GROUNDWATER MONITORING PLAN FOR INACTIVE CCR LANDFILL

FORMER PLANT ARKWRIGHT – AP2-DAS LANDFILL

MACON-BIBB COUNTY, GEORGIA

FOR

Georgia Power

November 2018

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11-14-18

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1. CERTIFICATION

I hereby certify that I am a qualified groundwater scientist and professional geologist or engineer, registered to practice in the State of Georgia. I further certify that I am qualified by education, technical knowledge and experience to make the specific technical certifications required under 40 CFR 257, Subpart D. In accordance with Rule 391-3-4-.10(6) of the Georgia Environmental Protection Division (EPD) Rules of Solid Waste Management (rules), the design of the groundwater monitoring system meets the applicable requirements of 40 CFR 257.90 through 40 257.98.

Signature: BEMcClellan

Date: 11/14/18

BRET MCCLELLAN
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST
No. 1540

Signature: M J Feeney

Date: 11/14/18

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2. INTRODUCTION

Groundwater monitoring is required by EPD to detect and quantify potential changes in groundwater chemistry. This Groundwater Monitoring Plan (plan) describes the groundwater monitoring program for the Former Plant Arkwright's AP2-DAS Landfill (site). This plan meets the requirements of EPD rules and uses EPD's Manual for Groundwater Monitoring dated September 1991 as a guide. Groundwater sampling locations for the site are presented in Figure A1 of Appendix A.

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

Former Plant Arkwright's AP2-DAS Landfill is located in Bibb County, approximately six miles northwest of Macon, Georgia. The footprint of AP2-DAS Landfill covers approximately 9.11 acres, is located adjacent to Beaverdam Creek, and is currently covered with soil and a mature stand of trees and thick undergrowth vegetation. In 2008, a groundwater monitoring network utilizing three wells (two upgradient and one downgradient) was installed around AP2-DAS Landfill, and the unit was issued a Closure Certificate by EPD on July 30, 2010, with permit number 011-031D(LI).

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Rule (§257.90), which is incorporated by Georgia State CCR Rule by reference, a detection monitoring well network for AP2-DAS Landfill has been installed and certified by a qualified professional engineer. Per communication with Georgia Power, the existing monitoring wells were installed following the guidelines presented herein. This plan documents the methods for future monitoring well installation and/or replacement, and procedures for well abandonment. As required by 391-3-4.10(6)(g), a minor modification will be submitted to the EPD prior to the unscheduled installation or abandonment of monitoring wells. Well installation and/or abandonment must be directed by a qualified groundwater scientist.

CCR will be removed from AP2-DAS Landfill, which will significantly affect final (closure) topography and may also affect the site's potentiometric surface. Pre-existing beneficial reuse areas will remain onsite after excavation. These areas are being used to provide support to the existing power poles within the permit boundary. This plan has been generated with consideration to these factors and in accordance with Solid Waste Management Rule 391-3-4-.10(6).

3. SITE CONDITIONS

Geologic conditions for this site are described in the "Limited Hydrogeologic Assessment Report, Former Plant Arkwright – AP2-DAS Landfill" provided in the November 2018 solid waste handling permit application. A summary of the site geology and hydrogeology is provided below.

AP2-DAS Landfill is generally underlain by alluvial sediments such as sand of varying grain sizes with trace gravel. More consolidated sediments include clays, fine to medium sandy silts to silty sands, and silty to sandy clays, underlain by silty sand saprolite. Borings from recent and historical site investigations indicate parent materials consisting of extremely weathered quartzofeldspathic gneiss, horneblende gneiss and schist.

Based on existing monitoring wells, the potentiometric surface ranges from approximately 29 feet below existing ground surface (bgs) at the northern portion of the CCR unit to approximately 14 feet bgs at its southern edge. This equates to potentiometric elevations ranging from approximately 315 feet to 295 feet above mean sea level, respectively. The uppermost aquifer typically occurs within

the residual soils and saprolite above bedrock. The site is bordered to the south by Beaverdam Creek, which likely has a significant influence on the potentiometric surface at AP2-DAS Landfill.

The groundwater monitoring network at the site consists of two upgradient wells (GWA-19 and GWA-20) and one downgradient well (GWC-21). These wells have been monitored since installation, in accordance with Georgia EPD's permit number 011-031D(LI) issued for the subject facility. It is anticipated that upgradient wells GWA-19 and 20 may remain throughout the removal activities and become part of the site's permitted groundwater monitoring network. Boring logs, well construction diagrams, and a summary table of monitoring well details for existing monitoring wells are provided in Appendix A of this plan.

As mentioned previously, CCR will be removed from AP2-DAS Landfill, which will significantly lower the site's topography and may also affect the potentiometric surface during post-closure. However, it is not expected that removal of CCR will affect the general flow direction of groundwater toward Beaverdam Creek. The entire waste mass will be removed, with the exception of two pre-existing beneficial reuse areas. It is anticipated that groundwater monitoring well GWC-21 will be abandoned as part of excavation activities.

After removal of CCR from AP2-DAS Landfill, four additional groundwater monitoring wells will be installed to evaluate groundwater quality at the site. The existing well locations and proposed additional well locations are shown in Figure A1 of Appendix A. As required by 391-3-4.10(6)(g), a minor modification will be submitted to EPD prior to the installation or decommissioning of monitoring wells. Well installation will be directed by a qualified groundwater scientist. Any changes to the monitoring network, as shown in Figure A1 of Appendix A, will be incorporated via a minor modification to Sheet 9 of the Closure Plan.

4. GROUNDWATER MONITORING WELL DESIGN AND CONSTRUCTION

The monitoring well network for AP2-DAS Landfill is in place. Per correspondence with Georgia Power, the existing monitoring wells were installed following USEPA Region 4 Science and Ecosystem Support Division Operating Procedure for Design and Installation of Monitoring Wells as a general guide for best practices.

Groundwater monitoring wells will be installed to monitor the uppermost occurrence of groundwater beneath the site. Proposed locations are selected based on site geologic and hydrogeologic considerations, following the recommendation as stated in Chapter 2 of the Manual for Groundwater Monitoring (1991) to determine well spacing based on site-specific conditions. Locations are chosen to serve as upgradient (GWA), lateral (GWB), or downgradient (GWC) based on groundwater flow direction determined by potentiometric evaluation. The well naming nomenclature is based on Georgia EPD's Industrial Waste Disposal Site Design and Operations Plan – Supplemental Data for Solid Waste Handling Permit (undated).

Monitoring wells will generally be located outside of areas with frequent auto traffic; however, wells may be installed in heavily trafficked areas when necessary to meet the groundwater monitoring objectives of EPD rules.

5. DRILLING METHODS

A variety of well drilling methods are available for the purpose of installing groundwater wells. Drilling methodology may include, but not be limited to: hollow stem augers, direct push, air rotary, mud rotary, or rotosonic techniques. The drilling method shall minimize the disturbance of subsurface

materials and shall not cause impact to the groundwater. Borings will be advanced using an appropriate drilling technology capable of drilling and installing a well in site-specific geology. Drilling equipment shall be decontaminated before use and between borehole locations using the procedures described in the latest version of the U.S. Environmental Protection Agency (USEPA) Region 4 Science and Ecosystem Support Division Operating Procedure for Field Equipment Cleaning and Decontamination as a guide.

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

All drilling for any subsurface hydrologic investigation, installation, or abandonment of groundwater wells at a landfill in Georgia must be performed by a driller that has, at the time of the field operation, a performance bond on file with the Water Well Standards Advisory Council.

Monitoring wells will be installed using the latest version of the USEPA Region 4 Science and Ecosystem Support Division Operating Procedure for Design and Installation of Monitoring Wells as a general guide for best practices.

6. MONITORING WELL CONSTRUCTION MATERIALS AND REPORTING

Well construction materials shall be sufficiently durable to resist chemical and physical degradation and will not interfere with the quality of groundwater samples collected. The groundwater monitoring well detail attached in Appendix B, Groundwater Well Detail, illustrates the general design and construction details for a monitoring well.

a) Well Casings and Screens

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

b) Well Intake Design

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

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

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

c) Filter Pack and Annular Sealant

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

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

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

d) Protective Casing and Well Completion

After allowing the grout to settle, the well will be finished by installing a flush-mount or above-ground protective casing as appropriate, and building a surface cap. The use of flush-mount wells will generally be limited to paved surfaces unless site operations warrant otherwise. The surface cap will extend from the top of the cementitous grout to ground surface, where it will become a concrete apron extending outward with a radius of at least 3 feet from the edge of the well casing and sloped to drain water away from the well.

A vent hole will be installed in each well's PVC casing (below the cap) to allow the pressure in the well to equalize with atmospheric pressure. In wells with above-ground protection, the space between the well casing and the protective casing will be filled with coarse sand or pea-gravel to within approximately 6 inches of the top of the well casing. A small weep hole will be drilled at the base of the metal casing for the drainage of moisture from the casing. Above ground protective covers will be locked.

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

e) Well Development

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

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

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

f) Documentation of Well Design and Construction

The following information, documenting the construction of each well, will be submitted in report form to EPD by a qualified groundwater scientist after well development.

- Name of driller and identification of drill rig;
- Documentation that the driller, at the time the monitoring wells were installed, had a bond on file with the Water Well Advisory Council;
- Date/time of construction;
- Drilling method and drilling fluid if used;
- Well location (+0.5 ft.);
- Borehole diameter and well casing diameter;
- Well depth (+0.1 ft.);
- Drilling and lithologic logs;
- Casing materials;
- Screen materials and design;
- Casing and screen joint type;
- Screen slot size/length;
- Filter pack material/size;
- Filter pack volume;
- Filter pack placement method;

- Sealant materials;
- Sealant volume;
- Sealant placement method;
- Surface seal design/construction,
- Well development procedures;
- Type of protective well cap;
- Ground surface elevation (+0.01 ft.);
- Well cap elevation (+0.01 fl.);
- Top of casing elevation (0.01 fl.); and
- Detailed drawing of well (include dimensions).

g) Well Abandonment

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

7. MONITORING PARAMETERS AND FREQUENCY

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

Groundwater monitoring parameters and sampling frequency are presented in Table 1, below. A minimum of eight independent samples from each groundwater well will be collected and analyzed for 40 CFR 257, Subpart D, Appendix III and Appendix IV test parameters to establish a background statistical dataset. Subsequently, in accordance with 391-3-4-.10(6), the monitoring frequency for the Appendix III parameters will be at least semi-annual during the active life of the facility and the post-closure care period. If required, assessment monitoring will be performed per Georgia Chapter 391-3-4-.10, Rules for Solid Waste Management. GPC may petition for an alternate monitoring schedule for the site pursuant to applicable rules.

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

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

TABLE 1. GROUNDWATER MONITORING PARAMETERS AND FREQUENCY

MONITORING PARAMETER		GROUNDWATER MONITORING		
		Background	1st Semi-Annual Event	2nd Semi-Annual Event
Field Parameters	Temperature	X	X	X
	pH	X	X	X
	Specific Conductance	X	X	X
	ORP	X	X	X
	Turbidity	X	X	X
	Dissolved Oxygen	X	X	X
Appendix III (Detection)	Boron	X	X	X
	Calcium	X	X	X
	Chloride	X	X	X
	Fluoride	X	X	X
	pH (field)	X	X	X
	Sulfate	X	X	X
	Total Dissolved Solids	X	X	X
Appendix IV (Assessment)	Antimony	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Arsenic	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Barium	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Beryllium	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Cadmium	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Chromium	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Cobalt	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Fluoride	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Lead	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Lithium	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Mercury	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Molybdenum	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Selenium	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Thallium	X	Annual if Assessment is Triggered	Only if Detected during Annual
	Radium 226 & 228	X	Annual if Assessment is Triggered	Only if Detected during Annual

Notes:

1) If the site is required to enter into Assessment Monitoring, an Assessment Monitoring Plan will be prepared, and sampling may include some or all Appendix III and Appendix IV parameters.
2) If any parameters contained in Appendix I or II of 40 CFR 258, Subpart E, as amended, 56 Fed. Reg. 51032 - 51039 (October 9, 1991) have been detected previously at statistically significant levels above background concentrations, these parameters will continue to be monitored.
3) 90 days after assessment monitoring is triggered, Appendix IV parameters must be collected. Then 90 days later, the second semi-annual monitoring event will be initiated.

TABLE 2. ANALYTICAL METHODS

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

Note:

1) If any parameters contained in Appendix I or II of 40 CFR 258, Subpart E, as amended, 56 Fed. Reg. 51032 - 51039 (October 9, 1991) have been detected previously at statistically significant levels above background concentrations, these parameters will continue to be monitored.

8. SAMPLE COLLECTION

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

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

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

9. CHAIN-OF-CUSTODY

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

- Sample identification numbers
- Signature of collector
- Date and time of collection
- Sample type
- Sample point identification
- Number of sample containers
- Signature of person(s) involved in the chain of possession
- Dates of possession by each individual

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

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

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

10. FIELD AND LABORATORY QUALITY ASSURANCE / QUALITY CONTROL

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

- Field Equipment Rinsate Blanks - Where sampling equipment is not new or dedicated, an equipment rinsate blank will be collected at a rate of one blank per 10 samples using non-dedicated equipment.
- Field Duplicates - Field duplicates are collected by filling additional containers at the same location, and the field duplicate is assigned a unique sample identification number. One blind field duplicate will be collected for every 20 samples.

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

A custody seal shall be placed on each shipping cooler or shipping container. Custody seals on sample containers serve two purposes: to prevent accidental opening of the shipping container and to provide visual evidence should the container be opened or tampered with. The use of custody seals controls the loss of samples and provides direct evidence whether sample containers have been opened and possibly compromised.

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

11. REPORTING RESULTS

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

1) A narrative describing sampling activities and findings including a summary of the number of samples collected, the dates the samples were collected and whether the samples were required by the detection or assessment monitoring programs.
2) A brief overview of purging/sampling methodologies.
3) Discussion of results.
4) Recommendations for the future monitoring consistent with the rules.
5) Potentiometric surface contour map for the aquifer(s) being monitored, signed and sealed by a Georgia-registered P.G. or P.E.
6) Table of as-built information for groundwater monitoring wells including top of casing elevations, ground elevations, screened elevations, current groundwater elevations and depth to water measurements.
7) Groundwater flow rate and direction calculations.
8) Identification of any groundwater wells that were installed or decommissioned during the preceding year, along with a narrative description of why these actions were taken.
9) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels.
10) If applicable, semi-annual assessment monitoring results.
11) Any alternate source demonstration completed during the previous monitoring period, if applicable.
12) Laboratory Reports.
13) COC documentation.

14) Field sampling logs including field instrument calibration, indicator parameters and parameter stabilization data.
15) Documentation of non-functioning wells, dry surface water and underdrain sampling locations.
16) Table of current analytical results for each well, highlighting statistically significant increases and concentrations above maximum contaminant level (MCL).
17) Statistical analyses.
18) Certification by a qualified groundwater scientist.

12. STATISTICAL ANALYSIS

Groundwater quality data from each sampling event will be statistically evaluated to determine if there has been a statistically significant change in groundwater chemistry. Background data will be used to determine statistical limits.

According to EPD Rule 391-3-4-.10(6)(a), which incorporates the statistical analysis requirements of 40 CFR 257.93 by reference, the site must specify in the operating record the statistical methods to be used in evaluating groundwater monitoring data for each identified constituent. The statistical test chosen shall be conducted separately for each constituent in each well. As authorized by the rule, statistical tests that will be used include:

1) A prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper prediction limit. (§257.93(f)(3)).
2) A control chart approach that gives control limits for each constituent. (§257.93(f)(4)).
3) Another statistical test method (such as prediction limits or control charts) that meets the performance standards of §257.93(g). A justification for an alternative method will be placed in the operating record and the Director notified of the use of an alternative test. The justification will demonstrate that the alternative method meets the performance standards of §257.93(g).

Based on site-specific conditions, statistical methods may be intra-well, inter-well, or combination of both.

A site-specific statistical analysis plan that provides details regarding the statistical methods to be used will be placed in the site's operating record pursuant to 391-3-4-.10(6). An overview of the statistical analysis plan is provided in the following figures presented in Appendix D.

- Figure D1, Statistical Analysis Plan Overview, includes a flowchart that depicts the process that will be followed to develop the site-specific plan.
- Figure D2, Decision Logic for Determining Appropriate Statistical Methods, depicts the decision logic that will be used to determine the appropriate method as required by 391-3-4-.10(6).
- Figure D3, Decision Logic for Computing Prediction Limits, presents the logic that will be used to calculate site-specific statistical limits and test compliance results against those limits.

Appendix A. **Groundwater Monitoring Network Documentation**

Table A1 – Monitoring Well Details

Figure A1 – Site Monitoring Plan

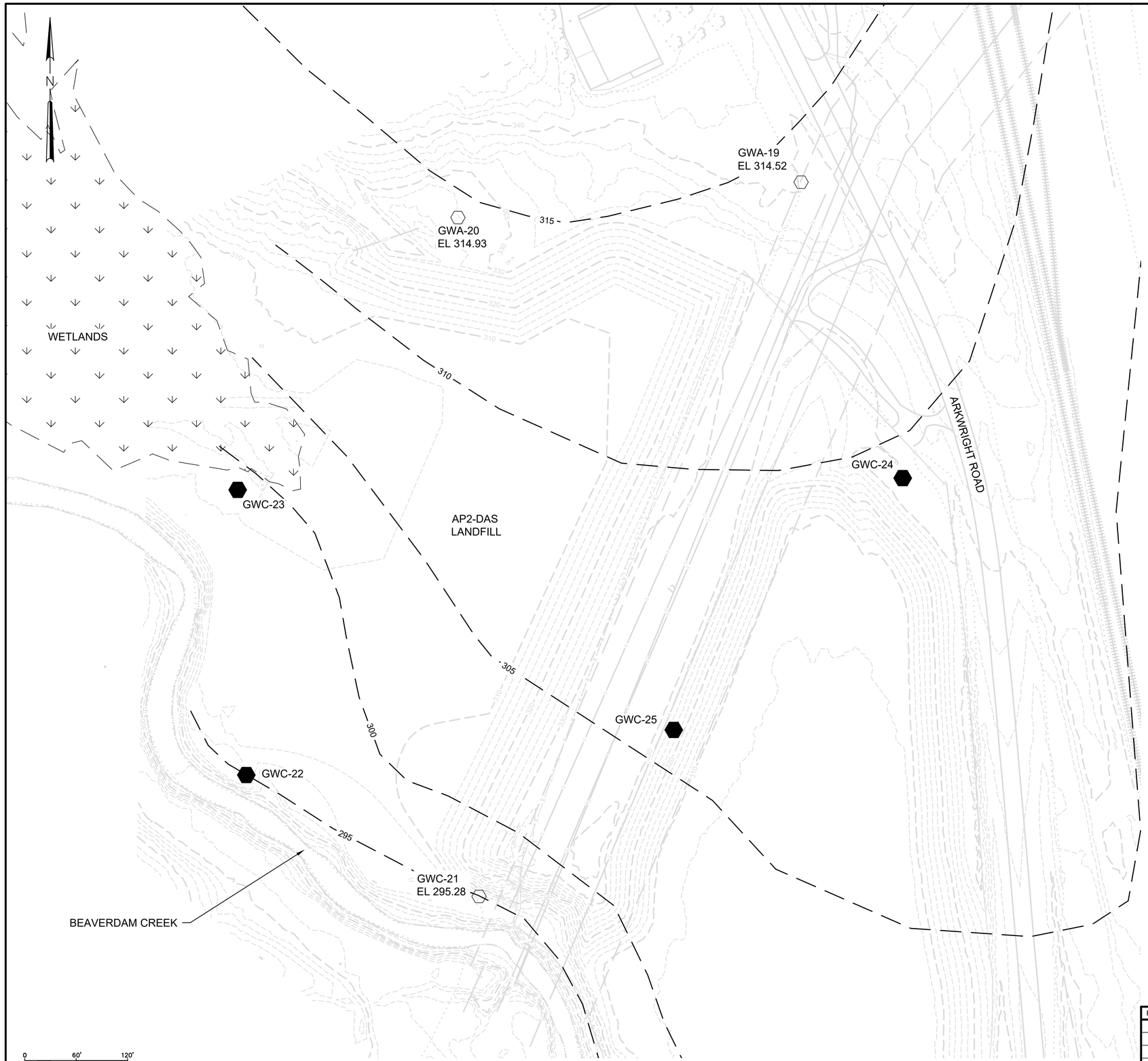
Monitoring Well Boring Logs and Construction Diagrams

Table A1. Monitoring Well Details

Monitoring Well ID	Northing	Easting	Ground Elevation (ft MSL)	TOC Elevation (ft MSL)	Well Depth (ft BTOC)	Screened Interval (ft BTOC)	GW Elevation (ft MSL)
GWA-19	1063774.217	2439487.88	340.65	343.48	52.80	42.50 - 52.50	314.52
GWA-20	1063732.851	2439088.116	328.63	331.48	37.70	27.40 - 37.40	314.93
GWC-21	1062940.974	2439112.393	306.68	309.40	27.28	16.98 - 26.98	295.28

Notes:

1. Groundwater levels were measured on September 11, 2018.
2. TOC = top of casing (i.e., riser pipe).
3. All depths measured in feet below top of casing (BTOC).
4. Elevations measured in feet from mean sea level (MSL) (NGVD 1929).
5. Coordinates are in Georgia West State Plane, US Survey Feet, NAD 83.



NOTES:

1. EXISTING CONTOURS SHOWN REPRESENT ANTICIPATED CONDITIONS AFTER FINAL GRADING HAS BEEN COMPLETED.
2. FOR LEGEND SEE DRAWING C-002.
3. POTENTIOMETRIC CONTOURS BASED ON SITE-WIDE WATER LEVEL MEASUREMENTS TAKEN ON 09-11-2018 AND MAY CHANGE AFTER CLOSURE BY REMOVAL.

THIS FIGURE IS A REPRODUCTION OF THE "SITE MONITORING PLAN" LOCATED IN THE AP2-DAS LANDFILL CLOSURE PLAN. ANY MODIFICATIONS TO THE MONITORING NETWORK SHALL BE DOCUMENTED ON THE "SITE MONITORING PLAN" SHEET IN THE CLOSURE PLAN, WHICH SHALL TAKE PRECEDENCE OVER THIS FIGURE.

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. PE14390 MICHAEL T. FEENEY 11-14-18

BRET MCCLELLAN GEORGIA REGISTERED PROFESSIONAL GEOLOGIST No. 1540 11/14/18

FIGURE A1

Georgia Power

REV.	DATE	DESCRIPTION

SITE MONITORING PLAN

AP2-DAS LANDFILL
FOR
GEORGIA POWER
FORMER PLANT ARKWRIGHT
MACON - BIBB COUNTY, GA

JACOBS

404.978.7600
JACOBS.COM
Ten 10th Street NW, Suite 1400, Atlanta, GA 30309

PROJ. NO.	35DK9203	DWG. CS101	EDIT
SCALE	AS SHOWN	SHEET 9 OF 11	
DATE	NOVEMBER 2018		

SOUTHERN COMPANY
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DRILLING LOG
GEOLOGICAL SERVICES

Hole No. GWA-19
Sheet 1 of 2

SITE: Former Plant Arkwright
HOLE DEPTH: 49.7
SURF.ELEV.: 340.65
LOCATION: Solid Waste Management Area
COORDINATES N: 1063774.217
E: 2439487.88
ANGLE:
BEARING:
CONTRACTOR: SCS, Inc.
DRILL NO.:
DRILLING METHOD: HSA/HQ Rock core with water
NO. SAMPLES: 6
NO. U.D. SAMPLES: 0
CASING SIZE:
LENGTH:
CORE SIZE:
TOTAL % REC.:
WATER TABLE DEPTH: 28.1
ELEV.:
TIME AFTER COMP.:
DATE TAKEN: 12/18/2008
TYPE GROUT:
QUANTITY:
MIX:
DRILLING START DATE: 12/5/2008
DRILLER: S. Milam
RECORDER: L. Garland
APPROVED:
DRILLING COMP. DATE: 12/16/2008

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	340.65								
1	339.65								
2	338.65								
3	337.65								
4	336.65								
5	335.65	Yellow brown sandy SILT	1	4.5-6	5-5-5	10			
6	334.65								
7	333.65								
8	332.65								
9	331.65								
10	330.65	Same as above	2	9.5-11	5-5-5	10			
11	329.65								
12	328.65								
13	327.65								
14	326.65								
15	325.65	Same as above	3	14.5-16	5-7-9	14			
16	324.65								
17	323.65								
18	322.65								
19	321.65								
20	320.65	Same as above	4	19.5-21	6-9-11	20			
21	319.65								
22	318.65								
23	317.65								
24	316.65								

Form GS9901 8-19-2008

SOUTHERN COMPANY
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DRILLING LOG
GEOLOGICAL SERVICES

Hole No. GWA-19
Sheet 2 of 2

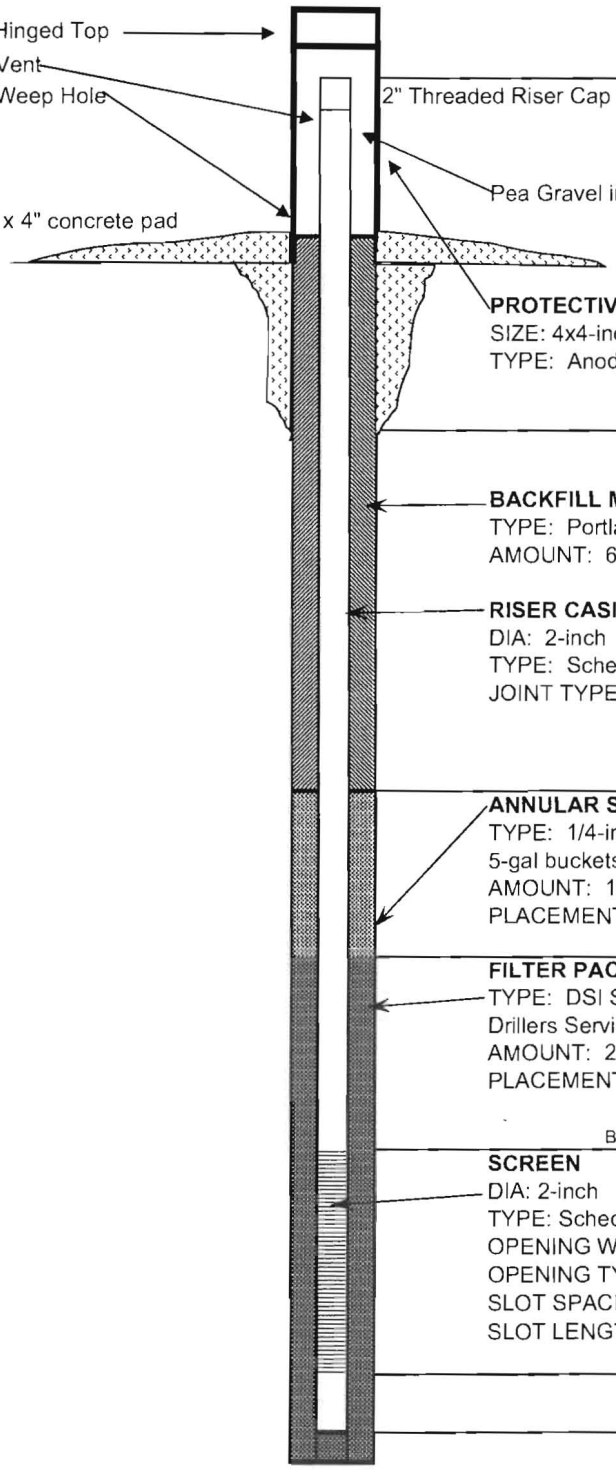
SITE **Former Plant Arkwright** TOTAL DEPTH **49.7** SURF.ELEV. 340.6522

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
25	315.65	Yellow and brown silty SAND, medium to fine grained	5	24.5-26	16-50/2	R			
26	314.65								
27	313.65								
28	312.65								
29	311.65								
30	310.65	Same as above	6	29.5-31	50/4	R			
31	309.65								
32	308.65								
33	307.65	Auger refusal 32.8'							
34	306.65	Biotite gneiss, highly weathered, heavily fractured, heavy weathering on fracture faces		33-34.7				100	
35	305.65								
36	304.65	Same as above with less weathering		34.7-39.7				96	
37	303.65								
38	302.65								
39	301.65								
40	300.65								
41	299.65	Biotite gneiss, unweathered to slightly weathered, moderately to heavily fractured, with slight to moderatly weathered fracture faces		39.7-44.7				84	
42	298.65								
43	297.65								
44	296.65								
45	295.65								
46	294.65	Same as above		44.7-49.7				76	
47	293.65								
48	292.65								
49	291.65								
50	290.65	49.7' - Bottom of boring							
51	289.65								
52	288.65								
53	287.65								
54	286.65								
55	285.65								
56	284.65								

Form GS9901 8-19-2008

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Former Plant Arkwright	DRILLING CO.: SCS, Inc.	WELL NAME
Solid Waste Management Unit	DRILLER: S. Milam	
LOCATION: Ash Ponds 1, 2, 3	RIG TYPE: CME 550	
LOGGER: L. Garland	DRILLING METHODS: HSA, HQ Rock Core	GWA-19
DATE CONSTRUCTED: 12/16/2008		



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.82	343.48
GROUND SURFACE	0.00	340.65
PROTECTIVE CASING SIZE: 4x4-inch TYPE: Anodized Aluminum		
BOTTOM OF PROTECTIVE CASING		
BACKFILL MATERIAL TYPE: Portland Cement Grout AMOUNT: 6 bags @ 1.3 cf/bag = 7.80 cf		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	35.00	305.65
ANNULAR SEAL TYPE: 1/4-inch coated bentonite pellets 5-gal buckets AMOUNT: 1 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	37.00	303.65
FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 2 bags; 50 lbs/bag PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	39.68	300.97
SCREEN DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		
BOTTOM OF SCREEN	49.68	290.97
BOTTOM OF CASING	49.98	290.68

HOLE DIA: 9"

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DRILLING LOG
GEOLOGICAL SERVICES

Hole No. GWA-20
Sheet 1 of 2

SITE: Former Plant Arkwright
HOLE DEPTH: 36
SURF.ELEV.: 328.63
LOCATION: Solid Waste Management Area
COORDINATES N: 1063732.851
E: 2439088.116
ANGLE:
BEARING:
CONTRACTOR: SCS, Inc.
DRILL NO.:
DRILLING METHOD: HSA
NO. SAMPLES: 7
NO. U.D. SAMPLES: 0
CASING SIZE:
LENGTH:
CORE SIZE:
TOTAL % REC.:
WATER TABLE DEPTH: 15
ELEV.:
TIME AFTER COMP.:
DATE TAKEN: 12/18/2008
TYPE GROUT:
QUANTITY:
MIX:
DRILLING START DATE: 12/4/2008
DRILLER: S. Milam
RECORDER: L. Garland
APPROVED:
DRILLING COMP. DATE: 12/4/2008

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	328.63								
1	327.63								
2	326.63								
3	325.63								
4	324.63								
5	323.63	Reddish brown sandy SILT, with clay	1	4.5-6	3-3-3	6			
6	322.63								
7	321.63								
8	320.63								
9	319.63								
10	318.63	Same as above	2	9.5-11	3-4-5	9			
11	317.63								
12	316.63								
13	315.63								
14	314.63								
15	313.63	Grayish yellow clayey SILT, with sand	3	14.5-16	3-6-8	14			
16	312.63								
17	311.63								
18	310.63								
19	309.63								
20	308.63	Dark yellow brown silty SAND, fine to medium grained, micaceous	4	19.5-21	6-4-5	9			
21	307.63								
22	306.63								
23	305.63								
24	304.63								

Form GS9901 8-19-2008

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DRILLING LOG
GEOLOGICAL SERVICES

Hole No. GWA-20
Sheet 2 of 2

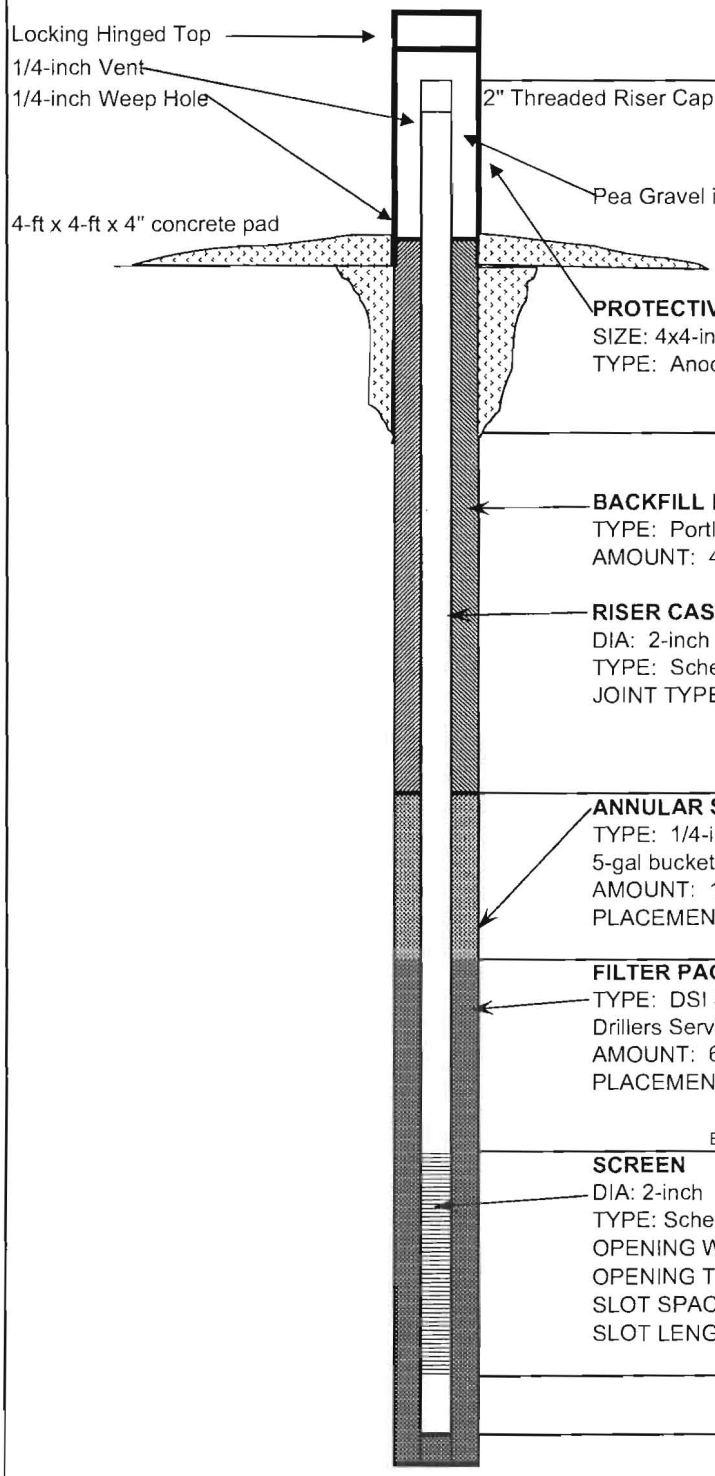
SITE Former Plant Arkwright TOTAL DEPTH 36 SURF.ELEV. 328.63308

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
25	303.63	Tan silty SAND, fine to coarse grained	5	24.5-26	6-8-9	17			
26	302.63								
27	301.63								
28	300.63								
29	299.63								
30	298.63	Dark yellow and brown sandy SILT, micaceous	6	29.5-31	4-4-12	16			
31	297.63								
32	296.63								
33	295.63								
34	294.63								
35	293.63	Dark gray and yellow silty SAND, fine to medium grained, micaceous	7	34.5-36	14-25-26	51			
36	292.63								
37	291.63	36' - bottom of boring							
38	290.63								
39	289.63								
40	288.63								
41	287.63								
42	286.63								
43	285.63								
44	284.63								
45	283.63								
46	282.63								
47	281.63								
48	280.63								
49	279.63								
50	278.63								
51	277.63								
52	276.63								
53	275.63								
54	274.63								
55	273.63								
56	272.63								

Form GS9901 8-19-2008

WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Former Plant Arkwright	DRILLING CO.: SCS, Inc.	WELL NAME
Solid Waste Management Unit	DRILLER: S. Milam	
LOCATION: Ash Ponds 1, 2, 3	RIG TYPE: CME 550	
LOGGER: L. Garland	DRILLING METHODS: HSA	GWA-20
DATE CONSTRUCTED: 12/4/2008		



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.85	331.48
GROUND SURFACE	0.00	328.63
PROTECTIVE CASING SIZE: 4x4-inch TYPE: Anodized Aluminum BOTTOM OF PROTECTIVE CASING		
BACKFILL MATERIAL TYPE: Portland Cement Grout AMOUNT: 4 bags @ 1.3 cf/bag = 5.20 cf **RISER CASING** DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	19.00	309.63
ANNULAR SEAL TYPE: 1/4-inch coated bentonite pellets 5-gal buckets AMOUNT: 1.5 buckets PLACEMENT: Tremie		
TOP OF FILTER PACK	22.50	306.13
FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 6 bags; 50 lbs/bag PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	24.55	304.08
SCREEN DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		
BOTTOM OF SCREEN	34.55	294.08
BOTTOM OF CASING	34.85	293.78

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DRILLING LOG
GEOLOGICAL SERVICES

Hole No. GWC-21
Sheet 1 of 1

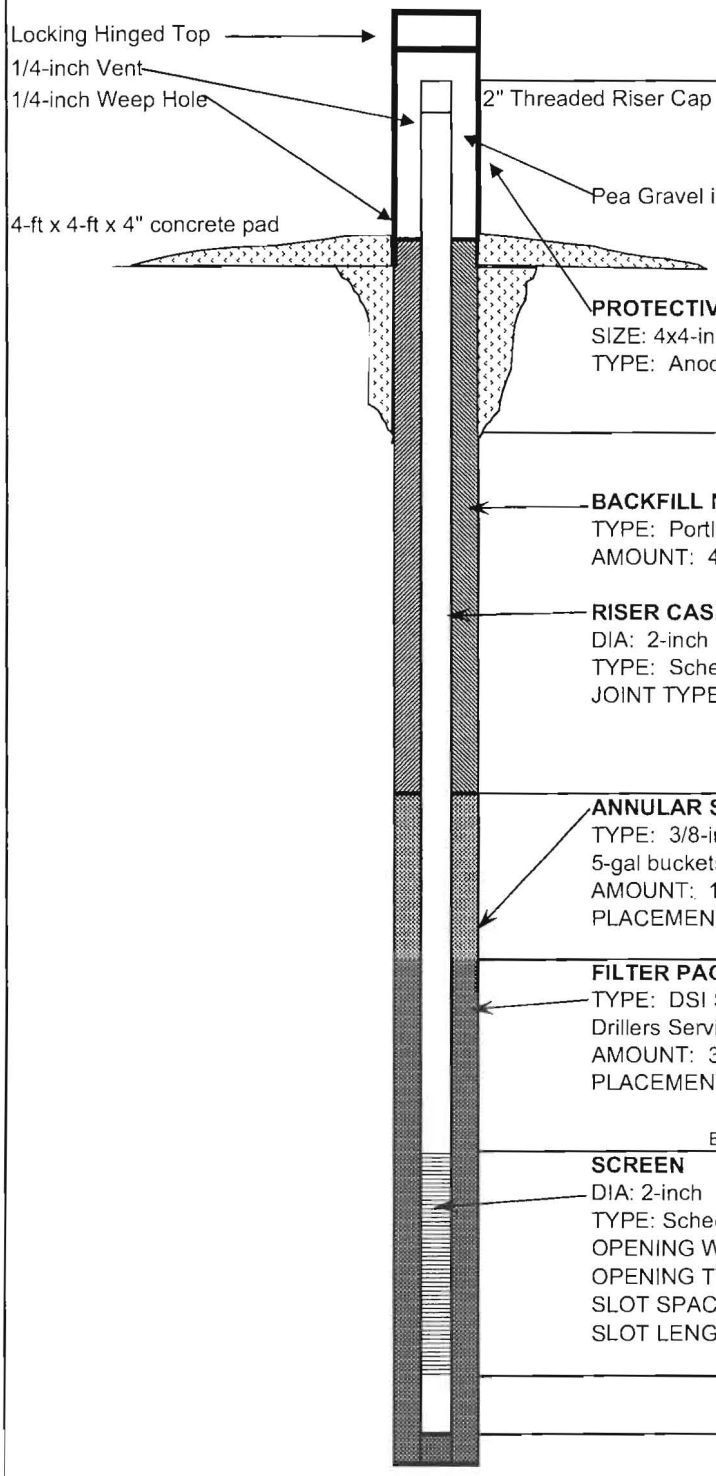
SITE: Former Plant Arkwright
HOLE DEPTH: 24
SURF.ELEV.: 306.68
LOCATION: Solid Waste Management Area
COORDINATES N: 1062940.974
E: 2439112.393
ANGLE:
BEARING:
CONTRACTOR: SCS, Inc.
DRILL NO.:
DRILLING METHOD: HSA
NO. SAMPLES: 4
NO. U.D. SAMPLES: 0
CASING SIZE:
LENGTH:
CORE SIZE:
TOTAL % REC.:
WATER TABLE DEPTH: 10.5
ELEV.:
TIME AFTER COMP.:
DATE TAKEN: 12/18/2008
TYPE GROUT:
QUANTITY:
MIX:
DRILLING START DATE: 12/1/2008
DRILLER: S. Milam
RECORDER: L. Garland
APPROVED:
DRILLING COMP. DATE: 12/1/2008

Depth	Elev.	Material Description, Classification and Remarks	Sample No.	Standard Penetration Test From To	Blows	N	Comments	% Rec	RQD
0	306.68								
1	305.68								
2	304.68								
3	303.68								
4	302.68								
5	301.68	Dark reddish brown silty SAND, fine grained	1	4.5-6	6-5-6	11			
6	300.68								
7	299.68								
8	298.68								
9	297.68								
10	296.68	Brown sandy SILT, with gray mottling and organics	2	9.5-11	1-2-2	4			
11	295.68								
12	294.68								
13	293.68								
14	292.68								
15	291.68	Gray sandy GRAVEL, with some silt and organics to medium grained sand	3	14.5-16	2-4-9	13			
16	290.68								
17	289.68								
18	288.68								
19	287.68								
20	286.68	Dark yellow and gray silty SAND, coarse to fine grained, with gravel, decomposed rock	4	19.5-21	21-50/4	R			
21	285.68								
22	284.68								
23	283.68								
24	282.68	24' - Bottom of boring							

Form GS9901 8-19-2008

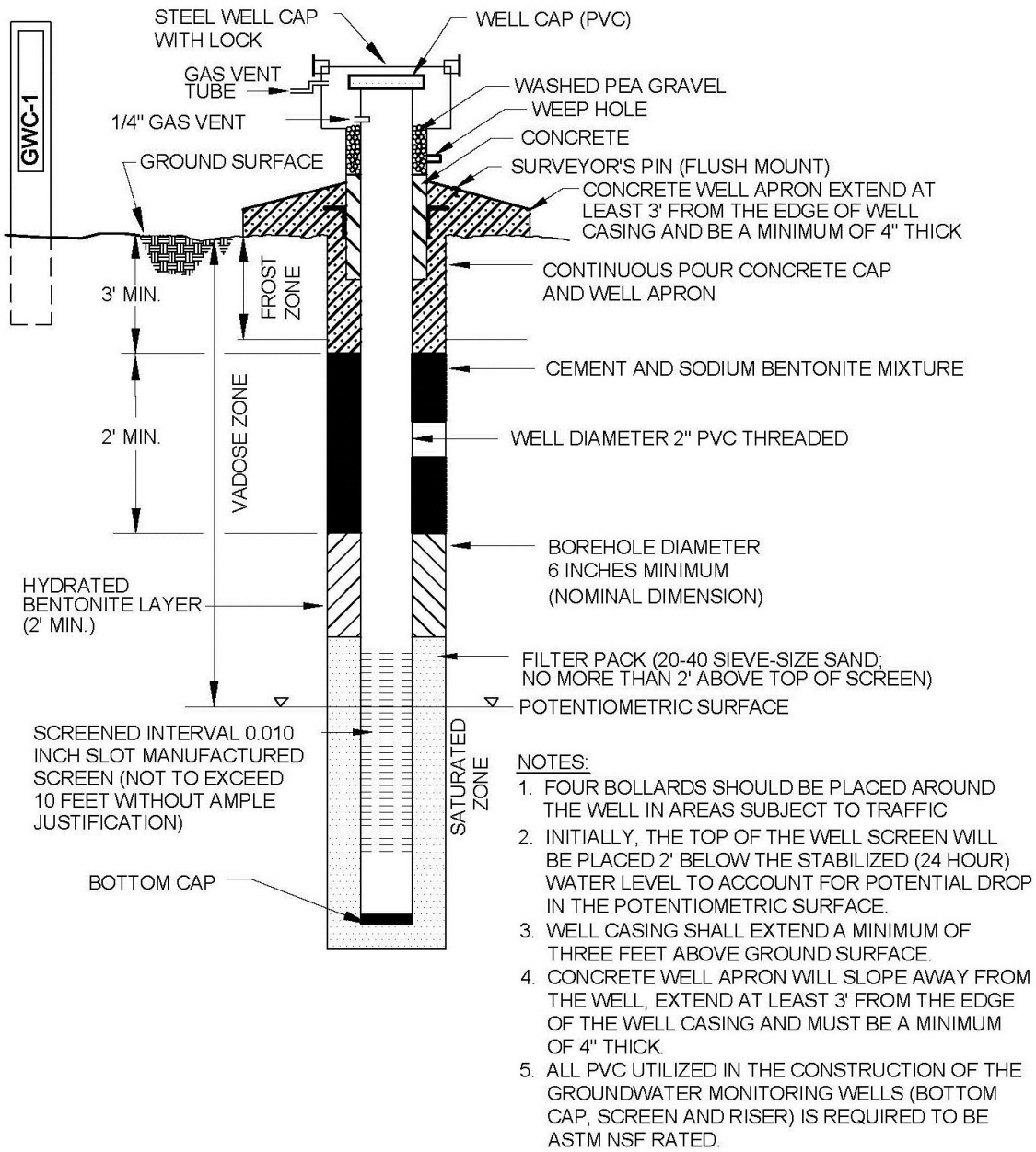
WELL CONSTRUCTION LOG — Southern Company Generation

PROJECT: Former Plant Arkwright	DRILLING CO.: SCS, Inc.	WELL NAME
Solid Waste Management Unit	DRILLER: S. Milam	
LOCATION: Ash Ponds 1, 2, 3	RIG TYPE: CME 550	
LOGGER: L. Garland	DRILLING METHODS: HSA	GWC-21
DATE CONSTRUCTED: 12/2/2008		



	DEPTH FEET	ELEVATION FT, MSL
TOP OF RISER	-2.71	309.40
2" Threaded Riser Cap Pea Gravel in annular space		
GROUND SURFACE	0.00	306.68
PROTECTIVE CASING SIZE: 4x4-inch TYPE: Anodized Aluminum		
BOTTOM OF PROTECTIVE CASING		
BACKFILL MATERIAL TYPE: Portland Cement Grout AMOUNT: 4 bags @ 1.3 cf/bag = 5.20 cf		
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
TOP OF SEAL	9.60	297.08
ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 1 bucket PLACEMENT: Tremie		
TOP OF FILTER PACK	12.00	294.68
FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 3 bags; 50 lbs/bag PLACEMENT: Tremie; wash with water		
BOTTOM OF RISER / TOP OF SCREEN	14.27	292.41
SCREEN DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		
BOTTOM OF SCREEN	24.27	282.41
BOTTOM OF CASING	24.57	282.12

Appendix B. **Groundwater Well Detail**



NOTES:

1. FOUR BOLLARDS SHOULD BE PLACED AROUND THE WELL IN AREAS SUBJECT TO TRAFFIC
2. INITIALLY, THE TOP OF THE WELL SCREEN WILL BE PLACED 2' BELOW THE STABILIZED (24 HOUR) WATER LEVEL TO ACCOUNT FOR POTENTIAL DROP IN THE POTENTIOMETRIC SURFACE.
3. WELL CASING SHALL EXTEND A MINIMUM OF THREE FEET ABOVE GROUND SURFACE.
4. CONCRETE WELL APRON WILL SLOPE AWAY FROM THE WELL, EXTEND AT LEAST 3' FROM THE EDGE OF THE WELL CASING AND MUST BE A MINIMUM OF 4" THICK.
5. ALL PVC UTILIZED IN THE CONSTRUCTION OF THE GROUNDWATER MONITORING WELLS (BOTTOM CAP, SCREEN AND RISER) IS REQUIRED TO BE ASTM NSF RATED.

GROUNDWATER MONITORING WELL (TYP.)

Appendix C. **Groundwater Sampling Procedure**

GROUNDWATER SAMPLING PROCEDURE

Groundwater sampling will be conducted using USEPA Region 4 Field Quality and Technical Procedures as a guide. The following procedures describe the general methods associated with groundwater sampling at the site. Prior to sampling, the well must be evacuated (purged) to ensure that representative groundwater is obtained. Any item coming in contact with the inside of the well casing or the well water will be kept in a clean container and handled only with gloved hands.

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

1) Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations and notify GPC if it appears that the well has been compromised.
2) Measure and record the depth to water in all wells to be sampled prior to purging. Static water levels will be measured from each well, within a 24-hour period. The water level measuring device will be decontaminated prior to lowering in each well.
3) Install Pump: If a dedicated pump is not present, slowly lower the pump into the well to the midpoint of the well screen or a depth otherwise approved by the hydrogeologist or project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and suspension of any sediment present in the bottom of the well. Record the depth to which the pump is lowered. All non-dedicated pumps and wiring will be decontaminated before use and between well locations using procedures described in the latest version of the Region 4 USEPA Science and Ecosystem Support Division (SESD) Operating Procedure for Field Equipment Cleaning and Decontamination as a guide.
4) Measure Water Level: Immediately prior to purging, measure the water level again with the pump in the well. Leave the water level measuring device in the well.
5) Purge Well: Begin pumping the well at approximately 100 to 500 milliliters per minute (ml/min). Monitor the water level continually. Maintain a steady flow rate that results in a stabilized water level with 0.3 ft. or less of variability. Avoid entraining air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.
6) Monitor Indicator Parameters: Monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, ORP, and DO) approximately every three to five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings at a minimum:
    - ±0.1 for pH
    - ±10% for specific conductance (conductivity)
    - ±10% for DO where DO>0.5mg/L. If DO<0.5mg/L no stabilization criteria apply
    - ≤10 for turbidity
    - Temperature – Record only, not used for stabilization criteria
    - ORP – Record only, not used for stabilization criteria
7) Collect samples at a flow rate between 50 and 250 ml/min and such that drawdown of the water level within the well is stable. Flow rate must be reduced if excessive drawdown is observed during sampling. All sample containers should be filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.

8) Compliance samples will be unfiltered; however, to determine if turbidity is affecting sample results, duplicate samples may be filtered in the field prior to being placed in a sample container, clearly marked as filtered and preserved. Filtering will be accomplished by the use of 0.45 micron filters on the sampling line. At least two filter volumes of sample will pass through before filling sample containers. Filtered samples are not considered compliance samples and are only used to evaluate the effects of turbidity.
9) All sample bottles will be filled, capped, and placed in an ice containing cooler immediately after sampling where temperature control is required. Samples that do not require temperature control will be placed in a clean and secure container.
10) Sample containers and preservative will be appropriate for the analytical method being used.
11) Information contained on sample container labels will include:
    a) Name of facility
    b) Date and time of sampling
    c) Sample description (well number)
    d) Sampler's initials
    e) Preservatives
    f) Analytical method(s)
12) After samples are collected, samplers will remove all non-dedicated equipment. Upon completion of all activity the well will be closed and locked.
13) Samples will be delivered to the laboratory following appropriate COC and temperature control requirements. The goal for sample delivery will be within 48 hours of collection; however, at no time will samples be analyzed after the method-prescribed hold time.

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

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

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

- If turbidity remains above 5 NTU but is less than 10 NTU, and all other parameters are stabilized, the well can be sampled.

- Where turbidity remains above 10 NTU, an unfiltered sample will be collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. Data from filtered samples will only be used to quantify the effects of turbidity on sample results.

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

Appendix D. **Statistical Analysis Overview**

Figure D1 – Statistical Analysis Plan Overview

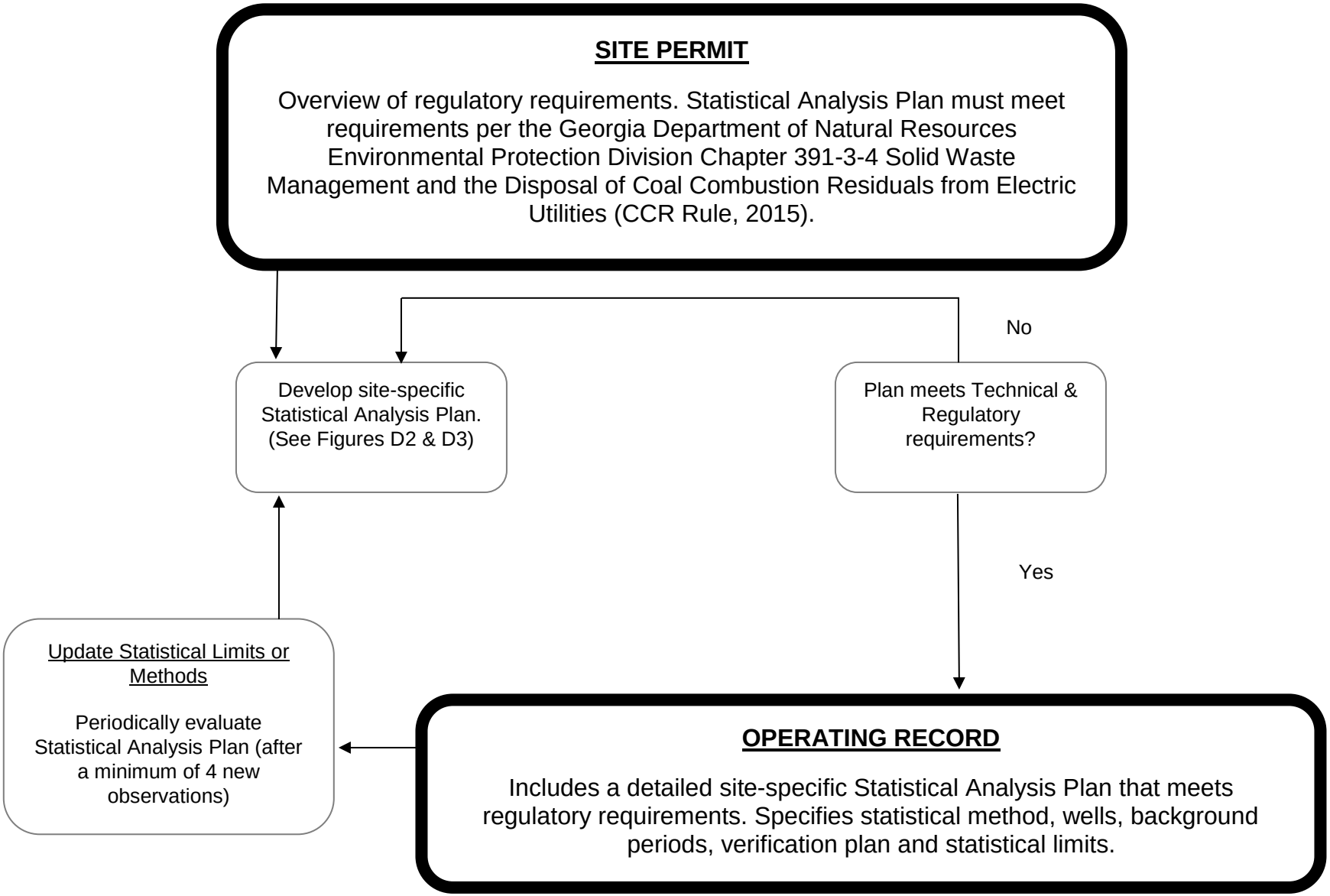


Figure D2 – Decision Logic for Determining Appropriate Statistical Method

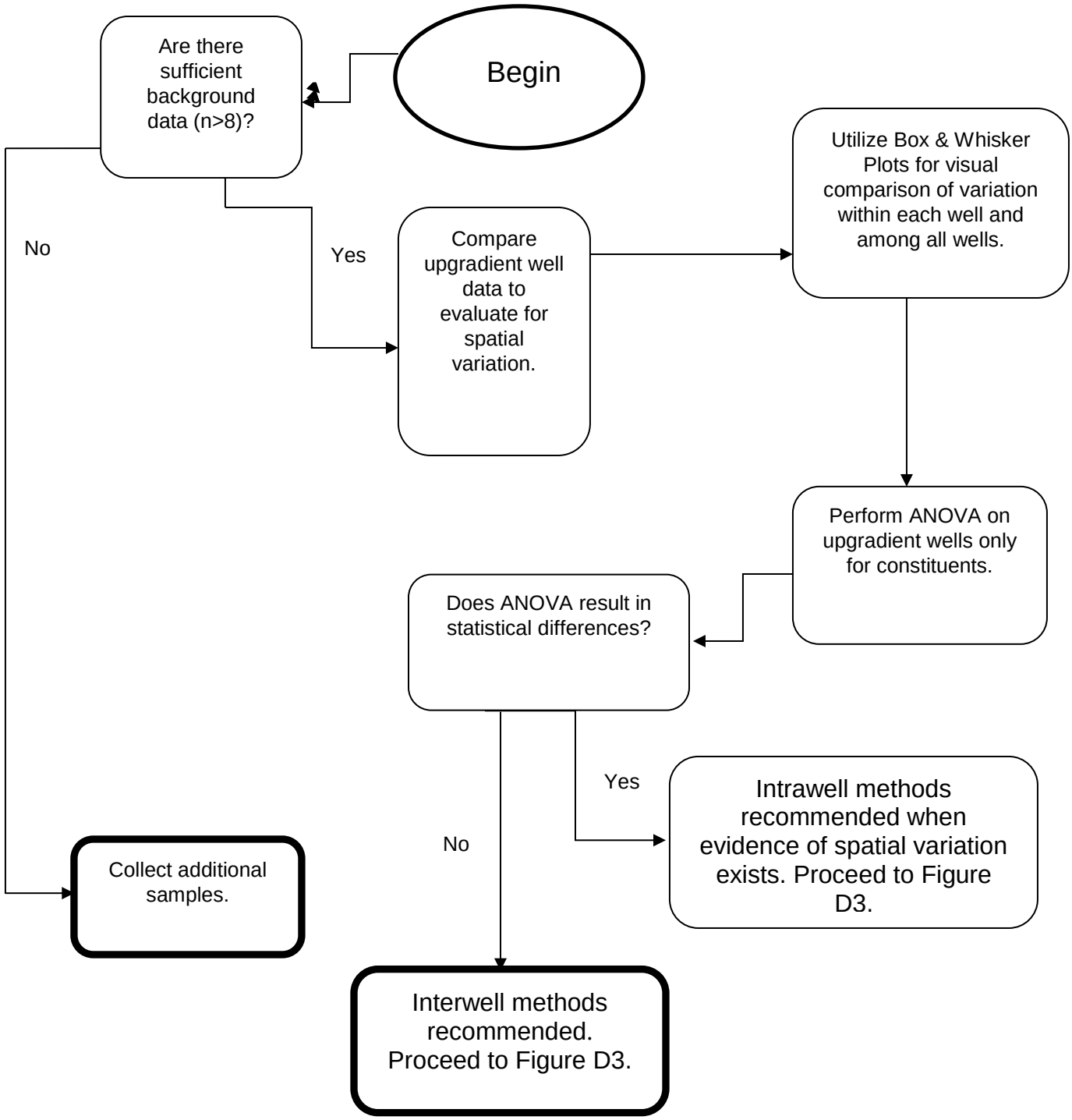


Figure D3 – Decision Logic for Computing Prediction Limits