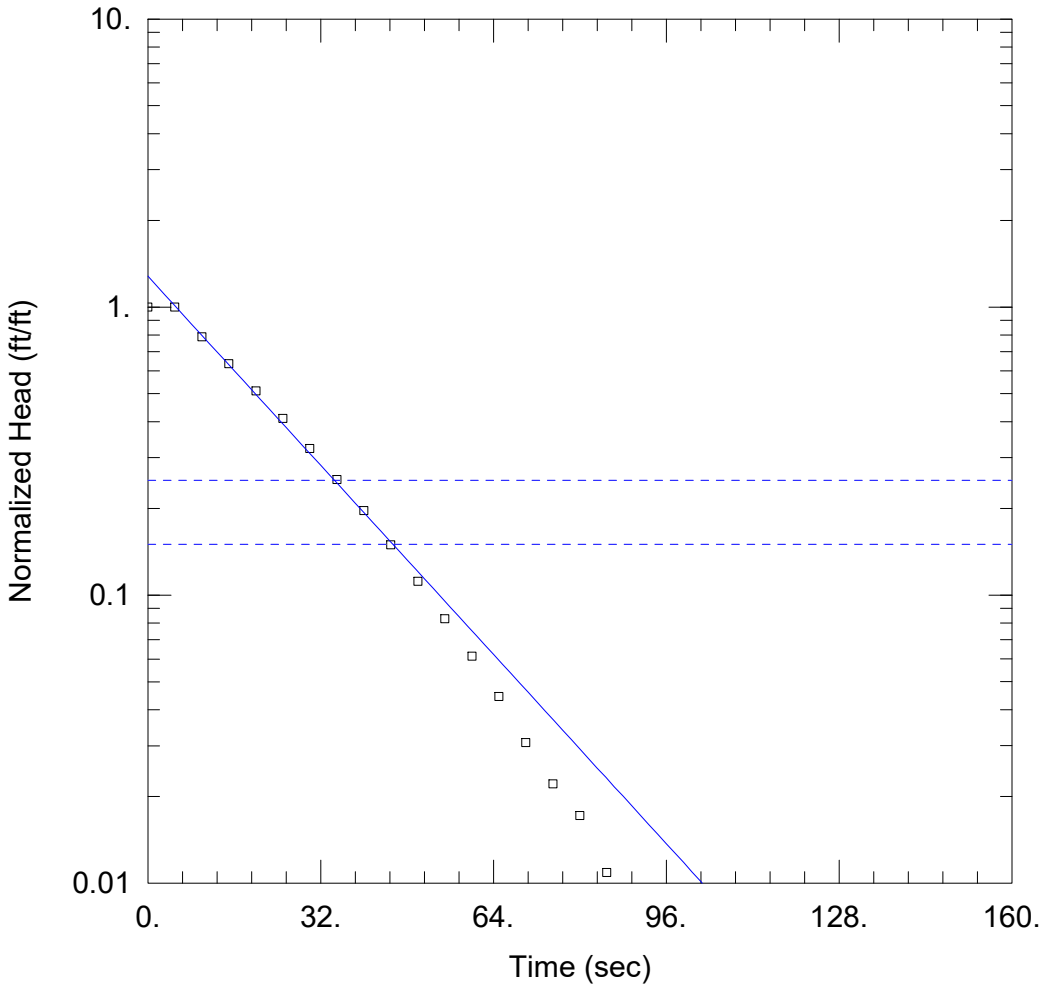
Saturated Thickness: 102.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWA-1)

Initial Displacement: 14.97 ft
Total Well Penetration Depth: 101.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 102.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.826 ft/day
y0 = 19.15 ft



WELL TEST ANALYSIS

Data Set: N:\...\WGWA-1 Test 1 - Hvorslev.aqt
Date: 01/22/21 Time: 16:10:00

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWA-1
Test Date: September 2020

AQUIFER DATA

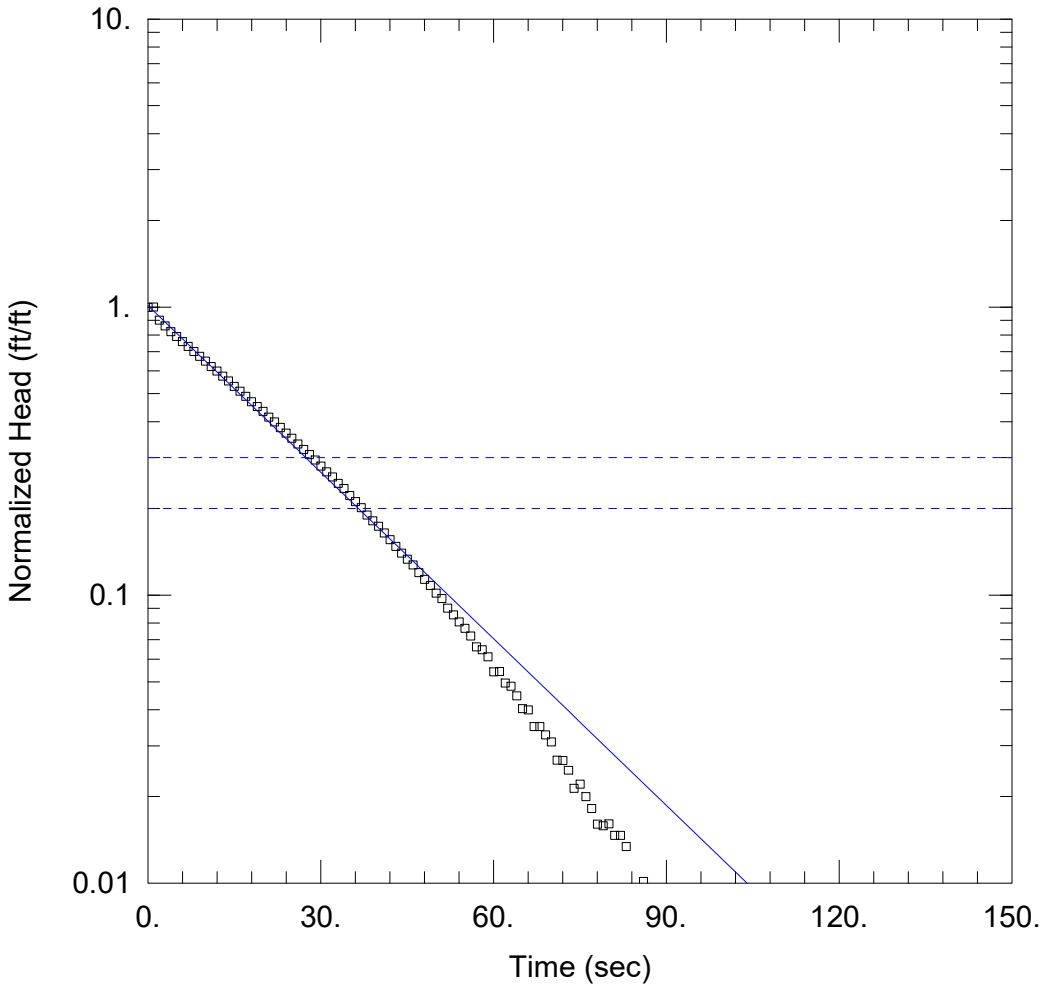
Saturated Thickness: 102.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWA-1)

Initial Displacement: 14.97 ft
Total Well Penetration Depth: 101.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 102.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 5.916 ft/day
y0 = 19.15 ft



WELL TEST ANALYSIS

Data Set: N:\...\WGWA-1 Test 2 - Bouwer-Rice.aqt
Date: 01/22/21 Time: 16:14:40

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWA-1
Test Date: September 2020

AQUIFER DATA

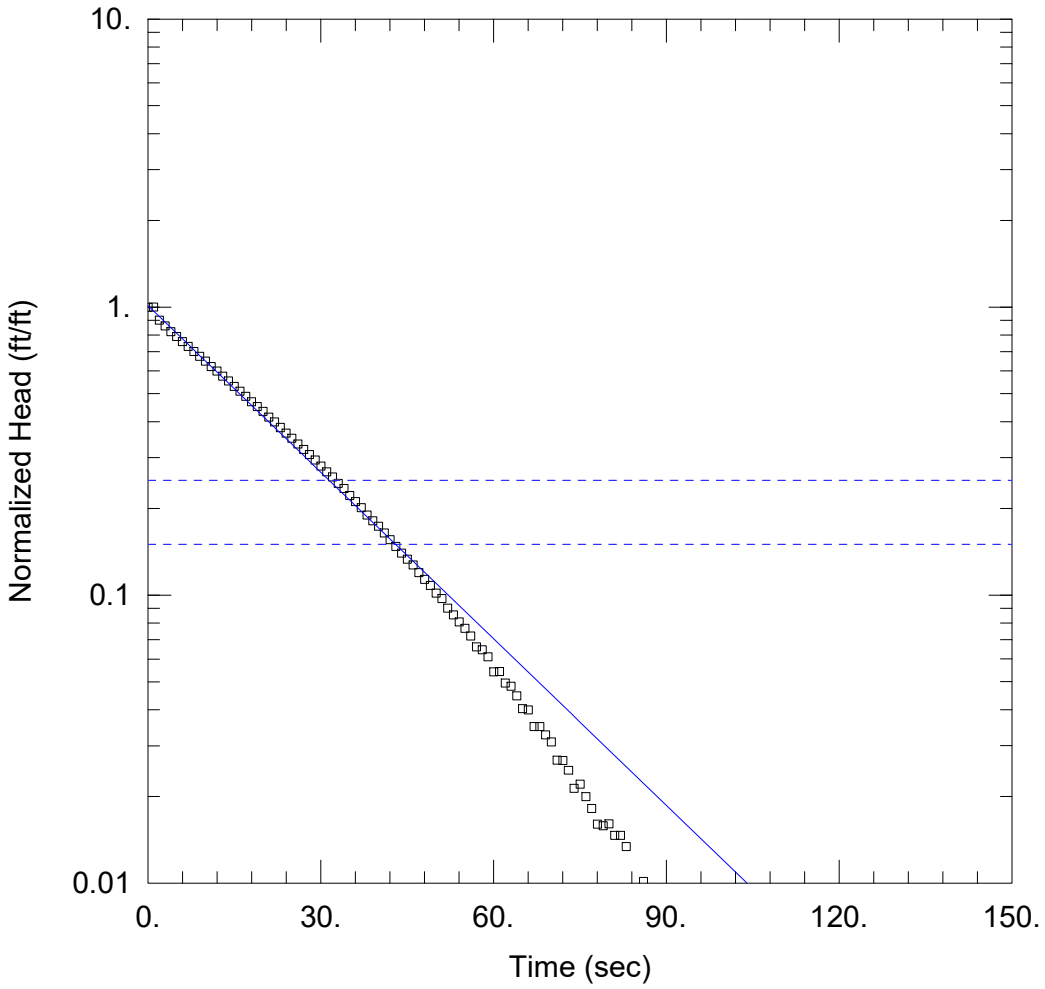
Saturated Thickness: 102.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWA-1)

Initial Displacement: 16.87 ft
Total Well Penetration Depth: 101.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 102.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 5.476 ft/day
y0 = 17.07 ft



WELL TEST ANALYSIS

Data Set: N:\...\WGWA-1 Test 2 - Hvorslev.aqt
Date: 01/22/21 Time: 16:16:18

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWA-1
Test Date: September 2020

AQUIFER DATA

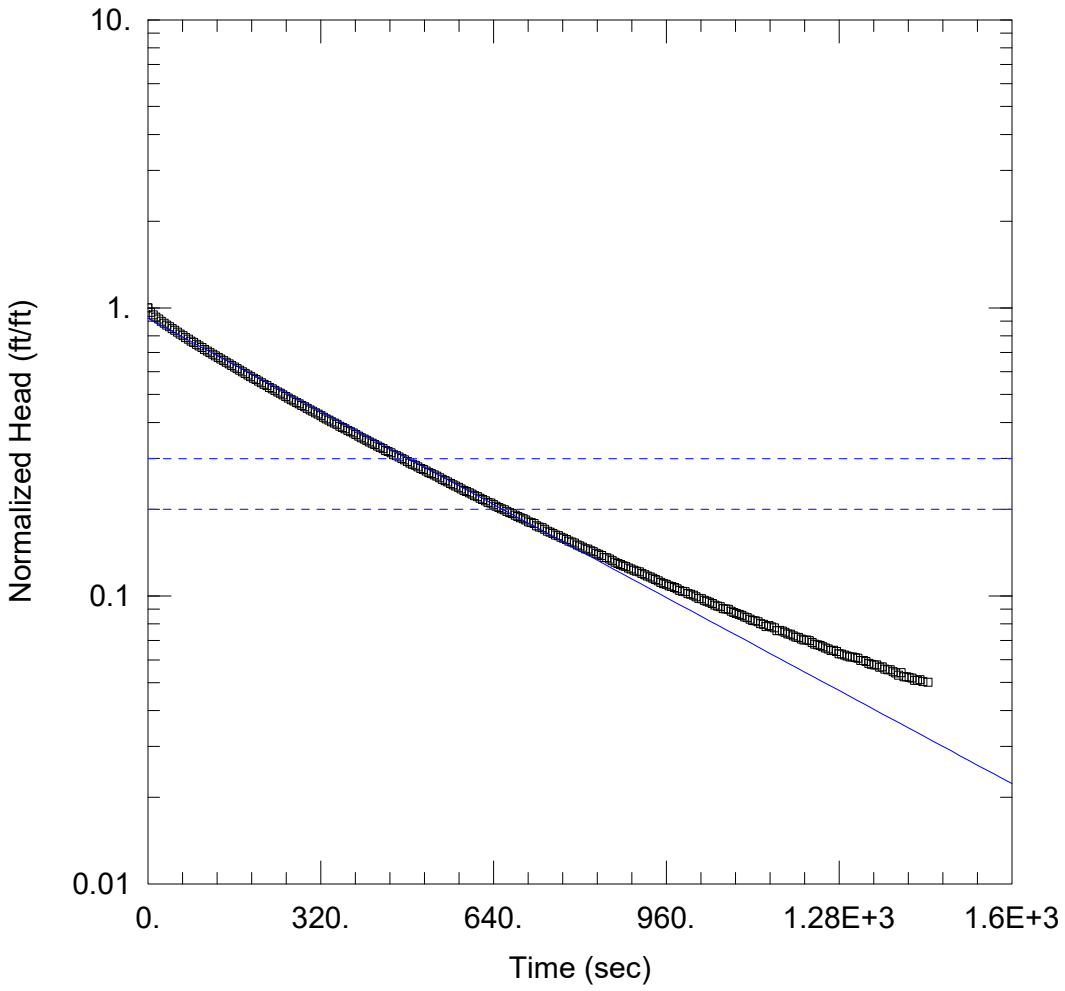
Saturated Thickness: 102.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWA-1)

Initial Displacement: 16.87 ft
Total Well Penetration Depth: 101.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 102.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 5.56 ft/day
y0 = 17.07 ft



WGWC-14A TEST 1

Data Set: N:\...\WGWC-14A_BR_Test1.aqt
Date: 01/24/21 Time: 20:36:54

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: WGWC-14A
Test Date: 1/13/2021

AQUIFER DATA

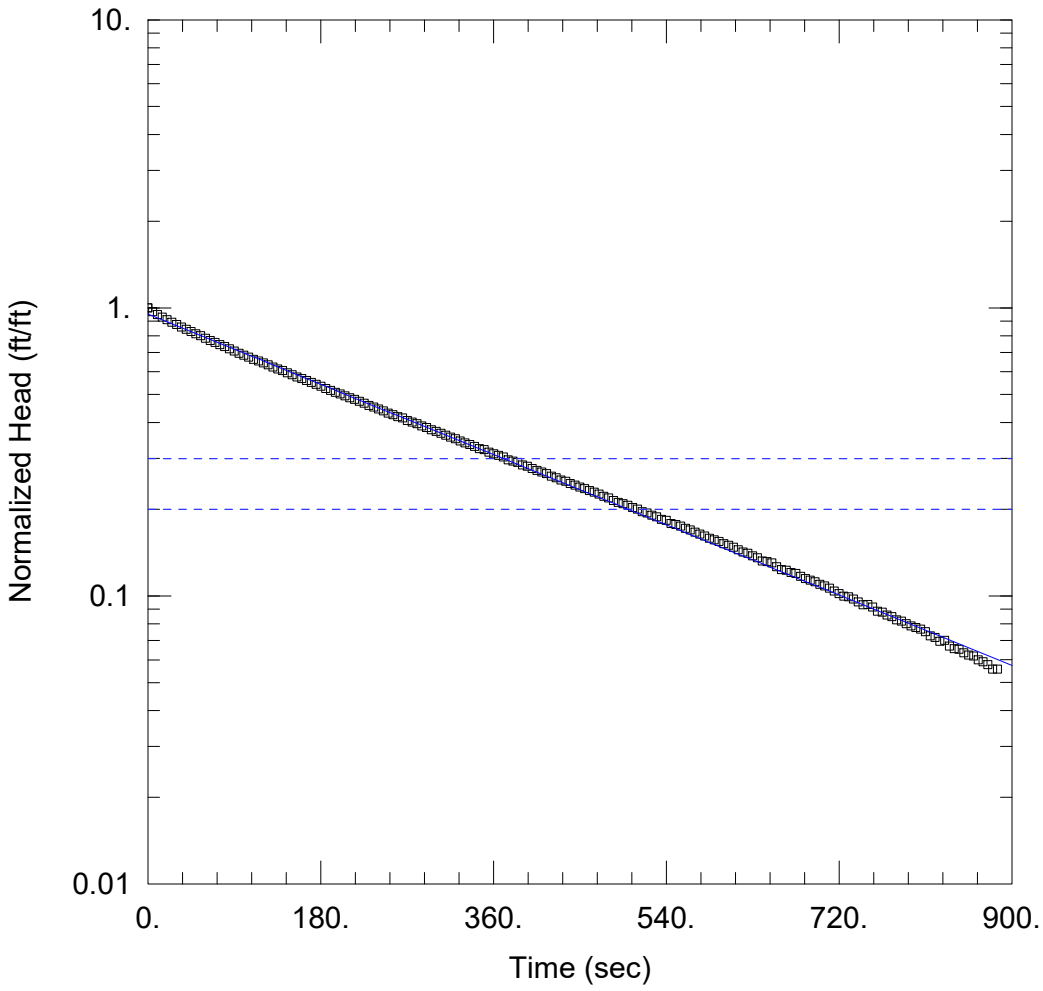
Saturated Thickness: 23.13 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-14A)

Initial Displacement: 11.76 ft
Total Well Penetration Depth: 22.82 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.13 ft
Screen Length: 10. ft
Well Radius: 0.17 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2686 ft/day
y0 = 10.83 ft



WGWC-14A TEST 2

Data Set: N:\...\WGWC-14A_BR_Test2.aqt
Date: 01/24/21 Time: 20:39:42

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: WGWC-14A
Test Date: 1/13/2021

AQUIFER DATA

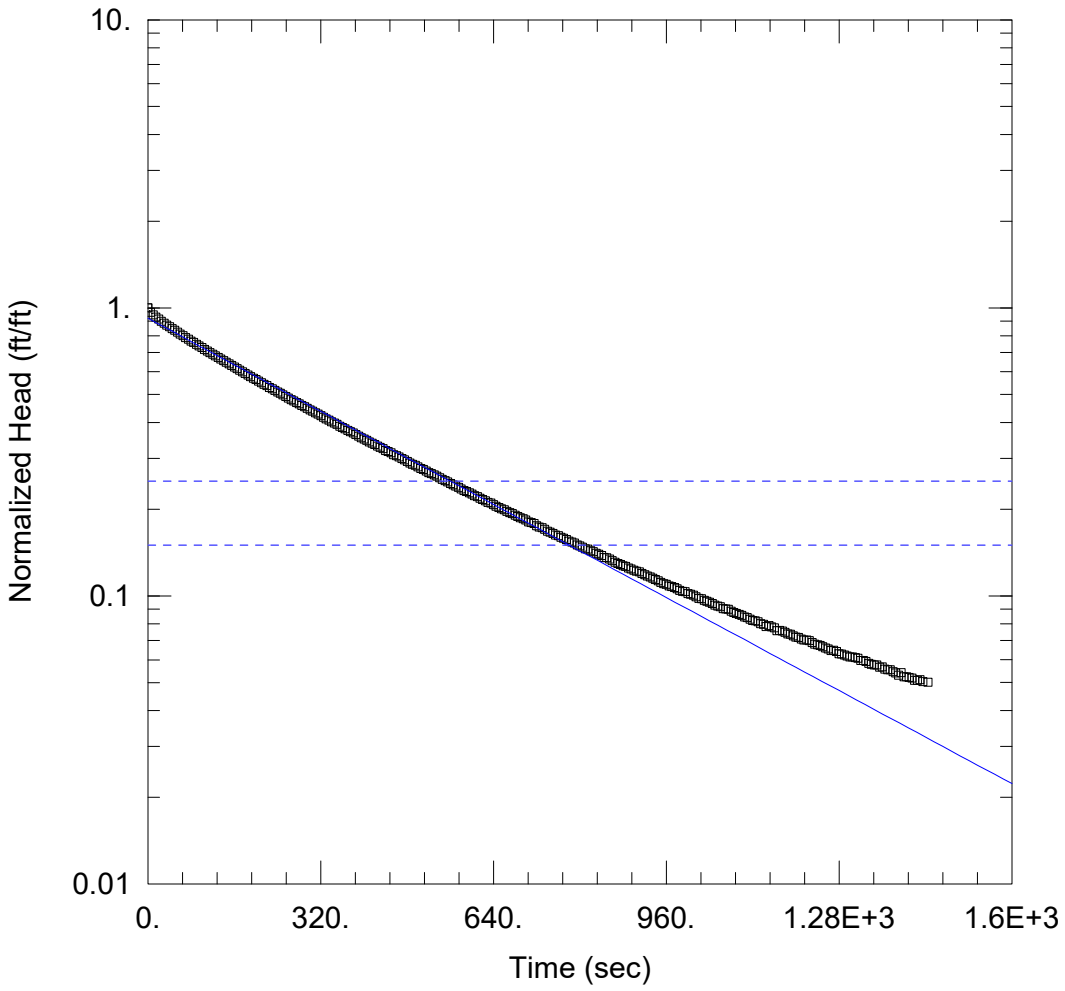
Saturated Thickness: 23.13 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-14A)

Initial Displacement: 6.51 ft
Total Well Penetration Depth: 22.82 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.13 ft
Screen Length: 10. ft
Well Radius: 0.17 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3605 ft/day
y0 = 6.199 ft



WGWC-14A TEST 1

Data Set: N:\...\WGWC-14A_Hvorslev_Test1.aqt
Date: 01/24/21 Time: 20:55:52

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: WGWC-14A
Test Date: 1/13/2021

AQUIFER DATA

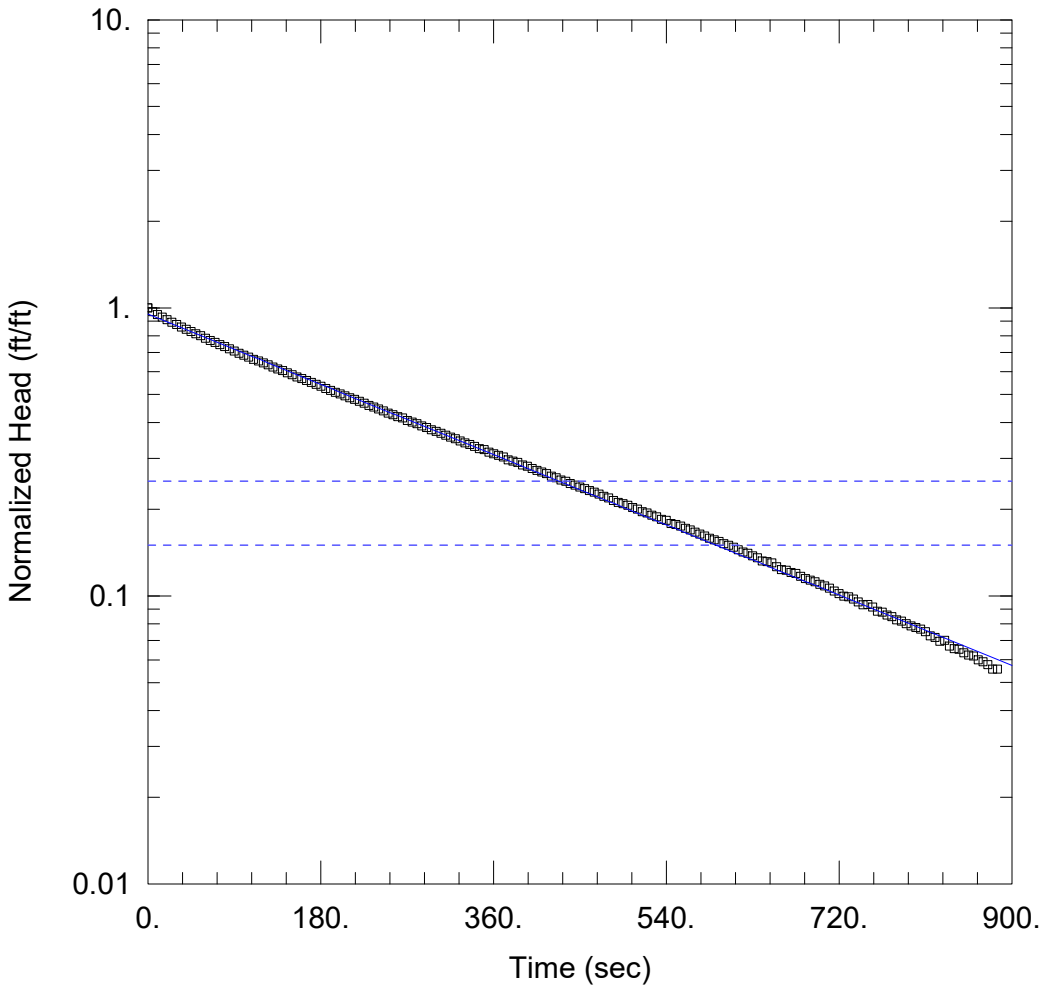
Saturated Thickness: 23.13 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-14A)

Initial Displacement: 11.76 ft
Total Well Penetration Depth: 22.82 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.13 ft
Screen Length: 10. ft
Well Radius: 0.17 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.3145 ft/day
y0 = 10.83 ft



WGWC-14A TEST 2

Data Set: N:\...\WGWC-14A_Hvorslev_Test2.aqt
Date: 01/24/21 Time: 20:56:21

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7327
Location: Plant Wansley, Carrollton, GA
Test Well: WGWC-14A
Test Date: 1/13/2021

AQUIFER DATA

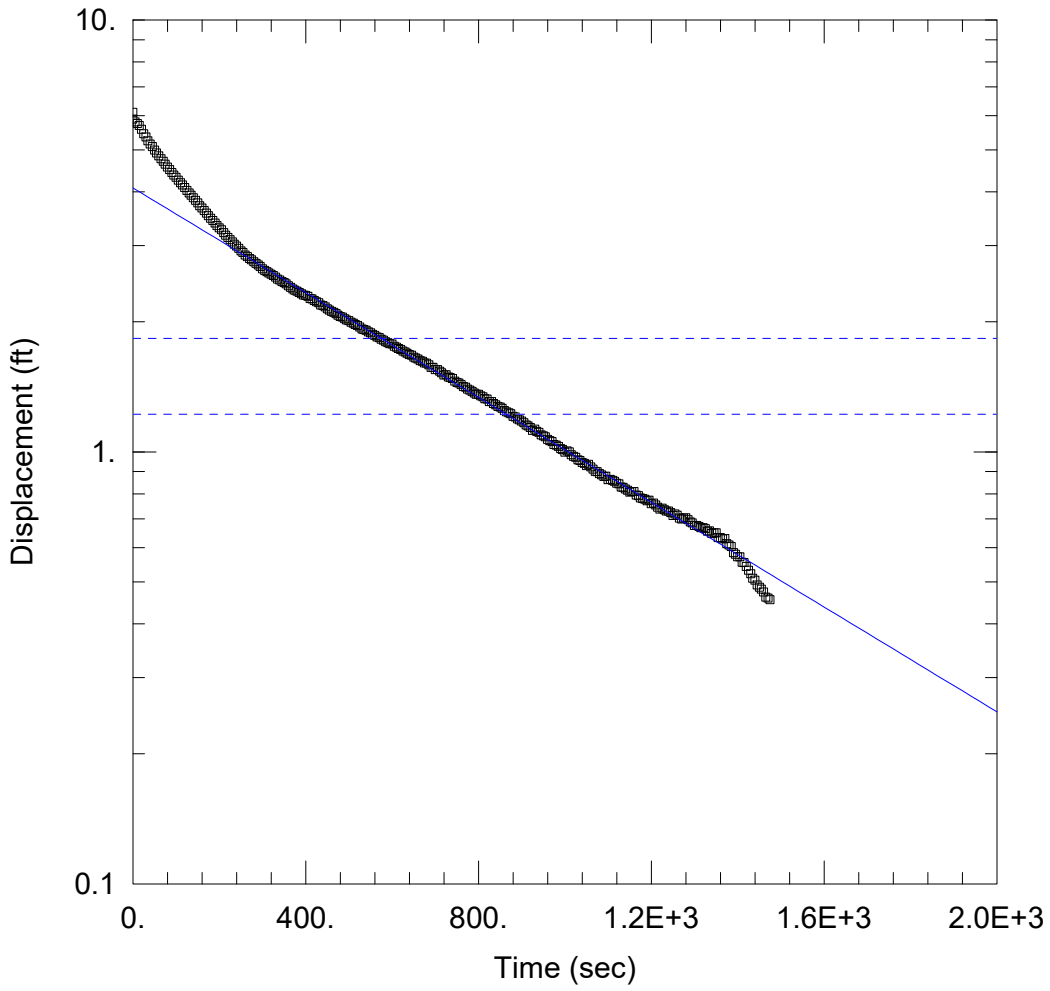
Saturated Thickness: 23.13 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-14A)

Initial Displacement: 6.51 ft
Total Well Penetration Depth: 22.82 ft
Casing Radius: 0.083 ft
Static Water Column Height: 23.13 ft
Screen Length: 10. ft
Well Radius: 0.17 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.422 ft/day
y0 = 6.199 ft



WGWC-16 TEST 1

Data Set: N:\...\WGWC-16_T1_BR_CC.aqt
Date: 01/25/21 Time: 21:49:08

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: WGWC-16
Test Date: 1/13/2021

AQUIFER DATA

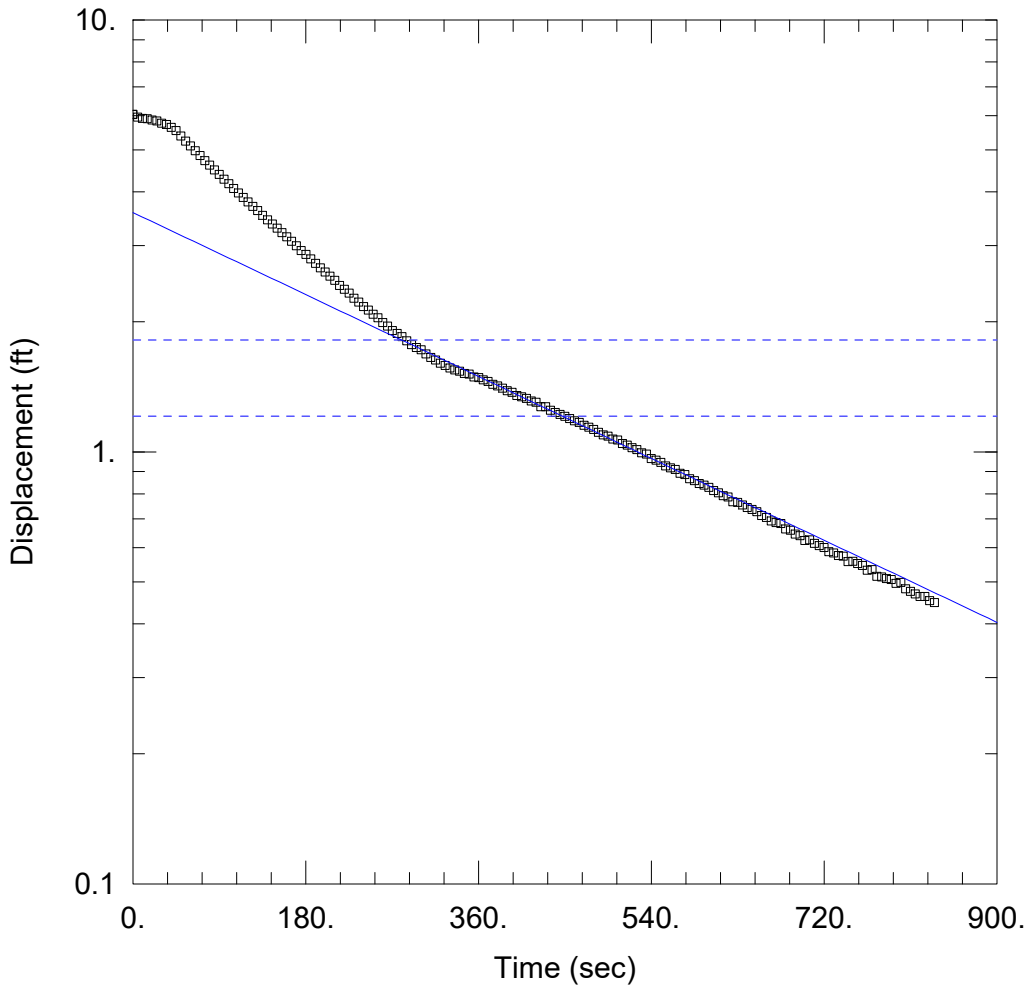
Saturated Thickness: 15.71 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-16)

Initial Displacement: 6.11 ft
Total Well Penetration Depth: 15.07 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.71 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1375 ft/day
y0 = 4.084 ft



WGWC-16 TEST 2

Data Set: N:\...\WGWC-16_BR_Test 2.aqt
Date: 01/25/21 Time: 21:56:07

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: WGWC-16
Test Date: 1/13/2021

AQUIFER DATA

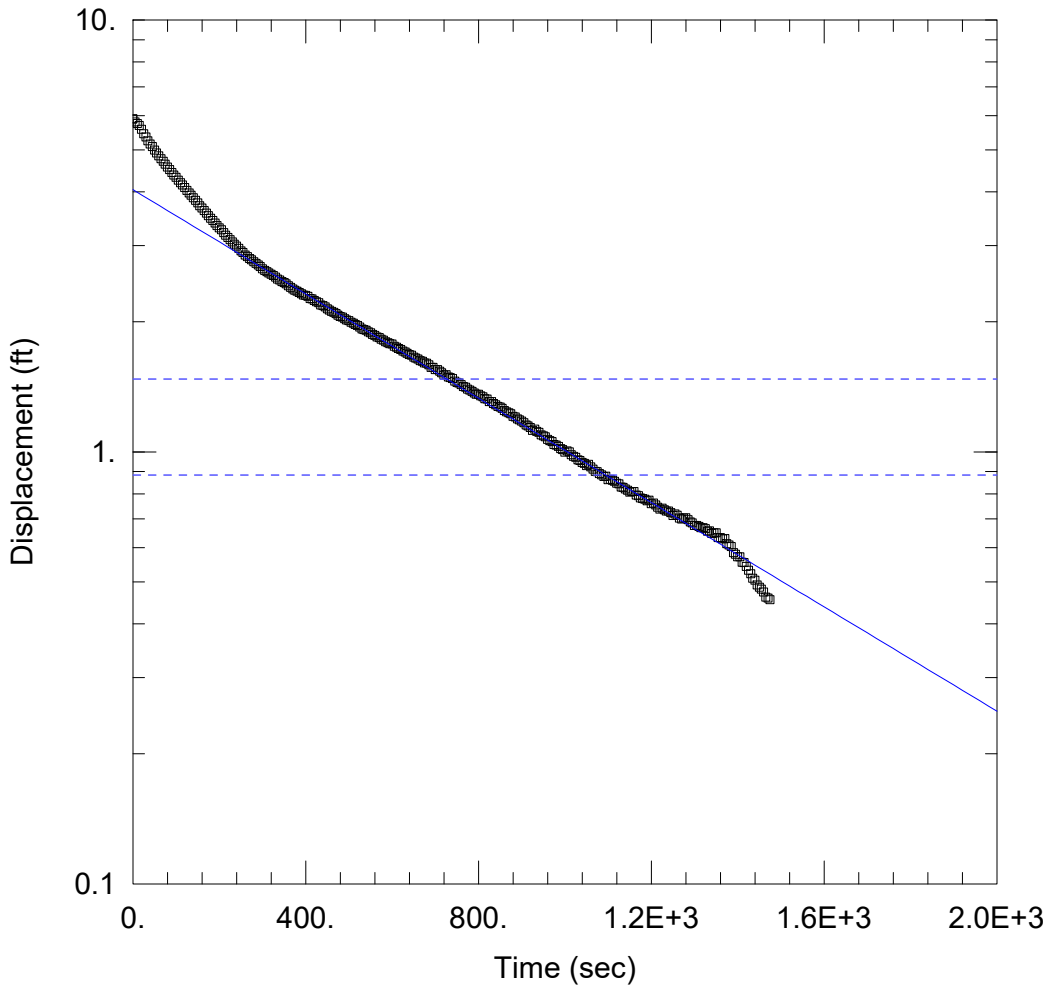
Saturated Thickness: 15.71 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-16)

Initial Displacement: 6.05 ft
Total Well Penetration Depth: 15.07 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.71 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.239 ft/day
y0 = 3.58 ft



WGWC-16 TEST 1

Data Set: N:\...\WGWC-16_Hvorslev_Test 1.aqt
Date: 01/25/21 Time: 21:52:36

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: WGWC-16
Test Date: 1/13/2021

AQUIFER DATA

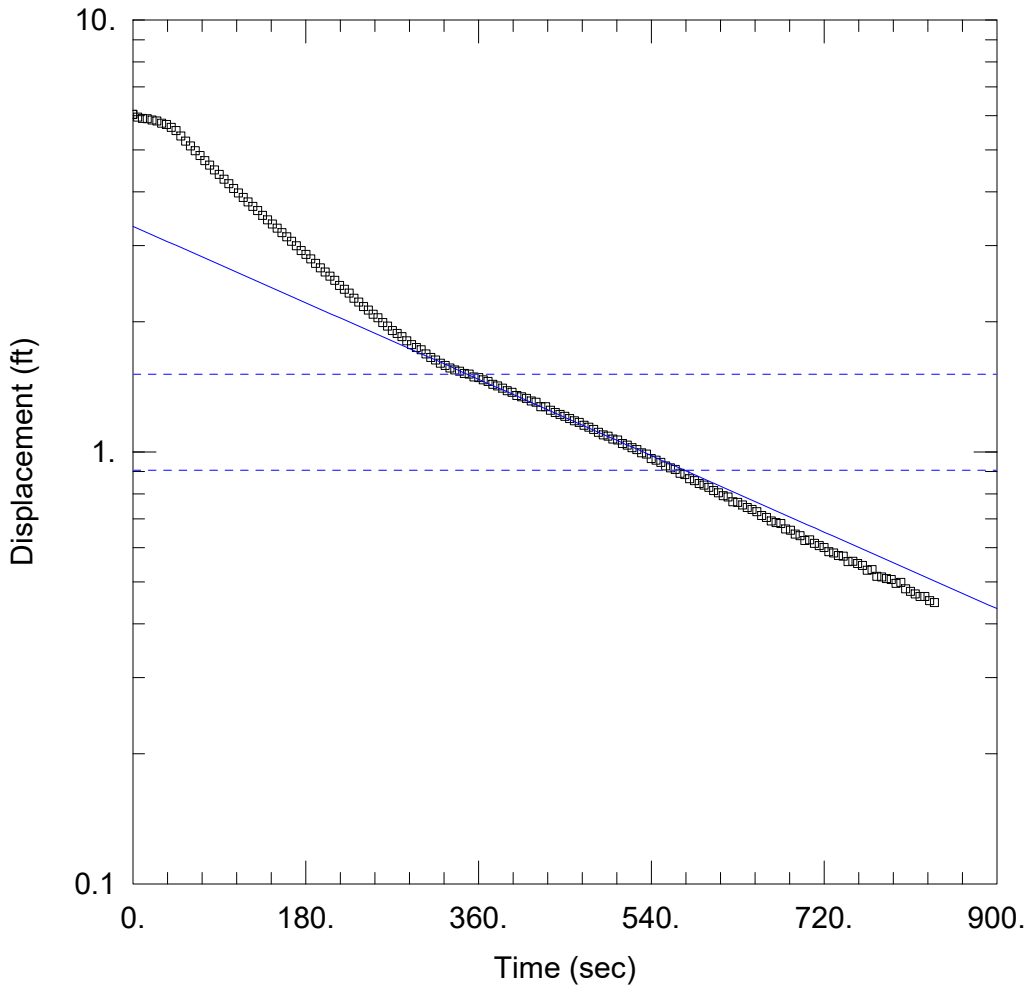
Saturated Thickness: 15.71 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-16)

Initial Displacement: 5.9 ft
Total Well Penetration Depth: 15.07 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.71 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.174 ft/day
y0 = 4.043 ft



WGWC-16 TEST 2

Data Set: N:\...\WGWC-16_Hvorslev_Test 2.aqt
Date: 01/25/21 Time: 21:57:47

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power Company
Project: GW7372
Location: Carrollton, GA
Test Well: WGWC-16
Test Date: 1/13/2021

AQUIFER DATA

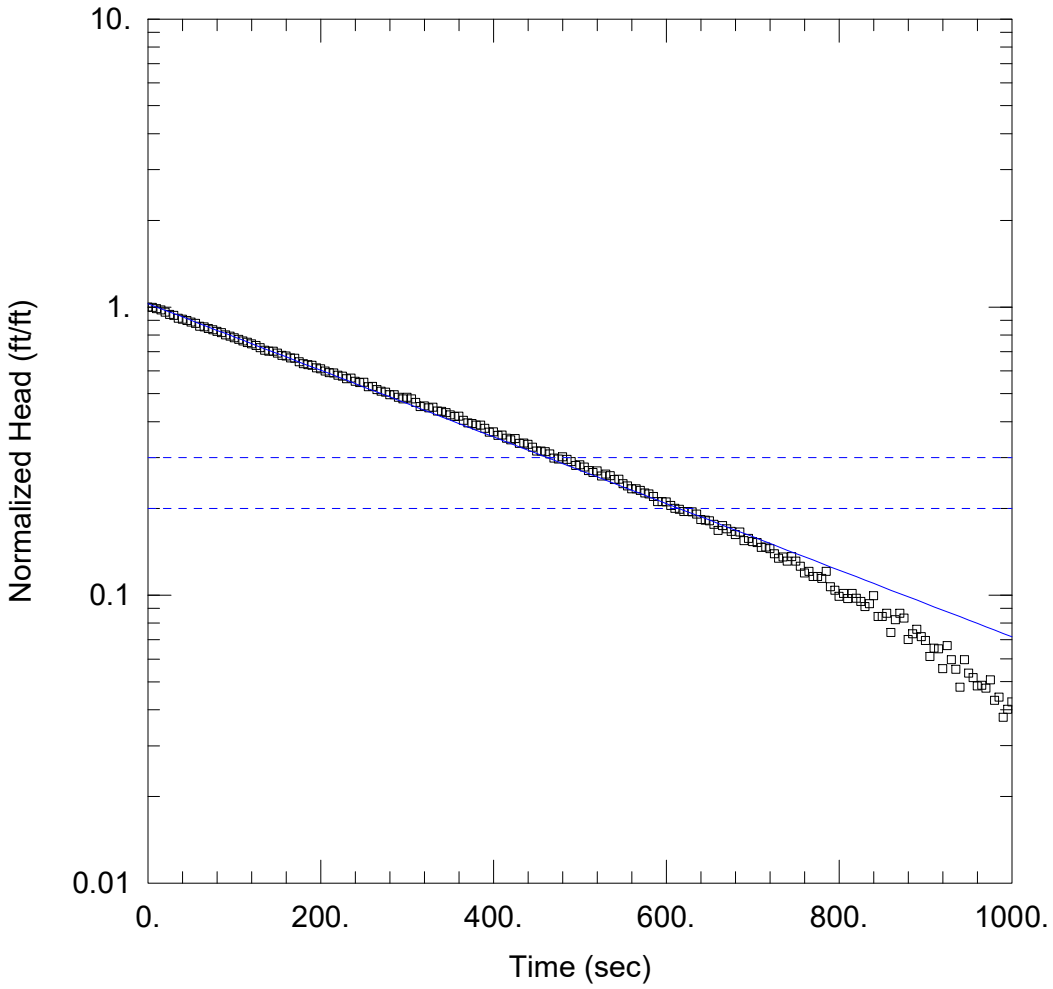
Saturated Thickness: 15.71 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-16)

Initial Displacement: 6.05 ft
Total Well Penetration Depth: 15.07 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.71 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.2835 ft/day
y0 = 3.33 ft



WELL TEST ANALYSIS

Data Set: N:\...\WGWC-17 Test 1 - Bouwer-Rice.aqt
Date: 01/22/21 Time: 16:20:08

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWC-17
Test Date: September 2020

AQUIFER DATA

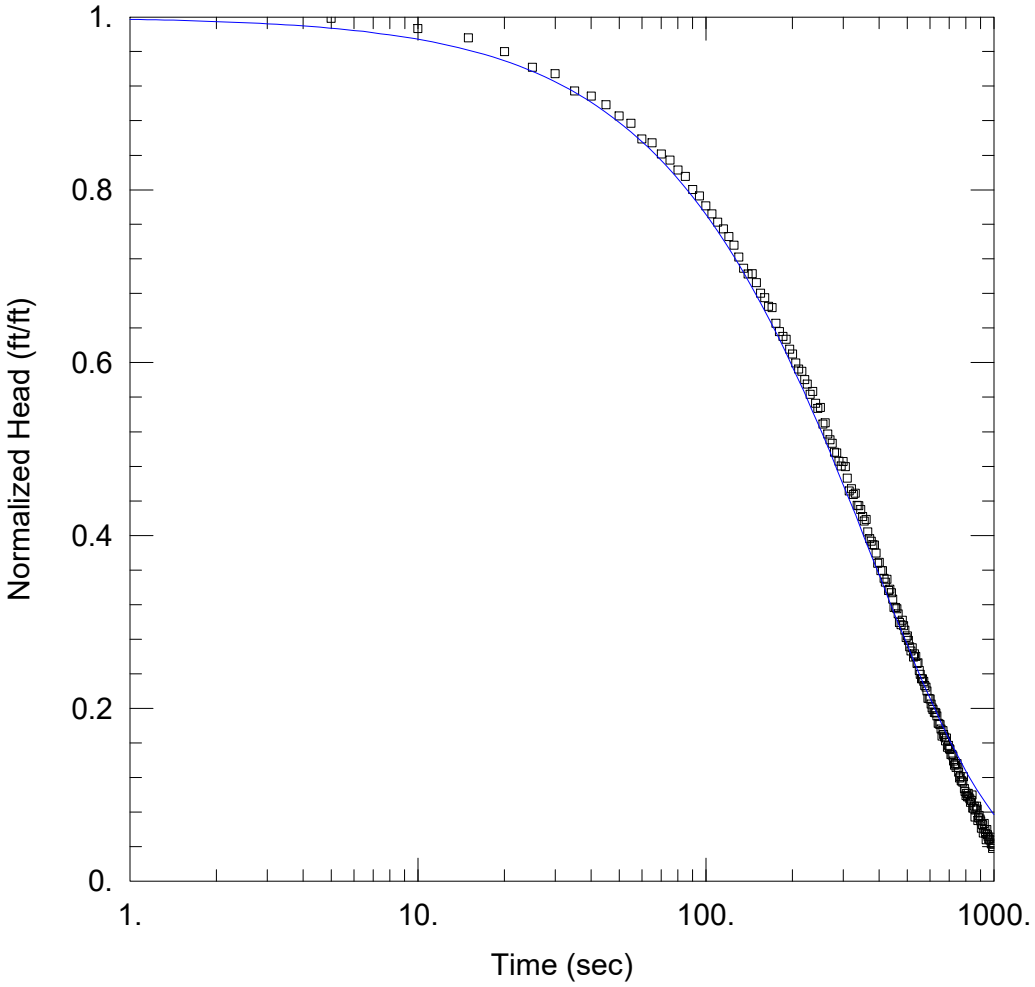
Saturated Thickness: 66.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-17)

Initial Displacement: 3.64 ft
Total Well Penetration Depth: 66.5 ft
Casing Radius: 0.083 ft
Static Water Column Height: 66.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.33 ft/day
y0 = 3.742 ft



WELL TEST ANALYSIS

Data Set: N:\...\WGWC-17 Test 1 - KGS.aqt
Date: 01/22/21 Time: 16:21:55

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWC-17
Test Date: September 2020

AQUIFER DATA

Saturated Thickness: 66.7 ft

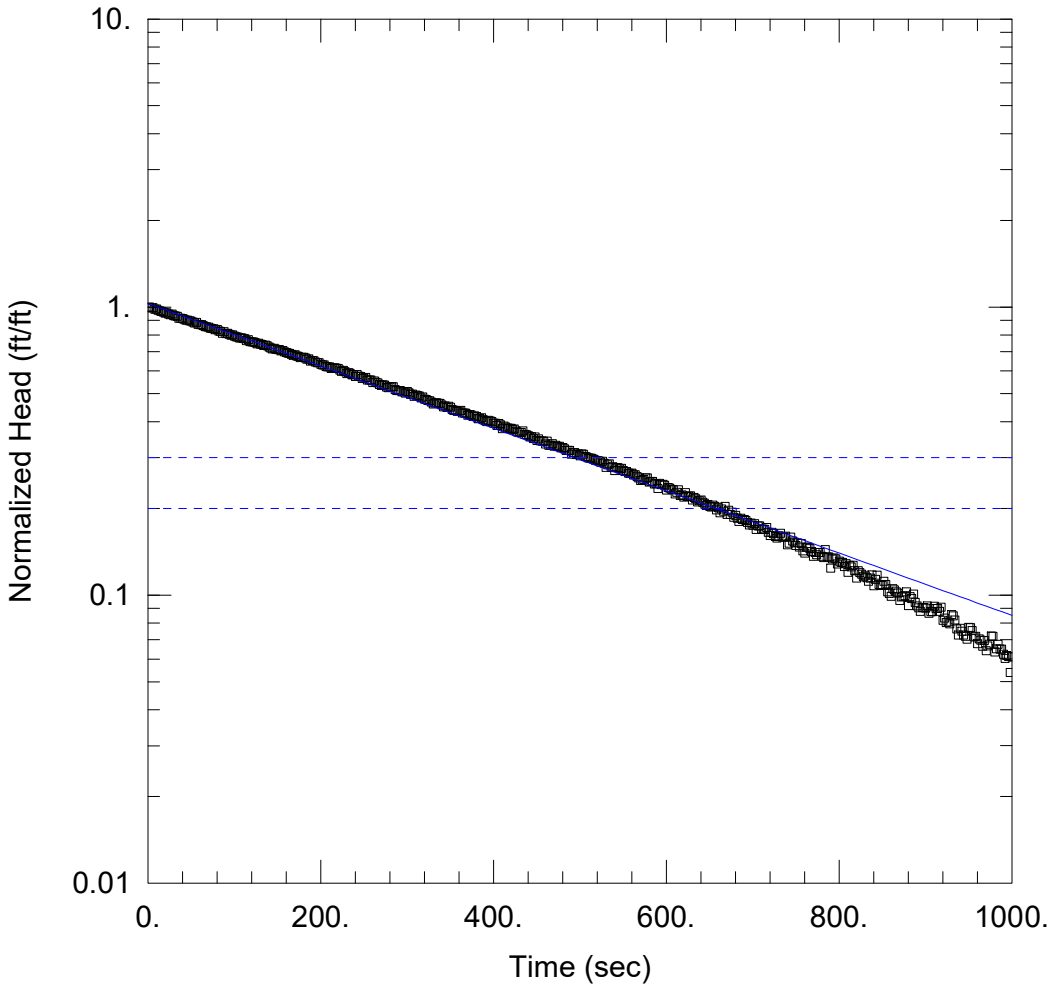
WELL DATA (WGWC-17)

Initial Displacement: 3.64 ft
Total Well Penetration Depth: 66.5 ft
Casing Radius: 0.083 ft
Static Water Column Height: 66.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.3389 ft/day
Kz/Kr = 0.1
Ss = 1.49E-12 ft^{-1}



WELL TEST ANALYSIS

Data Set: N:\...\WGWC-17 Test 2 - Bouwer-Rice.aqt
Date: 01/22/21 Time: 16:23:32

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWC-17
Test Date: September 2020

AQUIFER DATA

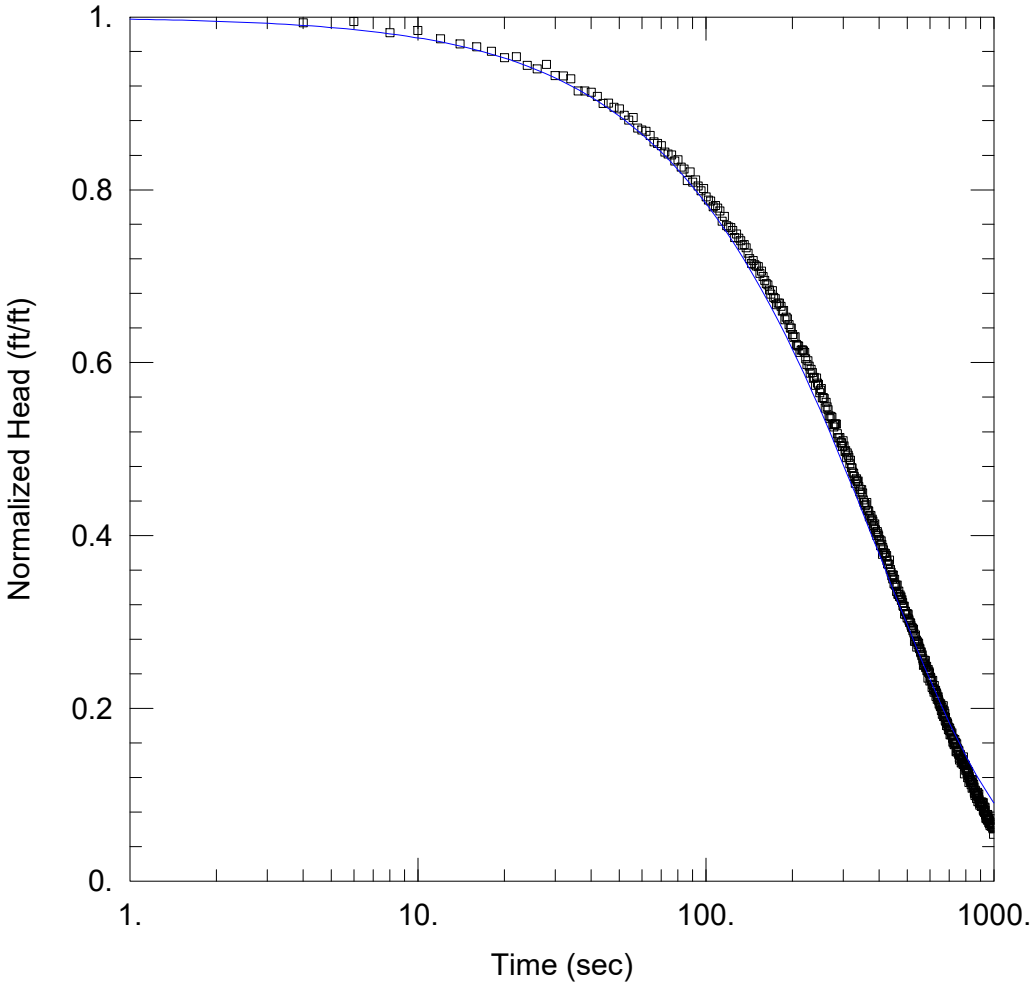
Saturated Thickness: 66.7 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-17)

Initial Displacement: 4.86 ft
Total Well Penetration Depth: 66.5 ft
Casing Radius: 0.083 ft
Static Water Column Height: 66.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.309 ft/day
y0 = 5. ft



WELL TEST ANALYSIS

Data Set: N:\...\WGWC-17 Test 2 - KGS.aqt
Date: 01/22/21 Time: 16:24:50

PROJECT INFORMATION

Company: Geosyntec
Client: Georgia Power Company
Project: GW7327
Location: Carrollton, GA
Test Well: WGWC-17
Test Date: September 2020

AQUIFER DATA

Saturated Thickness: 66.7 ft

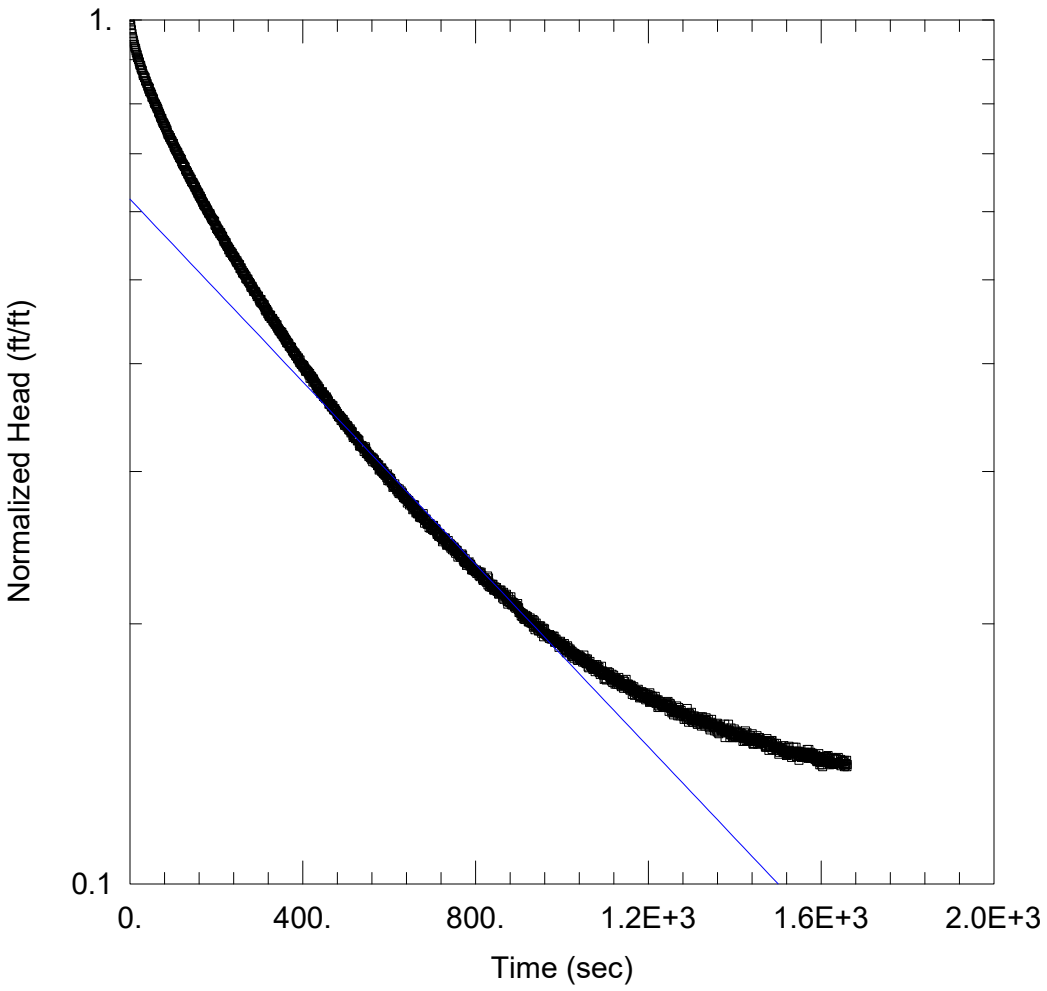
WELL DATA (WGWC-17)

Initial Displacement: 4.86 ft
Total Well Penetration Depth: 66.5 ft
Casing Radius: 0.083 ft
Static Water Column Height: 66.7 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.3172 ft/day
Kz/Kr = 0.1
Ss = 1.49E-12 ft^{-1}



WGWC-26D TEST 1

Data Set: N:\...\WGWC-26D Test 1 BR.aqt
Date: 11/07/22 Time: 11:01:07

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-26D
Test Date: 10/24/2022

AQUIFER DATA

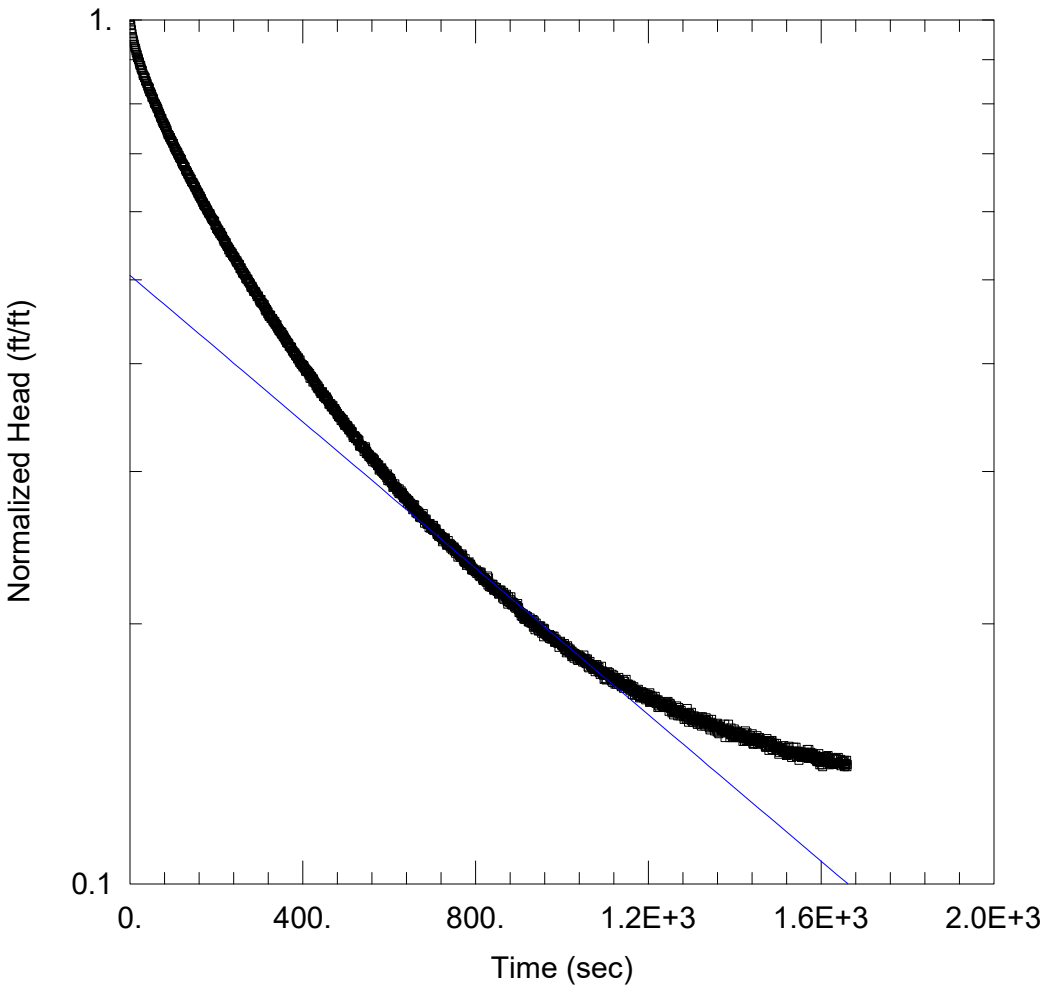
Saturated Thickness: 36.65 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-26D Test 1)

Initial Displacement: 2.62 ft
Total Well Penetration Depth: 36.35 ft
Casing Radius: 0.083 ft
Static Water Column Height: 36.65 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.1383 ft/day
y0 = 1.625 ft



WGWC-26D TEST 1

Data Set: N:\...\WGWC-26D Test 1 HS.aqt
Date: 11/07/22 Time: 11:02:22

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-26D
Test Date: 10/24/2022

AQUIFER DATA

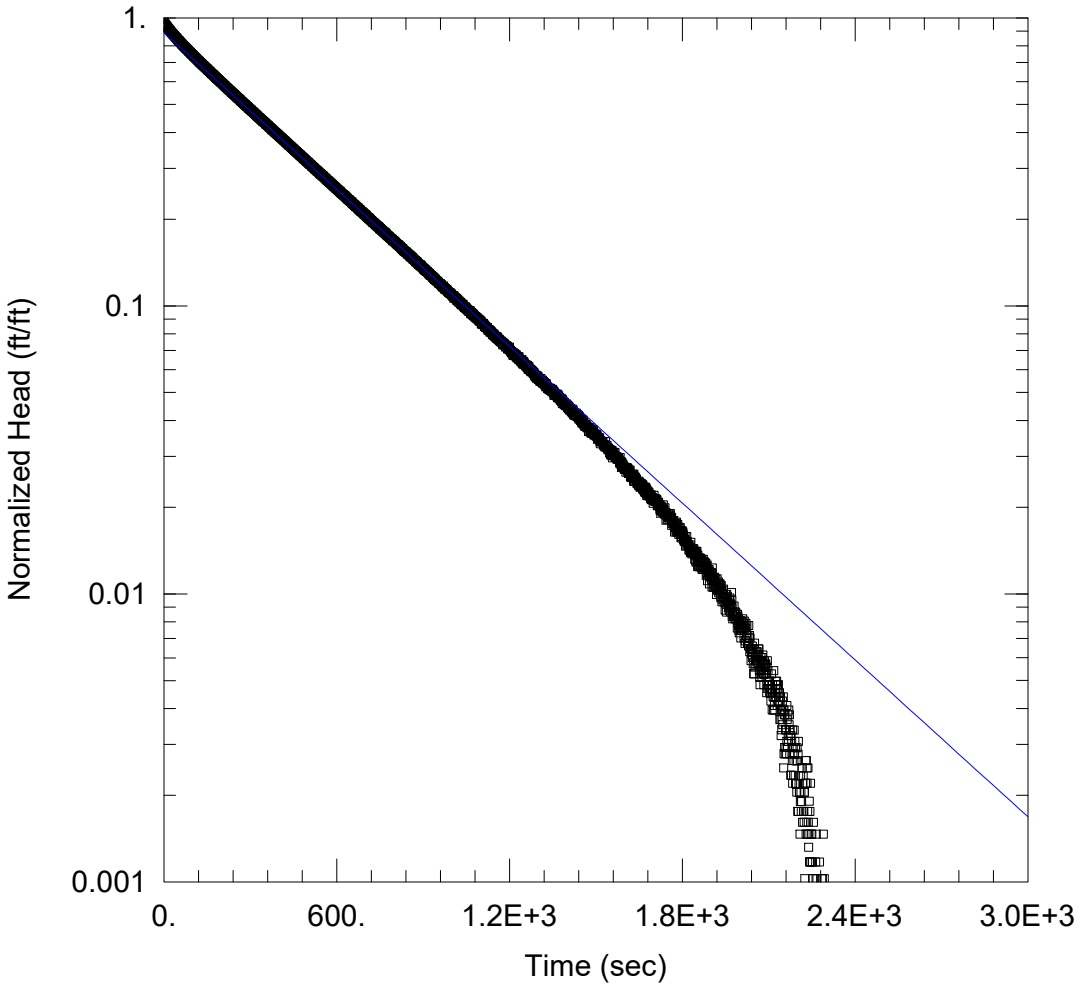
Saturated Thickness: 36.65 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-26D Test 1)

Initial Displacement: 2.62 ft
Total Well Penetration Depth: 36.35 ft
Casing Radius: 0.083 ft
Static Water Column Height: 36.65 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.1222 ft/day
y0 = 1.327 ft



WGWC-26D TEST 2

Data Set: N:\...\WGWC-26D Test 2 BR.aqt
Date: 11/07/22 Time: 11:03:17

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-26D
Test Date: 10/24/2022

AQUIFER DATA

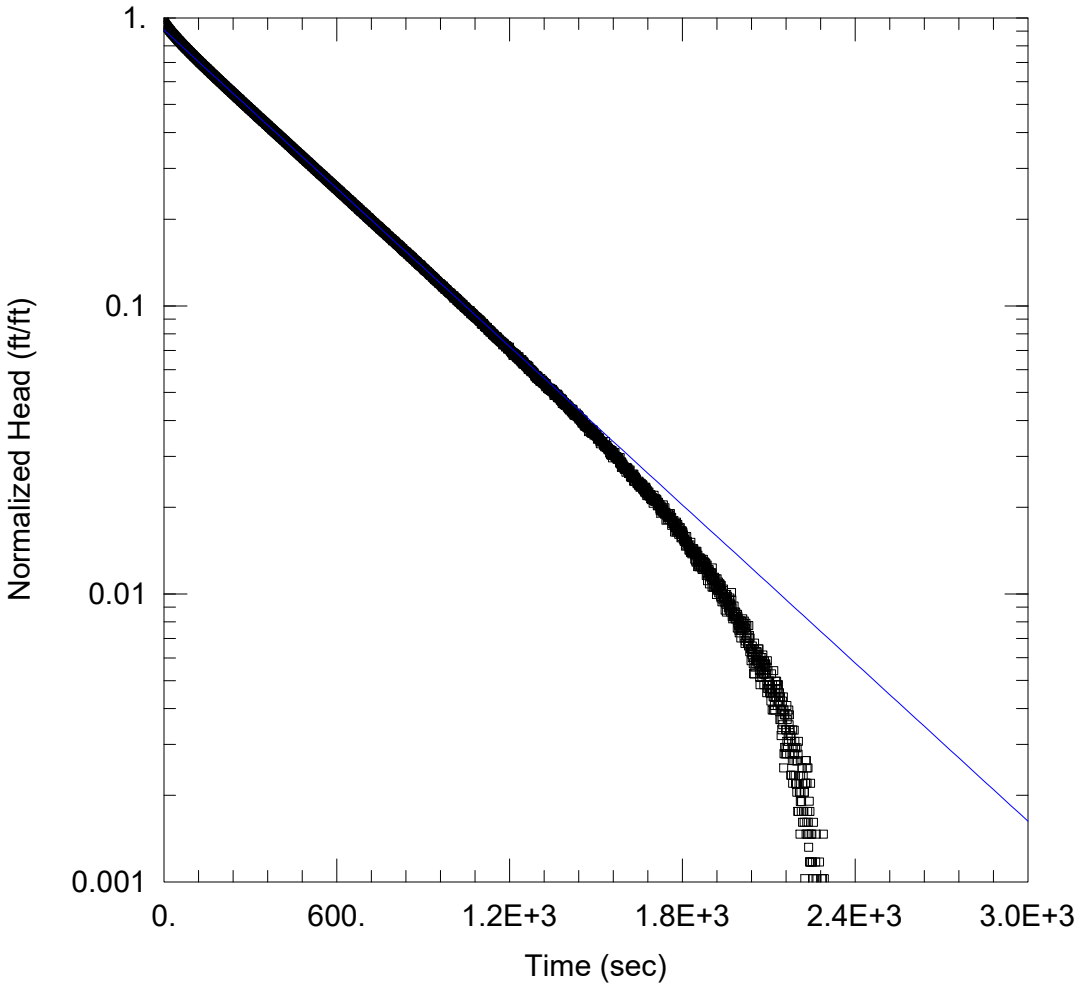
Saturated Thickness: 36.65 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-26D Test 2)

Initial Displacement: 6.83 ft
Total Well Penetration Depth: 36.35 ft
Casing Radius: 0.083 ft
Static Water Column Height: 36.65 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2376 ft/day
y0 = 6.075 ft



WGWC-26D TEST 2

Data Set: N:\...\WGWC-26D Test 2 HS.aqt
Date: 11/07/22 Time: 11:04:21

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-26D
Test Date: 10/24/2022

AQUIFER DATA

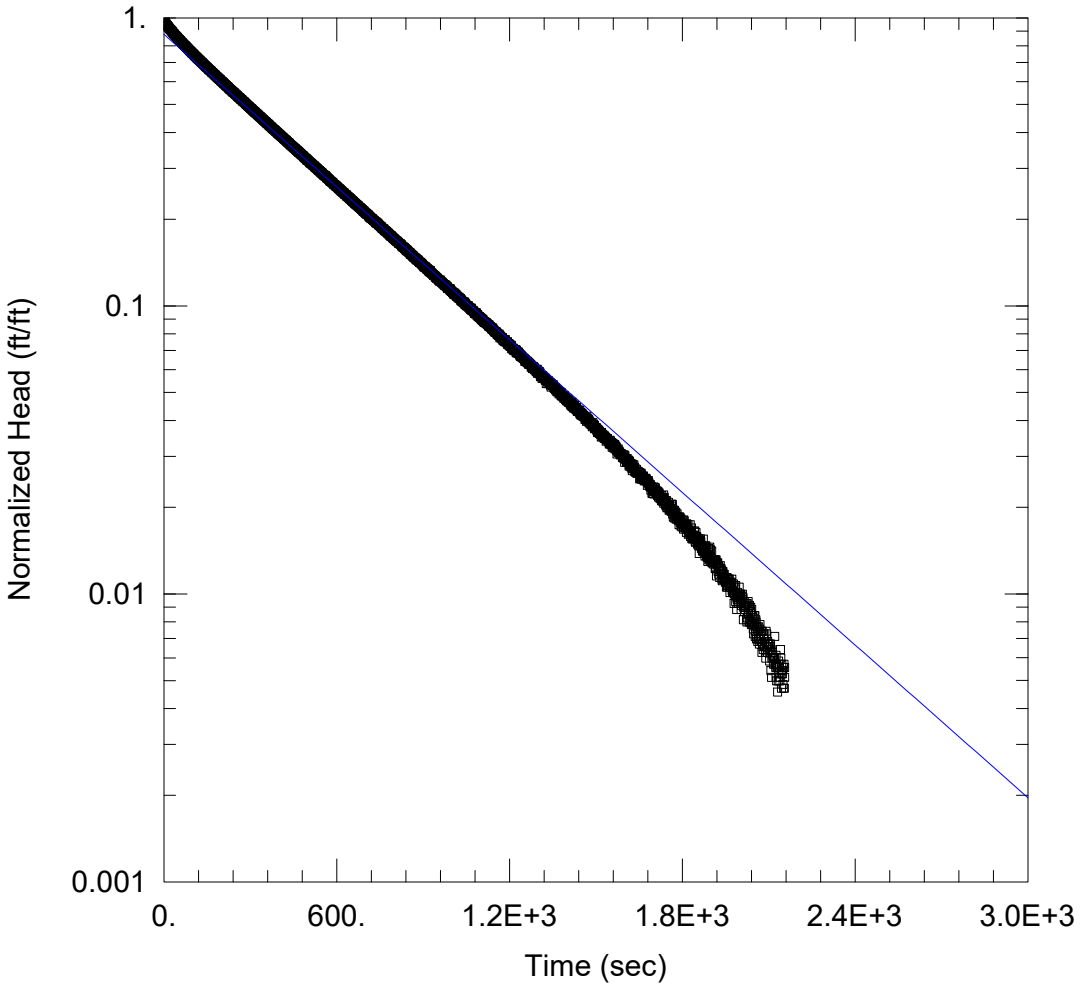
Saturated Thickness: 36.65 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-26D Test 2)

Initial Displacement: 6.83 ft
Total Well Penetration Depth: 36.35 ft
Casing Radius: 0.083 ft
Static Water Column Height: 36.65 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.2641 ft/day
y0 = 6.199 ft



WGWC-26D TEST 3

Data Set: N:\...\WGWC-26D Test 3 BR.aqt
Date: 11/07/22 Time: 11:05:25

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-26D
Test Date: 10/24/2022

AQUIFER DATA

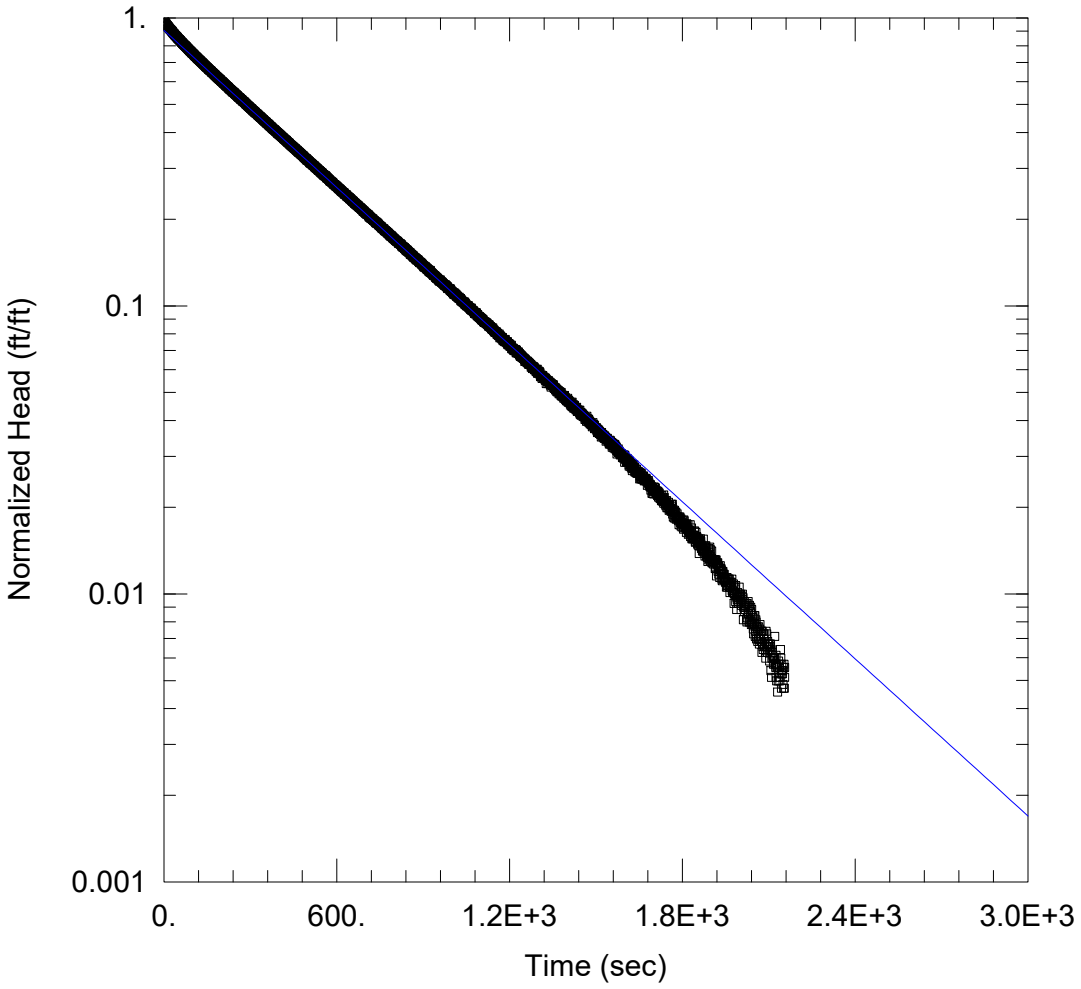
Saturated Thickness: 36.65 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-26D Test 3)

Initial Displacement: 7.02 ft
Static Water Column Height: 36.65 ft
Total Well Penetration Depth: 36.35 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2313 ft/day
y0 = 6.158 ft



WGWC-26D TEST 3

Data Set: N:\...\WGWC-26D Test 3 HS.aqt
Date: 11/07/22 Time: 11:06:32

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-26D
Test Date: 10/24/2022

AQUIFER DATA

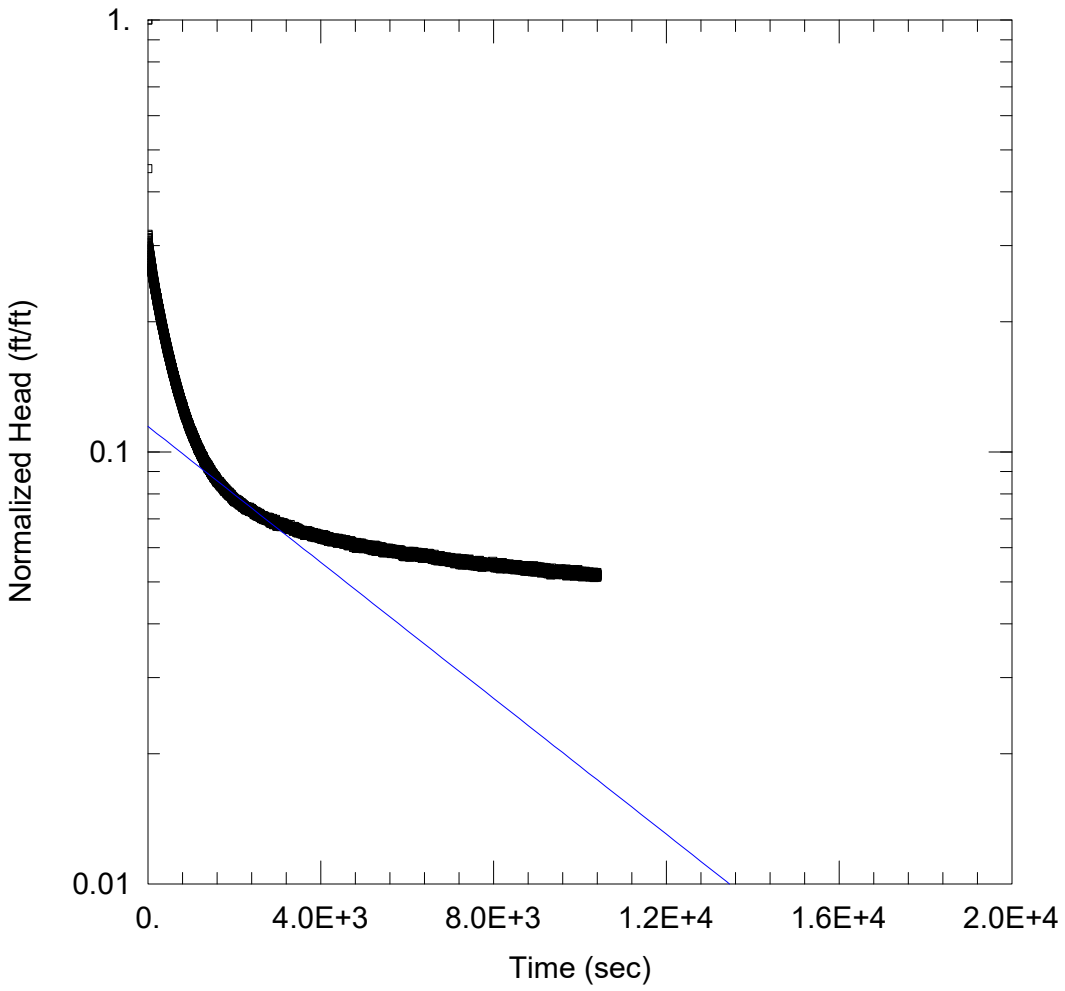
Saturated Thickness: 36.65 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-26D Test 3)

Initial Displacement: 7.02 ft
Total Well Penetration Depth: 36.35 ft
Casing Radius: 0.083 ft
Static Water Column Height: 36.65 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.2622 ft/day
y0 = 6.35 ft



WGWC-27D TEST 1

Data Set: N:\...\WGWC-27 Test 1 BR.aqt
Date: 11/07/22 Time: 10:26:39

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-27D
Test Date: 10/24/2022

AQUIFER DATA

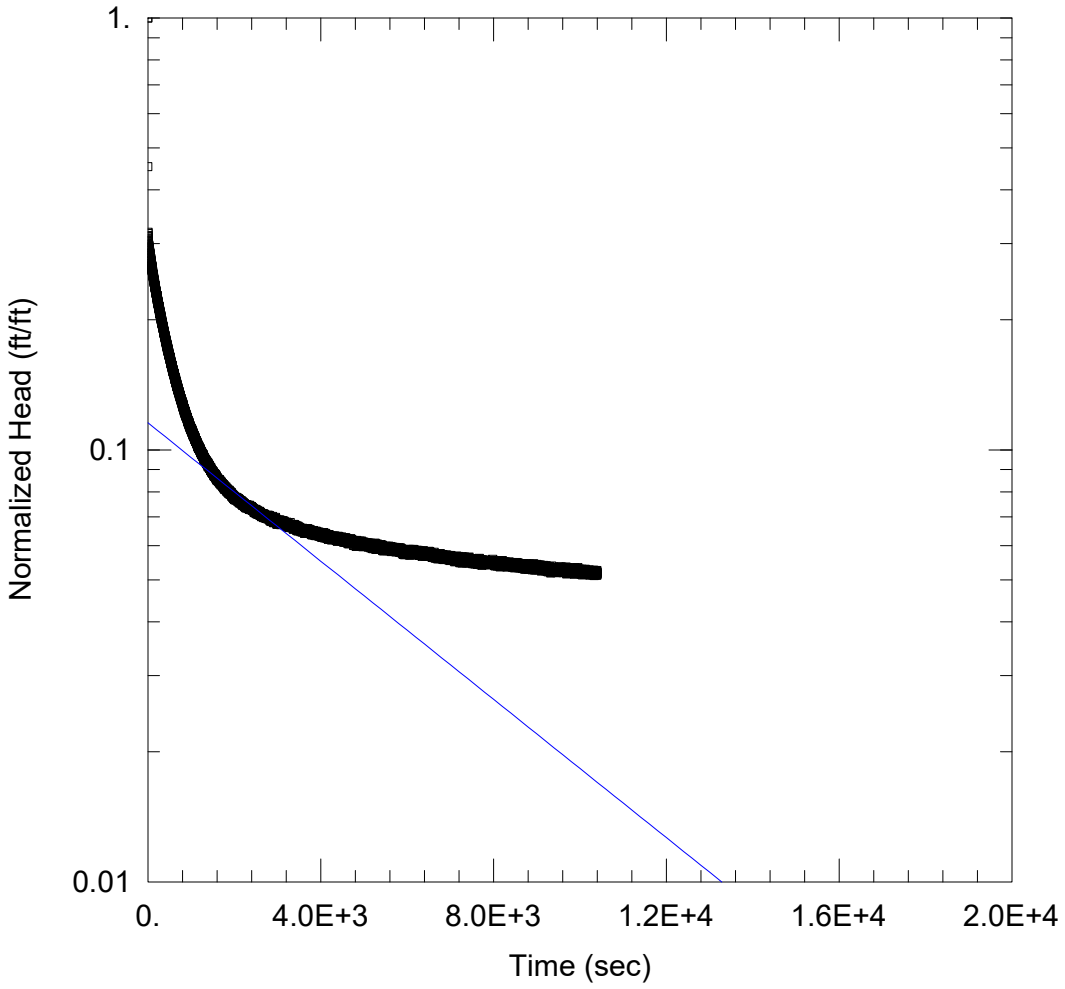
Saturated Thickness: 27.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-27D Test 1)

Initial Displacement: 9.18 ft
Static Water Column Height: 27.73 ft
Total Well Penetration Depth: 56.23 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02253 ft/day
y0 = 1.051 ft



WGWC-27D TEST 1

Data Set: N:\...\WGWC-27 Test 1 HS.aqt
Date: 11/07/22 Time: 10:28:28

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-27D
Test Date: 10/24/2022

AQUIFER DATA

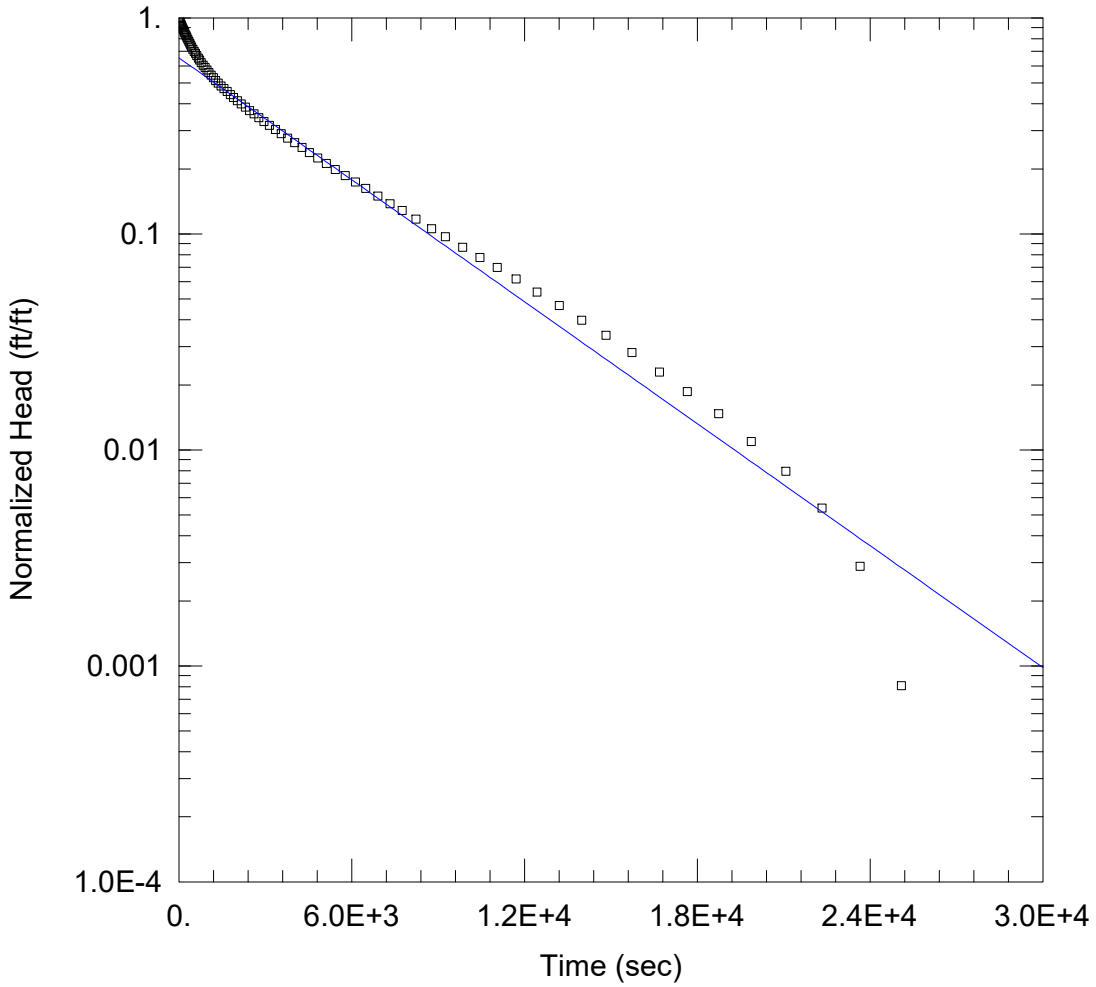
Saturated Thickness: 27.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-27D Test 1)

Initial Displacement: 9.18 ft
Static Water Column Height: 27.73 ft
Total Well Penetration Depth: 56.23 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.02638 ft/day
y0 = 1.06 ft



WGWC-27D TEST 2

Data Set: N:\...\WGWC-27 Test 2 BR.aqt
Date: 11/07/22 Time: 11:07:27

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-27D
Test Date: 10/24/2022

AQUIFER DATA

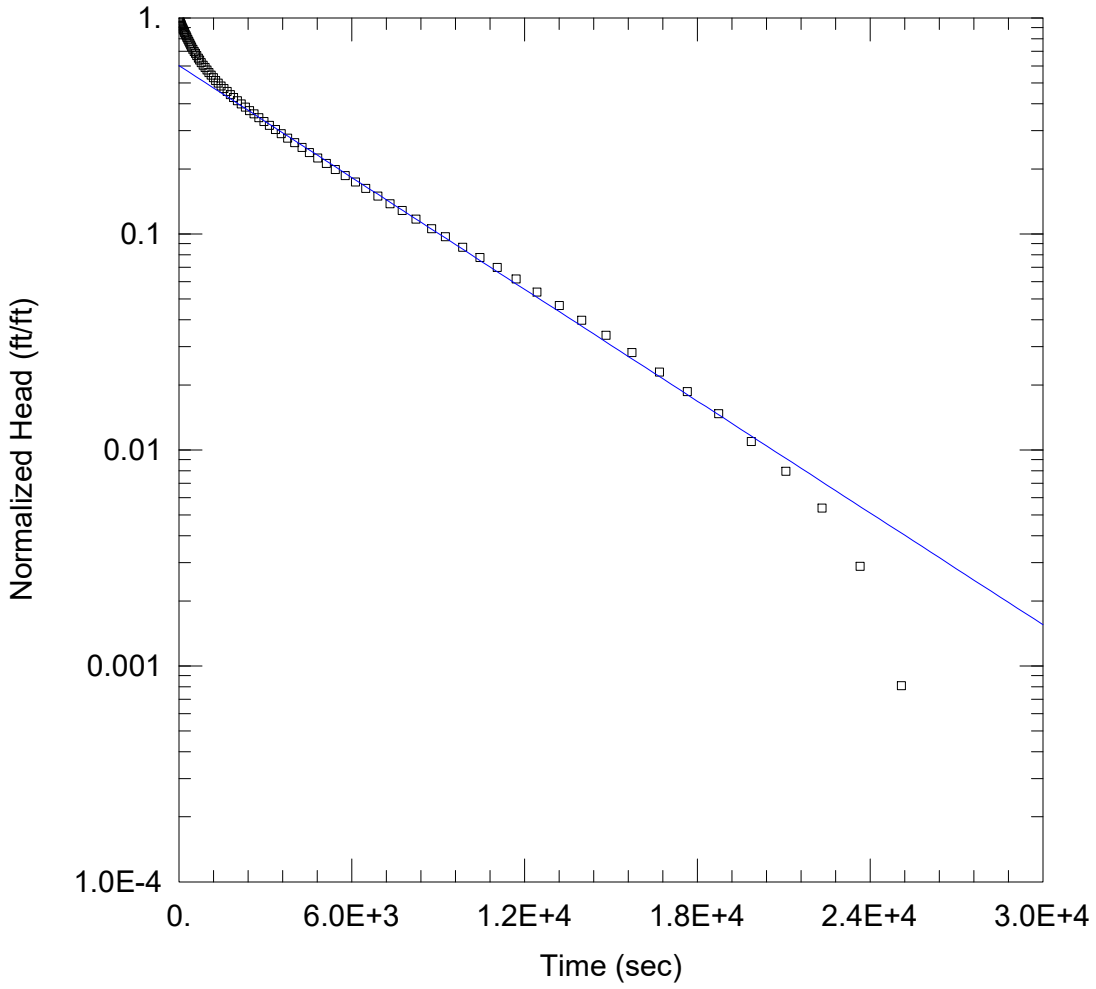
Saturated Thickness: 27.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-27D Test 2)

Initial Displacement: 19.72 ft
Total Well Penetration Depth: 56.23 ft
Casing Radius: 0.083 ft
Static Water Column Height: 27.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02696 ft/day
y0 = 12.89 ft



WGWC-27D TEST 2

Data Set: N:\...\WGWC-27 Test 2 HS.aqt
Date: 11/07/22 Time: 11:08:23

PROJECT INFORMATION

Company: Geosyntec Consultants
Client: Georgia Power
Project: GW7327B
Location: Plant Wansley
Test Well: WGWC-27D
Test Date: 10/24/2022

AQUIFER DATA

Saturated Thickness: 27.73 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (WGWC-27D Test 2)

Initial Displacement: 19.72 ft
Total Well Penetration Depth: 56.23 ft
Casing Radius: 0.083 ft
Static Water Column Height: 27.73 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.02844 ft/day
y0 = 11.86 ft