Report of Geotechnical Investigation
Dam Safety Assessment of Coal Combustion Surface Impoundments
Georgia Power
Plant Hammond, Rome, GA

AMEC Project No. 3-2106-0174.0500

Prepared By:

AMEC Earth & Environmental, Inc.
690 Commonwealth Center
11003 Bluegrass Parkway
Louisville, KY 40299

Prepared For:

Mr. Stephen Hoffman
U.S. EPA
Emergency Response Service Center
1200 Pennsylvania Ave., NW
Washington, DC 20460

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I certify that the management unit referenced herein:

Southern Company, Georgia Power, Plant Hammond: Ash Pond 1, Ash Pond 2, Ash Pond 3, Ash Pond 4

Has been assessed on April 26th and 27th, 2010.

Signature _____

Don Dotson, PE
Senior Geotechnical Engineer

List of AMEC Participants who have participated in the assessment of the management units and in preparation of the report:

- Chris Eger
  CADD Technician
- Todd Johanboeke
  GIS Specialist
- Mary Sawitzki, PE
  Civil/Environmental Engineer
- Mary Swiderski, EIT
  Staff Engineer

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1.0 INTRODUCTION AND PROJECT DESCRIPTION

1.1 Introduction

AMEC was contracted by the United States Environmental Protection Agency (EPA), via contract BPA EP09W001702, to perform site assessments of selected coal combustion byproducts surface impoundments. As part of this contract with EPA, AMEC was assigned to perform a site assessment of Georgia Power Company's Plant Hammond, which is located just west of Rome, Georgia as shown on Figure 1, the Project Location Map.

A site visit to Plant Hammond was made by AMEC on April 26 and 27, 2010. The purpose of the visit was to perform visual observations, to inventory coal combustion waste (CCW) surface impoundments, inspect the containment dikes, and to collect relevant historical impoundment documentation.

AMEC engineers, Don Dotson, P.E. and Mary Swiderski, EIT, were accompanied during the site visit by the following individuals:

Table 1. Site Visit Attendees

Company or Organization	Name and Title
U.S. Environmental Protection Agency	Jim Kohler, PE, Office of Solid Waste and Emergency Request
Georgia Power Company	Brandon Dillard, Plant Manager
Georgia Power Company	Eric Collins, Plant Engineering Manager
Georgia Power Company	Tina Maroney, Plant Compliance Team Leader
Georgia Power Company	Rochelle Routman, Environmental Specialist, Environmental Affairs
Southern Company	Ronald Wood, PG, Engineering Geologist, Hydro Services
Southern Company	Gary McWhorter, PE, Earth Science and Environmental Engineering
Troutman Sanders	Hollister Hill, Attorney

1.2 Project Background

CCW results from the power production processes at coal fired power plants like Georgia Power's Plant Hammond. Impoundments (dams) are designed and constructed to provide storage and disposal for the CCW that are produced. Georgia Power refers to the CCW impoundments at the Plant Hammond facility as Ash Ponds 1, 2, 3, and 4.

The National Inventory of Dams (NID), administered by the U.S. Army Corps of Engineers (USACE), provides a hazard rating for many dams within the United States. Ash Ponds 1, 2, and 4 are included in the database but are not rated on the NID. Ash Pond 3 is not listed on the NID.

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The Safe Dams Program is the body within the Georgia Department of Natural Resources Environmental Protection Division (EPD) that defines the term dam, as well as regulates dam design, construction and repair. The Safe Dams Program also evaluates dams in order to assign a dam category classification to each structure. Each dam within the state that is over 25 feet in height or has at least 100 acre-feet of storage capacity is assigned either a Category I or Category II classification. The Category I classification is assigned to structures "where improper operation or dam failure would result in probable loss of human life. Situations constituting probable loss of life are those situations involving frequently occupied structures or facilities, including, but not limited to, residences, commercial and manufacturing facilities, schools, and churches." A Category II classification indicates that "improper operation or dam failure would not expect to result in probable loss of human life." These definitions are from the Rules of Georgia EPD Chapter 391-3-8 Rules for Dam Safety, Section 391-3-8.02(d) and (e). There are four existing ash ponds at Plant Hammond. Ash Pond 1, Ash Pond 2, and Ash Pond 4 have been classified by the EPD's Safe Dams Program as Category II dams. The classification given by the Georgia EPD for Ash Pond 3 is "TBS," or to be studied. According to the Safe Dam Rules, Category I dams are permitted and monitored continuously, while Category II dams are not permitted, but are re-inventoried every 5 years. The re-inventory procedure is conducted to determine if adjacent or downstream development has changed or has been proposed to change in a manner that would necessitate a reclassification to a Category I dam.

As part of the observations and evaluations performed at Plant Hammond, AMEC completed EPA's Coal Combustion Dam Inspection Checklists and Coal Combustion Waste (CCW) Impoundment Inspection Forms. Inspection forms for each CCW ash pond are presented in Appendix A. The Impoundment Inspection Forms include a section that assigns a "Hazard Potential" that is used to indicate what would occur following failure of an impoundment. "Hazard Potential" choices include "Less than Low," "Low," "Significant," and "High." Based on the site visit evaluation of the impoundments, AMEC engineers assigned a "Significant Hazard Potential" classification to Ash Ponds 1, 2 and 4, while the Ash Pond 3 impoundment was assigned a "Low Hazard Potential" classification. As defined on the Inspection Form, dams assigned a "Significant Hazard Potential" classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. "Significant Hazard Potential" classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure." "Low Hazard Potential" classification definition is reserved for dams where "failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property."

1.2.1 State Issued Permits

The Georgia Department of Natural Resources has issued Georgia EPD National Pollutant Discharge Elimination System (NDPES) Permit No. GA0001457 to Georgia Power Company. This NPDES Permit authorizes the Georgia Power Company to discharge from Plant Hammond to Smith Cabin Creek and Coosa River (Coosa River Basin). The permit became effective on November 9, 2007 and is set to expire on June 30, 2012.

The state of Georgia issues operating permits for those impoundments that are given the Category I classification. There are no Category I impoundments at Plant Hammond, therefore the state has not issued operating permits for this facility.

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1.3 Site Description and Location

Georgia Power's Plant Hammond is located in Floyd County, Georgia, approximately 10 miles west of the city of Rome. The area surrounding the plant boundary is a primarily rural with an adjacent industrial facility and sparse residential development. The Coosa River is located directly adjacent to the facility's south side. The distance between the closes point of the ash ponds and the Coosa River is between approximately 200 to 400 feet in the case of Ash Ponds 1, 2, and 4, and 1,700 feet in the case of Ash Pond 3. Smith Cabin Creek flows past the east side of the plant facility, approximately 200 and 500 feet east of Ash Ponds 1 and 3, respectively. A railroad is located on the east side of Ash Ponds 1 and 3. The tracks sit on top of the east embankment of Ash Pond 1, but sit on their own (separate) embankment adjacent to and below the east embankment of Ash Pond 3. The Photo Site Plan, included as Figure 2, shows the location of the four ash ponds on the site, their proximity to the river and creek, and the location of the railroad.

An aerial photograph of the region indicating the location of Plant Hammond's ash ponds in relation to schools, hospitals, and other critical infrastructure located within approximately 5 miles down gradient of the ash ponds is included as Figure 3, the Critical Infrastructure Map. A table that provides names and coordinate data for the infrastructure is included on the map.

1.4 Ash Ponds

Plant Hammond utilizes coal in the production of electricity. In this process, two types of ash are generated: fly ash and bottom ash. Bottom ash, the heavier and coarser of the two, is wet sluiced to Ash Pond 2, where it is dewatered, excavated, and transported to Ash Pond 4 for dry stacking or to the off-site permitted Huffaker Road solid waste disposal facility. Fly ash can be transported out of the plant via a dry ash collection system or by wet sluicing. When utilizing the dry ash system, the fly ash is transported to the dry ash silo where it is loaded onto trucks and hauled to Ash Pond 4 or to the Huffaker Road facility. When the fly ash is sluiced wet, it goes to Ash Pond 2. There it is dewatered, excavated, and transported to the Ash Pond 4 or to the off-site permitted solid waste disposal facility. Water from the dewatering process in Ash Pond 2 is transported to Ash Pond 1. Water from Ash Pond 1 is recycled back to the plant for use in ash sluicing. Excess water, above the amount used for sluicing, is discharged through permitted NPDES outfalls.

The ash handling summary detailed above was provided to AMEC by Southern Company (SC) Generation engineers responsible for design and evaluation of the Plant Hammond facility operational processes. Southern Company is the parent company of Georgia Power. Design and communication documents provided to AMEC by Southern Company and Georgia Power indicate the following shared background for Ash Ponds 1 through 4.

- Each of the four ash ponds at Plant Hammond contain fly ash, bottom ash, boiler slag, pyrites, and low volume waste as defined under 40 CFR 423.11. Flue gas emission residue is contained only in Ash Pond 2.
- Each ash pond was designed internally by Southern Company professional engineers.
- A professional engineer supervised the construction of each ash pond.
- Inspection of each of the four ash ponds is currently performed by a professional engineer.

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Ash pond plan views and typical embankment cross sections are illustrated on Figures 4 and 5 and 6, 7, 8 and 9, respectively. Background information that is specific to each ash pond is presented in the following sections. More comprehensive information is provided in Section 2, Field Assessment.

1.4.1 Ash Pond 1

Ash Pond 1 was commissioned in 1952 with a total storage capacity of 1,291,000 cubic yards (CY), a corresponding surface area of 35 acres, and a maximum embankment height of 25 feet. The pond is currently in service as a co-treatment facility, receives only low volume wastes, and does not receive any other liquid-borne material. The volume of stored material, as of November 2006, was measured at 943,000 CY.

1.4.2 Ash Pond 2

Ash Pond 2 was commissioned in 1969 with a total storage capacity of 821,000 CY, a corresponding surface area of 21.2 acres, and a maximum embankment height of 24 feet. A dike was added to this pond in 1998, effectively dividing the pond in half. This pond is currently used as a dewatering facility for fly ash and bottom ash, with dewatering operations alternating between halves. The halves are hydraulically connected via 24-inch corrugated metal pipes. Dewatered ash is excavated and transported to a permitted dry stacking area in Ash Pond 4 or the nearby Huffaker Road facility, a permitted solid waste disposal location. According to reports from Georgia Power, the volume of material stored in Ash Pond 2 as of July 2007 was 677,000 CY.

1.4.3 Ash Pond 3

Ash Pond 3 was commissioned in 1974 with a total storage capacity of 1,108,000 CY, a corresponding surface area of 25 acres, and a maximum embankment height of 28 feet. Although commissioned in 1974, the pond was not placed into operation until June 1977. In July 1977, seepage was identified in the concrete drainage ditch along the toe of the west downstream slope. Sluicing operations to Ash Pond 3 were immediately routed to existing Ash Pond 1. In early August 1977, Law Engineering Testing Company initiated an investigation to determine the cause of the seepage. In October 1977, Law Engineering Testing Company issued their final report and actions were undertaken to address the problem. Ash Pond 3 was placed back in operation in October 1977. The water level within Ash Pond 3 was maintained as low as possible by discharging to Ash Pond 1. Ash Pond 3 was ultimately converted to a dry ash disposal area in the early 1980's. Currently, this pond is full, no longer receives liquid-borne material, and is considered inactive.

1.4.4 Ash Pond 4

Ash Pond 4 was commissioned in 1986 with a total storage capacity of 2,003,000 CY, a corresponding surface area of 54 acres, and a maximum embankment height of 35 feet. Georgia Power submitted an application to EPD in 1994 for permission to operate Ash Pond 4 as a dry stacking facility. Permission was granted, with a second, similar request submitted and granted in 2000. This ash pond is currently operated as an approved dry stacking facility and no longer receives liquid-borne material. Although the stack increased capacity, it did not expand the pond. According to reports from Georgia Power, the volume of material stored in Ash Pond 4 as of July 2007 was 1,732,000 CY.

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1.5 Previously Identified Safety Issues

Discussions with plant personnel and review of provided documentation indicate that there are no current or previously identified safety issues from the previous 5 years at Plant Hammond.

1.6 Site Geology

The October 1977 report provided by Law Engineering Testing Company, (Georgia Power Item HMD-API 039), investigated a water loss beneath Ash Pond 3, and provides information that describes the soil and rock conditions of the area. According to the report, "Three general soil categories were identified from the soil test borings: (1) fill, (2) terrace material (represents the upper stratum of the naturally occurring soils and is typically about 10 feet thick), and (3) residuum." The report further describes that soil excavated adjacent to the pond and just north of Highway 20, as well as existing soil excavated from the north half of the proposed bottom of the pond, were used to construct the pond's dike. Many samples included fill and terrace soils in a mixed state, therefore difficult to describe separately. However, these two soil categories were generally described in the report as "red, black, brown, tan, clayey sand or silty, sandy clay with gravel." Permeability ranged from 7.62×10^{-7} to 5.08×10^{-6} centimeters per second (cm/sec) for the fill soil, while the terrace soil was typically about 2.54×10^{-4} cm/sec.

The soil from the residuum category was described as "a brown, red, tan, fine-sandy-silty clay containing some laminated zones and with occasional shale limestone fragments which increased in frequency toward the top of the rock." Further, the thickness of the residuum beneath the dike was described to vary considerably. A thickness of 35 feet was found under the western portion, while a thickness of 5 to 6 feet was indicated by several borings taken from both the west and north portions of the dike.

The report states that Ash Pond 3 "is underlain by rock units of the Conasauga Formation which is Cambrian in age. The rock type mapped in the area is described as shale containing thin-bedded limestone and calcareous siltstone. Less than one-half mile north of the ash pond, a major thrust fault, the Rome fault, has positioned the Cambrian Conasauga over the Mississippian Floyd shale. The fault dips to the south and passes beneath the ash pond at a probable depth of several hundred feet."

Several shallow borings were completed along the northern portion of the dike surrounding Ash Pond 3, as well as the area just to the west of the dike. With the exception of bedding characteristics, two very similar rock types were found to exist at these locations. One rock "may be generally described as a hard grey and dark grey, laminated to thin-bedded, fine grained, argillaceous limestone," while the other is a "dark gray, thin-bedded to nodular or irregularly bedded, fine grained, argillaceous limestone."

The investigation also reported that solution cavities were penetrated by several borings. Cavities "up to 3.5 feet thick" occurred within the "upper 20 feet of rock" on the east side of the ash pond, while cavities on the north and west sides "ranged from 0.8 to 2.8 feet thick" and occurred in the upper 10 feet of rock. At the time, "all of the cavities penetrated were open, with no filling material."

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1.7 Inventory of Provided Materials

Southern Company and Georgia Power provided AMEC with numerous documents pertaining to the design and operation of Plant Hammond. These documents were used in the preparation of this report and are listed in Appendix D, Inventory of Provided Materials.

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2.0 FIELD ASSESSMENT

2.1 Visual Observations

AMEC performed visual inspections of Plant Hammond's Ash Ponds 1, 2, 3, and 4 on April 26th and 27th, 2010. Assessment of the ash ponds was completed in general accordance with *FEMA's Federal Guidelines for Dam Safety, Hazard Potential Classification System for Dams, April 2004*. The EPA Coal Combustion Dam Inspection Checklist and Coal Combustion Waste (CCW) Impoundment Inspection Form were completed for each ash pond during the site visit. These completed forms were provided to the EPA via email five business days following the site visit. (Refer to Appendix A for copies of the completed checklist forms). Additionally, photographs were taken of each impoundment during the site visit. The photo log, descriptions, and photo location site maps for each ash pond can be found in Appendix B. Rainfall data for the Rome, Georgia area was collected for the 30 days prior to the site visit. A rather sizeable rain of 2.4 inches fell two days before the visit. Table 2, below, summarizes the rainfall data for the days immediately preceding AMEC's site visit.

Table 2. Plant Hammond Rainfall Data

Rainfall Prior to Site Visit	
Date	**Rainfall (in.)**
April 19, 2010	0.0
April 20, 2010	0.0
April 21, 2010	0.27
April 22, 2010	0.0
April 23, 2010	0.0
April 24, 2010	0.0
April 25, 2010	2.4
April 26, 2010	0.0
Total (7 days prior to visit)	**2.67**
Total (30 days prior to visit)	**4.17**

2.2 Visual Observations - Ash Pond 1

Ash Pond 1, commissioned in 1952, is a co-treatment facility and receives only low volume wastes. At the time of the site visit, railroad tracks were noted located along the eastern and southern dikes (photos 1-9 and 1-14).

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2.2.1 Ash Pond 1 - Embankments and Crest

Ash Pond 1 has an incised configuration along the northern and western banks, however, the remainder of the pond has a diked configuration. According to design drawings, the embankment is approximately 25 feet high and the pool area is 35 acres. At the time of the site visit there was approximately 9 feet of freeboard within the pond. In general, the downstream embankment was covered with moderate vegetation (photo 1-35).

Surficial depressions that appeared to be the result of rutting from vehicles were noted along the crest of the southern dike (photos 1-16 and 1-26 through 1-30). Additional wet areas, also apparently the result of rutting from maintenance trucks, were noted at the southern and eastern downstream toe (photos 1-31, 1-32, 1-36, and 1-37).

2.2.2 Ash Pond 1 - Outlet Control Structure

The primary outlet structure is located on the southern portion of the western dike of Ash Pond 1 (photos 1-20, 1-22, 1-23, 1-24, and 1-43). The structure contains both a 24-inch reinforced fiberglass pipe (FRP) plant reuse line (NPDES Discharge 01F) and a 36-inch FRP Coosa River discharge line (NPDES Discharge 01B).

As originally constructed, there was an 18-inch RCP on the northeast side of Ash Pond 1 that acted as the primary discharge to Smith Cabin Creek, an adjacent stream on the east side of the pond. We understand that the 18-inch pipe has since been grouted closed and is no longer in use.

The emergency outlet is a vertical structure located within the south-western portion of the pond (photos 1-17 and 1-19). The square spillway structure is 17-feet tall, and has sides measuring 3-feet 8-inches in length. Several rectangular inlets, measuring 3-feet wide by 1-foot high, are spaced vertically along the structure to allow emergency discharge from the pond at varying water surface elevations. A 36-inch diameter reinforced concrete pipe (RCP) is located at the invert of the structure and carries discharge to the Coosa River (NPDES Discharge 07). Although high tailwater from recent rainfall hid outfall number 7 at the Coosa River (photo 1-40), clear, flow was noted moving through the emergency discharge sampling point (photos 1-41 and 1-42).

2.3 Visual Observations - Ash Pond 2

Ash Pond 2 was commissioned in 1969 and was redeveloped in 1998 by adding a diagonal dike through the middle to create essentially two equally sized sluicing ponds. The pond is used as a dewatering facility for fly ash and bottom ash. The ash is excavated and transported to the EPD approved dry stacking area in Ash Pond 4 or the Coal Combustion By-Product Disposal area at Georgia Power's nearby permitted Huffaker Road solid waste facility.

2.3.1 Ash Pond 2 - Embankments and Crest

Ash Pond 2 is a diked structure with a 24-foot high embankment. The pool area is 21.2 acres and freeboard at the time of the site visit was approximately 6 feet. Two repairs had been completed at previous slide locations along the north-western and western downstream slope (photos 2-13, 2-14, 2-17, 2-18, and 2-19). The length of the repaired areas was approximately

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300 feet and 360 feet, respectively. The repairs were completed two to three weeks prior to the site-visit (early April 2001) and consisted of filter fabric, gravel, and rip-rap.

A drainage ditch was noted along the northern downstream toe (photos 2-7 and 2-48). Additionally, a ditch-like area referred to by Georgia Power personnel as an “unnamed creek” was located along the northern downstream toe in the vicinity of the drainage ditch (photos 2-9, 2-10, 2-12, 2-46, and 2-47).

An uneven ground surface, which consisted of bulges and depressions, was noted along the northern and western downstream slope (photos 2-11, 2-21, 2-22, and 2-23). Steep slopes and sloughing were observed along the southern downstream slope (photos 2-30 through 2-35). Gravel had been placed along the downstream toe at some of these locations (photos 2-27 and 2-29). Cracks were visible in the haul road that runs parallel to the southern dike and functions as the access road to Ash Pond 4 (photos 2-36 and 2-37).

Several wet areas were noted along the western dike toe (photos 2-15, and 2-38 through 2-41).

2.3.2 Ash Pond 2 - Outlet Control Structure

Ash Pond 2 does not have an open channel spillway. The primary outlet, which discharges flow into Ash Pond 1, consists of a 30-inch reinforced fiberglass pipe (FRP) (photos 2-5 and 2-6). Although the intake was submerged, water was assumed to be discharging from the pond to Ash Pond 1. The discharge could not be confirmed. The emergency outlet from Ash Pond 2 is a 24-inch diameter vertical inlet that is located at the southwest corner of the pond (photos 2-25, 2-26, and 2-28).

2.4 Visual Observations - Ash Pond 3

Ash Pond 3, commissioned in 1974, is full, inactive, and no longer receives liquid-borne materials. The pond contained some water from previous rainfall events at the time of the site assessment.

2.4.1 Ash Pond 3 - Embankments and Crest

Ash Pond 3 has a 28-foot high, diked embankment. The pool area is 25 acres and was generally dry at the time of the site visit. Water within the structure was assumed to be runoff from recent rain events (photos 3-3 and 3-4). A majority of the ash in the pond is covered with brush and large trees. Railroad tracks were located directly adjacent to and below the pond’s eastern and southern dikes (photos 3-14, 3-15, 3-16, 3-18, and 3-21). The dikes appeared to be maintained and mowed.

2.4.2 Ash Pond 3 - Outlet Control Structure

The inactive primary outlet (photos 3-9 and 3-10) and emergency outlet (photos 3-23, 3-25 and 3-29) were observed along the western and northeastern sides of the pond, respectively.

2.5 Visual Observations - Ash Pond 4

Ash Pond 4 was commissioned in 1986 but was re-permitted and currently serves as a dry coal ash stacking facility that no longer receives liquid-borne material. Georgia EPD approved ash

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stacking plans, submitted in 1994 and 2000, that expanded that pond's ash stacking capacity, but did not expand the pond footprint or the perimeter dams.

2.5.1 Ash Pond 4 - Embankments and Crest

Ash Pond 4 is contained by a 35-foot high, diked embankment, with a 54-acre pool area. A freeboard of approximately 10 feet was noted during the site visit. The majority of the ash material in the pond is covered with brush. The dikes appeared to be vegetated, generally maintained, and mowed.

Several areas along the southern and western downstream face lacked vegetation. Reseeding efforts were noted to be in progress during the site visit (photos 4-16, 4-26, 4-27, 4-31, 4-32, and 4-36). Previous seepage, noted along the southern toe, led to the installation of trench and finger drains (photos 4-8, 4-9, 4-11, 4-12, and 4-15). Wet areas were noted along the northern and southern toes (photos 4-5 and 4-44). Minor sloughs were noted along the southern downstream slope (photos 4-7 and 4-13).

2.5.2 Ash Pond 4 - Outlet Control Structure

The primary (inactive) and emergency outlets were observed just inside the northwestern corner of the impoundment (photos 4-18 and 4-39, 4-40, and 4-41). The emergency outlet structure is a vertical half 36-inch diameter pipe discharge riser connected to an 18-inch polyethylene pipe. Flow discharges in a westerly direction. Dried ash from Ash Pond 2 is stacked in Ash Pond 4 under an EPD approved dry stacking plan. There is a small wet pond area that exists in the northwestern corner of the pond where the primary and emergency outlets are located. Additionally, moisture from the dry stacked material and runoff from the pond surface pool in this area.

2.6 Monitoring Instrumentation

Historically, impoundment monitoring equipment has not been used at the Plant Hammond facility. However, a total of 13 piezometers were installed at various locations around the ash ponds in March of 2010 to monitor piezometric levels within and below the embankments. Piezometer installation locations for each ash pond are shown on Figure 10. Typical well construction consisted of a 2-inch diameter PVC pipe, 10-foot slotted screen, silica sand filter pack and a bentonite seal. Piezometers are read by plant personnel on a monthly basis. Table 3 provides summary information for the recently added instrumentation. Figures 4 and 5 illustrate the locations of the impoundment monitoring piezometers and Appendix C contains corresponding data graphs. According to Plant Hammond personnel, Ash Pond 4 piezometer AP4-3 was found to be dry at the time of each reading. Results from this piezometer do not appear on the submitted reports. Due to the recent installation, a trend cannot be noted at this time. Generally, the data indicates an increase in phreatic surface which may be explained by a large rainfall that occurred over May 1 and May 2, 2010.

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Table 3. Plant Hammond Piezometric Data

Piezometer ID	Location	Screen Material	Water Surface Elevation (MSL) April 8, 2010	Water Surface Elevation (MSL) May 11, 2010
AP1-1	Eastern DS Toe	Silty Sand	572.55	572.48
AP1-2	Eastern US Crest	Silty Sand	567.39	576.64
AP1-3	Eastern US Crest	Clay	576.67	578.6
AP2-2	Southern DS Crest	Silty Sand	577.05	582.03
AP2-3	Southern DS Crest	Sandy Silt	567.8	564.45
AP3-1	Inside North-eastern dike	Fly Ash	583.94	582.28
AP3-2	North-eastern DS Crest	Sandy Silt	569.83	569.93
AP3-3	North-eastern DS Crest	Sandy Clay	576.23	578.65
AP4-1	Southern DS Toe	Silty Sand	561.22	564.79
AP4-2	Southern DS Crest	Sandy Clay	564.79	565.68
AP4-3	Southern DS Crest	Sandy Clay	No Records Available	
AP4-4	Western DS Crest	Sandy Clay	Dry	582.01
AP4-5	Western DS Crest	Silty Sand	Dry	571.48

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3.0 DATA EVALUATION

3.1 Design Assumptions

AMEC has reviewed the design assumptions related to the design and analysis of the hydraulic adequacy and stability of Ash Ponds 1 through 4 based on the results of our site visit and the historical impoundment information provided to us by Georgia Power. The design assumptions are described in the following sections.

3.2 Hydrologic and Hydraulic Design

3.2.1 Ash Pond 1 - Hydrologic and Hydraulic Design

Georgia Power provided AMEC with an evaluation summary of the effects of a 10-year, 24-hour storm on the co-treatment pond, Ash Pond 1. The summary appears to have been completed in the year 2006 or 2007, likely in conjunction with the facility's NPDES permit application, and contains projections of the remaining volume in million gallons (MG) that would be available for wet storage in Ash Pond 1 through the year 2012. This calculation assumes that the pond operating water surface elevation would be held steady at elevation 583.5 feet. The main findings of the evaluation are shown below.

A. Total Dry Weather Process Flow:		9.99 MGD
B. Total Rainfall Runoff		11.37 MGD
Total Plant Runoff Area (not including Ash Pond 4)	86.3 acres	
10-year, 24-hour storm	5.55 inches	
Annual Rainfall	54.21 inches	
Equivalent Direct Runoff	4.85 inches	
C. Required Water Volume (A+B)		21.36 MG
D. Ash Pond 1 Remaining Wet Storage (above elev. 583.5) (static for years 2007 - 2012)		70.02 MG
E. Available volume on 12/31/2012		70.02 MG

At elevation 583.5, the available wet storage volume of 70 MG in Ash Pond 1 safely exceeds the calculated storage volume of 21.4 MG that is required to contain the 10-year, 24-hour event facility runoff plus the dry weather process flows. According to notes provided with the hydrologic evaluation summary, the rainfall runoff was determined using the Soil Conservation Service (SCS) Method and Georgia manual for Sediment and Erosion Control, 2000 edition. Additionally, no dry ash sales are projected and the volume projected through year 2012 assumes that dry stacking facilities will continue operation to prevent pond storage volume from falling below the minimum required for co-treatment purposes.

The emergency overflow structure for Ash Pond 1, located on the southwest side of the impoundment, is a vertically oriented, concrete square box, 17-feet tall, with side dimensions of 3-feet 8-inches. There are eight opposing, staggered rectangular openings in the sides of the box that measure 3-feet wide by 1-foot high and are located on 3-feet centers with inverts

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ranging from 577 feet to 587.3 feet. Flow exits this vertical overflow structure through a 36-inch diameter RCP with invert elevation 572 feet. This flow discharges to the Coosa River. Besides the hydrologic summary for the 10-year, 24-hour storm captured in Ash Pond 1 presented above, there was no additional documentation provided by Georgia Power that included any references to or calculations for emergency discharge flow rate requirements or runoff storage volume capabilities.

Each of the ash ponds at Plant Hammond is classified as a Category II dam by the Georgia EPD. As such, these facilities in Georgia are exempt from the dam safety regulations set forth in Georgia Environmental Rule 391-3-8 Dam Safety for Category I structures, and therefore not required to design these impoundments to any design storm level.

3.2.2 Ash Pond 2 - Hydrologic and Hydraulic Design

No hydraulic requirements or hydrologic calculations for Ash Pond 2 were provided to AMEC for review.

3.2.3 Ash Pond 3 - Hydrologic and Hydraulic Design

No hydraulic requirements or hydrologic calculations for Ash Pond 3 were provided to AMEC for review.

3.2.4 Ash Pond 4 - Hydrologic and Hydraulic Design

No hydraulic requirements or hydrologic calculations for Ash Pond 4 were provided to AMEC for review.

3.3 Structural Adequacy & Stability

The Georgia Department of Natural Resources Environmental Protection Division outlines rules and regulations for dam safety in Standards for the Design and Evaluation of Dams (391-3-8-.09). The regulations state that all Category I dams must be stable under all conditions of construction and/or operation of the impoundment. Earthen dams, when analyzed using the methods, guidelines, and procedures of the agencies listed in the regulations to determine safety factors, can be considered to have acceptable stability if the analyses yield at least the minimum safety factors shown in Table 4.

To analyze the structural adequacy and stability of the Ash Ponds at Plant Hammond, AMEC reviewed the material provided by Georgia Power with respect to the load cases shown in Table 4. Factors of safety documented in the provided material were compared with those factors outlined in Table 4 to help determine whether the impoundments meet the requirements for acceptable stability.

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Table 4. Georgia EPD Minimum Required Dam Safety Factors

Load Case	Required Minimum Factor of Safety
End of Construction	1.3
Steady State Seepage	1.5
Steady State Seepage with Seismic Loading	1.1
Rapid Drawdown (Upstream)	1.3
Submerged Toe with Rapid Drawdown	1.3

3.3.1 Soil Properties used in the May 2010 Stability Analyses

The soil properties of unit weight, angle of internal friction, and cohesion used in the stability analyses were obtained from triaxial shear testing performed on relatively undisturbed samples of the fill and foundation soils obtained during drilling in March 2010. The testing was performed by S&ME, Inc. in accordance with ASTM D 4767 "Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils." The test data is reproduced in Table 5 along with an independent calculation of the average moist unit weights of the samples prior to consolidation. S&ME noted that "while S&ME is not responsible for the use or interpretation of these data we note that the test results do not appear to be consistent with our expectations for materials with these unified soil classifications."

Properties for ash were based on laboratory testing performed on undisturbed and remolded samples of ash from various plants and on the engineering judgment of Georgia Power personnel. Ash test data was not made available to AMEC.

In addition to S&ME's statement (noted above) that the lab values do not appear to be consistent with the UCS classifications, we also note that five of the tests do not report total stress values. Total stress parameters would be important for the Rapid Drawdown analyses using the Duncan, Wright, and Wong method implemented in SLOPE/W. Since the effective stress parameters are determined by subtracting the pore pressures at failure from the total stress values, it is possible that the software used to calculate the total and effective stress envelopes back-calculates the total stresses from the p-q data instead of calculating the values directly. This could explain why the total stress values were not provided. In any event, both of these issues require further clarification and possibly examination of the raw test data.

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Table 5. Triaxial Test Data

			Effective Stress Parameters		Total Stress Parameters	
Soil Sample	**Avg. Dry Unit Weight, pcf***	**Avg. Moist Unit Weight, pcf**	**Cohesion, psf**	**Friction, degrees**	**Cohesion, psf**	**Friction, degrees**
AP1 @5-7 Foundation	97.9	122.7	40	35.1	500	21.6
AP3 @6-8 Foundation	107.9	127.0	260	31.7	N/A	N/A
AP4 @4'-6' Foundation	89.1	116.0	0	34.5	750	12.5
AP2 @4'-6' & 6'-8' Fill	112.4	128.7	140	37.3	N/A	N/A
AP3 @8'-10' & 10'-12' Fill	111.8	129.6	0	36.0	N/A	N/A
AP1-2 @10'-12.5'	117.6	133.9	270	32.6	N/A	N/A
AP2-3 @35'-37'	98.8	124.1	280	29.9	850	18.9
AP3-1 @8'-10'	110.3	130.1	0	35.0	N/A	N/A
AP4-1 @10'-12.5'	92.5	117.7	0	32.7	0	26.8
AP4 2/5 @10'-12.5'	106.3	126.9	130	30.5	240	31.0

*Calculated using G_s, e_o, and γ_{dry}.

3.3.2 Ash Pond 1 - Structural Adequacy & Stability

An April 1971 East Ash Pond Dike Stability Report was completed by Law Engineering Testing Company for Georgia Power. At that time, only Ash Pond 1 (east end) and Ash Pond 2 (west end) existed at Plant Hammond. This stability report was performed in anticipation of the additional loading that would be caused by a railroad proposed to be constructed along the top of the east dike of Ash Pond 1. The report states that two soil test borings were drilled along the dike of Ash Pond 1. Laboratory triaxial shear testing of the undisturbed soil samples obtained during the drilling process was used to determine the fill soil shear strength. Additionally, the report states "shear strength data obtained from the laboratory testing of alluvial soils at the rotary car dumper have been used for similar soils at the ash pond dike location." This data was used together to evaluate dike stability when subjected to additional loading. Conclusions from the analyses indicate the "safety factor against failure of the embankment when subjected to railroad loading is approximately 2.5 for the outside face of the dike. The safety factor against failure for the inside face is approximately 1.5 for conditions during excavation of ash from the pond." After filling the basin with water to elevation 587 during normal operations, the safety factor of the inside face was determined to be slightly less than 2.

In May 2010, Southern Company completed an in-house structural stability analysis for Ash Pond 1 (HAM-API 077). The cross-sections modeled in the analysis are shown on Figure 10; this figure also shows the boring and piezometer installation locations . Table 6 shows the soil properties used in the analysis along with the soil sampling source of the parameters.

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Table 6. Ash Pond 1 Soil Properties and Source

				Effective Stress Parameters		Total Stress Parameters	
Soil Sample	**Soil Description**	**Avg. Dry Unit Weight, pcf***	**Avg. Moist Unit Weight, pcf**	**Cohesion, psf**	**Friction, degrees**	**Cohesion, psf**	**Friction, degrees**
AP1-2 @10'-12.5'	Sandy Clay Fill	117.6	133.9	270	32.6	N/A	N/A
AP1 @5-7 Foundation	Sandy Clay Fdn.	97.9	122.7	40	35.1	500	21.6
	Sluiced Ash		80	0	10	--	--

Eleven load cases were analyzed including Steady State Seepage, Seismic, Train Surcharge, and Rapid Drawdown. Of the eleven computed factors of safety, four were below the minimum criteria referenced in the analysis. Of these, none involved a failure of the dike itself; the low factors of safety were associated with the stability of the ash contained within the dike. As such, we judge these types of failure to be primarily maintenance concerns as opposed to dike safety problems, especially when the surface elevation of the ash is below the top of dike.

3.3.3 Ash Pond 2 - Structural Adequacy & Stability

Southern Company has recently completed an in-house structural stability analysis for Ash Pond 2 (HAM-API 077). The cross-sections modeled in the analysis are shown on Figure 10; this figure also shows the boring and piezometer installation locations. Table 7 shows the soil properties used in the analysis along with the soil sampling source of the parameters.

Table 7. Ash Pond 2 Soil Properties and Source

				Effective Stress Parameters		Total Stress Parameters	
Soil Sample	**Soil Description**	**Avg. Dry Unit Weight, pcf***	**Avg. Moist Unit Weight, pcf**	**Cohesion, psf**	**Friction, degrees**	**Cohesion, psf**	**Friction, degrees**
AP2 @4'-6' & 6'-8' Fill	Clayey Sand Fill	112.4	128.7	140	37.3	N/A	N/A
AP2-3 @35'-37'	Sandy Clay Fdn.	98.8	124.1	280	29.9	850	18.9
	Sluiced Ash		80	0	10	--	--

Six load cases were analyzed including Steady State Seepage, Seismic, and Rapid Drawdown. Of the six computed factors of safety, none were below the minimum criteria referenced in the analysis.

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3.3.4 Ash Pond 3 - Structural Adequacy & Stability

Southern Company has recently completed an in-house structural stability analysis for Ash Pond 3 (HAM-API 077). The cross-sections modeled in the analysis are shown on Figure 10; this figure also shows the boring and piezometer installation locations . Table 8 shows the soil properties used in the analysis along with the soil sampling source of the parameters.

Table 8. Ash Pond 3 Soil Properties and Source

				Effective Stress Parameters		Total Stress Parameters	
Soil Sample	**Soil Description**	**Avg. Dry Unit Weight, pcf***	**Avg. Moist Unit Weight, pcf**	**Cohesion, psf**	**Friction, degrees**	**Cohesion, psf**	**Friction, degrees**
AP3 @8'-10' & 10'-12' Fill	Sandy Clay Fill	111.8	129.6	0	36.0	N/A	N/A
AP3 @6'-8' Foundation	Sandy Clay Fdn.	107.9	127.0	260	31.7	N/A	N/A
AP3-1 @8'-10'		110.3	130.1	0	35.0	N/A	N/A
	Sluiced, Consolidated Ash		90	0	20	--	--

Two load cases were analyzed including Steady State Seepage and Seismic. Rapid Drawdown was not analyzed since the interior of the dike is generally dry. Of the two computed factors of safety, none were below the minimum criteria referenced in the analysis.

3.3.5 Ash Pond 4 - Structural Adequacy & Stability

Southern Company has recently completed an in-house structural stability analysis for Ash Pond 4 (HAM-API 077). The cross-sections modeled in the analysis are shown on Figure 10; this figure also shows the boring and piezometer installation locations. Table 9 shows the soil properties used in the analysis along with the soil sampling source of the parameters.

Table 9. Ash Pond 4 Soil Properties and Source

				Effective Stress Parameters		Total Stress Parameters	
Soil Sample	**Soil Description**	**Avg. Dry Unit Weight, pcf***	**Avg. Moist Unit Weight, pcf**	**Cohesion, psf**	**Friction, degrees**	**Cohesion, psf**	**Friction, degrees**
AP4 2/5 @10'-12.5'	Dike Fill	106.3	126.9	130	30.5	240	31.0
AP4 @4'-6' Foundation	Sandy Clay Fdn.	89.1	116.0	0	34.5	750	12.5
AP4-1 @10'-12.5'		92.5	117.7	0	32.7	0	26.8
	Sluiced,		90	0	20	--	--

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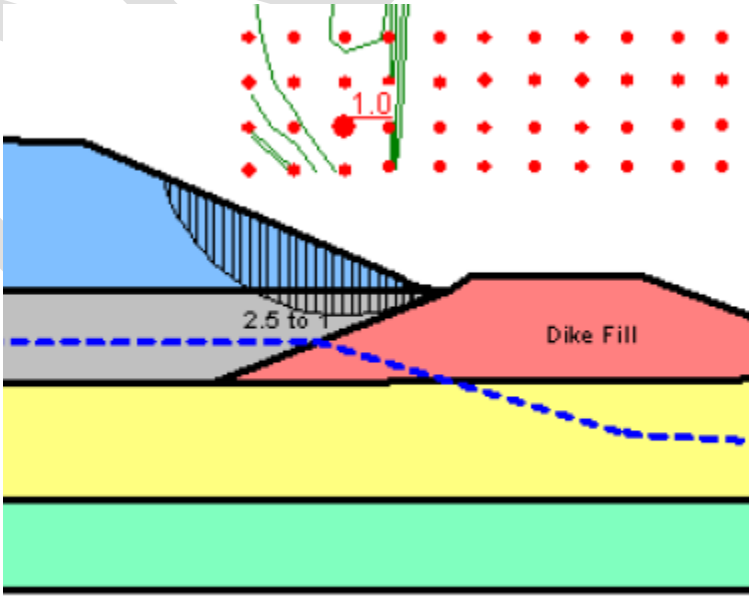
				Effective Stress Parameters		Total Stress Parameters	
Soil Sample	**Soil Description**	**Avg. Dry Unit Weight, pcf***	**Avg. Moist Unit Weight, pcf**	**Cohesion, psf**	**Friction, degrees**	**Cohesion, psf**	**Friction, degrees**
	Consolidated Ash						
	Stacked Ash		101	20	33.6	--	--

Two cross-sections, Section D-D' and E-E' were analyzed. The most noticeable difference between the two cross-sections is that Section D-D' shows stacked dry ash overlying consolidated ash while Section E-E' shows sluiced ash underlying a free water surface. The top of stacked ash in Section D-D' is shown at elevation 632 while the top of dike is at elevation 600.

Six load cases were analyzed for each section. Section D-D' was analyzed for Steady State (in dike and in ash); Seismic (in dike and in ash); and an overall Steady State and Seismic intended to check deep stabilities. All analyses for Section D-D' were for the downstream side of the dike. Section E-E' was analyzed for downstream and upstream Steady State; downstream and upstream Seismic (in dike and in ash); and upstream Rapid Drawdown.

Of the twelve load cases, two calculated factors of safety were below reference minimum criteria: Section D-D' Downstream Seismic - in ash; and Section E-E' Upstream Seismic - in ash. The low factor of safety in Section E-E' has a calculated minimum failure surface entirely within the confines of the dike (similar to Ash Pond 1, discussed above) and will not be considered further.

The picture below (taken from page 143 of the Georgia Power analysis) shows the calculated failure surface during a seismic event of Section D-D'.



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The concern with this low calculated factor of safety is that a failure during a seismic event could lead to material flowing over the dike into the environment, possibly reaching the Coosa River. The Georgia Power stability analysis notes that, "This number is below the required current minimum criteria, but is at the minimum criteria at the time of the design of the ash stack in the 1990s according to the criteria set in the US Corps of Engineers Manual EM 1110-2-1902, April 1970" (HAM-API 077, p. 6 of 196). It is AMEC's opinion that this issue is inadequately addressed and should be explored more thoroughly. A possible solution could be as simple as flattening the outer slope of the ash stack adjacent to the Coosa River until the calculated factor of safety is greater than or equal to 1.1. Other solutions may be feasible as well.

3.4 Foundation Conditions

Ash Pond 1 is the only impoundment at Plant Hammond that was constructed by a process where the dike was formed by cutting and piling existing material from the proposed impoundment interior, thus creating a combination incised and diked impoundment. The Report by Law Engineering Testing Company, referenced in Section 3.3.1, describes subsurface conditions of the east side of the impoundment, including areas below the fill as "stiff to very stiff alluvial silty clays and sandy silty clays." The report indicates that boring depths ranged from 17 to 25 feet through the approximately 15-foot average dike height. Additionally, the report states that "borings drilled at other locations at the Plant Hammond site indicate that the clayey alluvium extends down to approximate elevation 565 to 570, and is underlain by a 5 to 10 foot thick deposit of coarse sand and gravel."

Ash Pond 3 had a series of borings completed approximately three years after construction (in 1977). Results of these borings, advanced approximately 40 feet through the dike crest, to varying depths up to 20 feet below the pond bottom, revealed a variety of foundation soils and rock condition. The soils included soft to very stiff clayey silts, sandy clays and silty clays. Bedrock included soft to hard calcareous shale with open voids several feet in size as well as fractured black weathered shale.

3.5 Operations and Maintenance

SC Generation Hydro Services performs semi-annual safety and surveillance inspections of the berms at Plant Hammond and provides summary reports to Georgia Power. AMEC was provided copies of these reports from the 2004 Second Semi-Annual Report through the 2009 Second Semi-Annual Report (9 total), with the exception of the Second Semi-Annual reports for 2006 and 2007. Plant personnel reported that only one inspection was conducted in 2007. Also, although two inspections were conducted in 2006, a single report was written to summarize both inspections. The range of data reviewed represents five years of operation.

According to the reports, there have not been any safety issues that have occurred at the plant in the past five years of operation. Review of these reports indicates that Plant Hammond is operated and maintained well. The reports and any maintenance recommendations are clearly written and typically shown as addressed on the following semi-annual report discussion of past recommendations. The facility has occasional instances of minor slope sloughing issues, but reports them addressed in a timely manner through repairs using filter fabric with gravel and riprap placed on top. The site visit and observation performed by AMEC in April 2010 showed no major operational or maintenance issues that needed to be addressed.

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3.5.1 Instrumentation

AMEC understands that data from the thirteen piezometers that were installed in March 2010 around all four Plant Hammond ash ponds will provide additional information that facility personnel will use to guide operation and maintenance of the facility. Plant personnel plan to collect data from the piezometers on a monthly basis. There is no other instrumentation at the facility for pond monitoring.

3.5.2 State or Federal Inspections

Since the Ash Ponds at Plant Hammond are all Category II structures, the state does not regularly inspect the ponds. There was no evidence of past inspections by State or Federal regulatory agencies found in the provided documentation. The state does, however, reevaluate each Category II dam every 5 years to determine if adjacent downstream development has increased to a level that would prompt a change in the assigned dam classification category.

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4.0 COMMENTS AND RECOMMENDATIONS

4.1 Acknowledgement of Management Unit Conditions

I certify that the management units referenced herein (Ash Ponds 1, 2, and 3) were personally inspected by me and was found to be in the following condition: **Satisfactory**.

A satisfactory management unit is described as having no existing or potential management unit safety deficiencies that are recognized. Acceptable performance is expected under all applicable loading conditions (static, hydraulic, seismic) in accordance with the applicable criteria. Minor maintenance items may be required.

I certify that the management unit referenced herein (Ash Pond 4) was personally inspected by me and was found to be in the following condition: **Poor**.

A poor management unit safety is recognized for any deficiency in required loading conditions (static, hydraulic, seismic) in accordance with the applicable criteria. Remedial action is necessary. Poor also applies when further critical studies or investigations are needed to identify any potential dam safety deficiencies.

Additional Information regarding recommendations for instrumentation and analyses can be found in Sections 4.2 through 4.5.

4.2 Hydrologic and Hydraulic Recommendations

Each of Plant Hammond's ash ponds is classified as a Category II dam by state of Georgia and is therefore not required to provide storage for any specific rainfall event. Georgia Power provided a hydrologic calculation summary showing that the 10-year 24-hour rainfall event over a portion of the site (86.3 acres) can be successfully contained using the wet storage capacity of Ash Pond 1. Ash Pond 4 has a wet storage area and is not hydraulically connected to the rest of the Plant Hammond ash ponds. The hydrologic summary did not clearly show what portion of the Plant Hammond site was included in the calculations.

AMEC recommends that Georgia Power determine what rainfall event Ash Pond 1 and Ash Pond 4 are capable of containing. A more complete evaluation would determine the effect of the PMP rainfall event on the ash ponds and the Plant Hammond site.

4.3 Geotechnical and Stability Recommendations

AMEC recommends that further clarification of the lack of total stress shear strength parameters be determined from the testing laboratory along with an explanation of why the test results are not indicative of the type of material expected from the USCS classification. Additionally, AMEC recommends that the low seismic factor of safety for Ash Pond 4 be reconsidered in light of current criteria and that measures to mitigate this risk be undertaken by Georgia Power at the Plan Hammond site.

4.4 Instrumentation Monitoring Recommendations

AMEC recommends additional instrumentation to monitor slope stability and landslide conditions. In order to monitor these parameters, Georgia Power should install combination

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slope inclinometers and additional piezometers in the river side dike of each ash pond. These instruments may be installed within the same borehole. Routine monitoring should be established with corresponding elevations within the ash ponds at the time of the measurement in order to establish an understanding of the embankment behavior.

In order to monitor change of water surface a gauge should be added to Ash Ponds 2 and 4. Routine monitoring should be established and read in conjunction with slope inclinometer and piezometer readings.

4.5 Inspection Recommendations

AMEC has reviewed provided information and inspection records and determined that Georgia Power has adequate inspection practices. We recommend that Plant Hammond continue the current inspection program and practices.

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5.0 CLOSING

This report is prepared for the exclusive use of the Environmental Protection Agency for the site and criteria stipulated herein. This report does not address regulatory issues associated with storm water runoff, the identification and modification of regulated wetlands, or ground water recharge areas. Further, this report does not include review or analysis of environmental or regional geo-hydrologic aspects of the site, except as noted herein. Questions or interpretation regarding any portion of the report should be addressed directly by the geotechnical engineer.

Any use, reliance on, or decisions to be made based on this report by a third party are the responsibility of such third parties. AMEC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The conclusions and recommendations given in this report are based on visual observations, our partial knowledge of the history of Plant Hammond impoundments, and information provided to us by others. This report has been prepared in accordance with normally accepted geotechnical engineering practices. No other warranty is expressed or implied.

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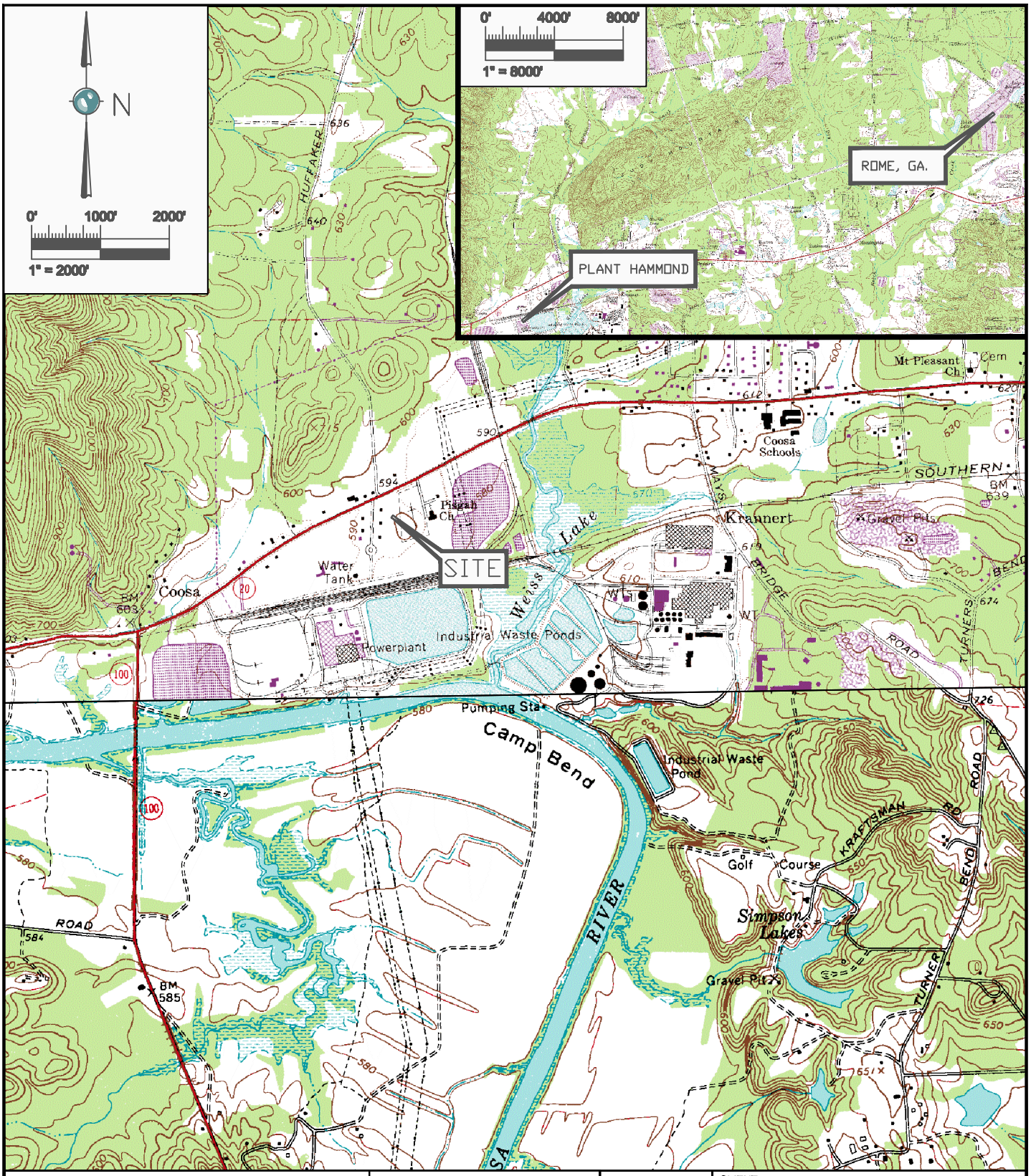
FIGURES



AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY

PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA SITE LOCATION MAP	CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
	PROJECTION:	SCALE: AS SHOWN	FIGURE No. 1

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

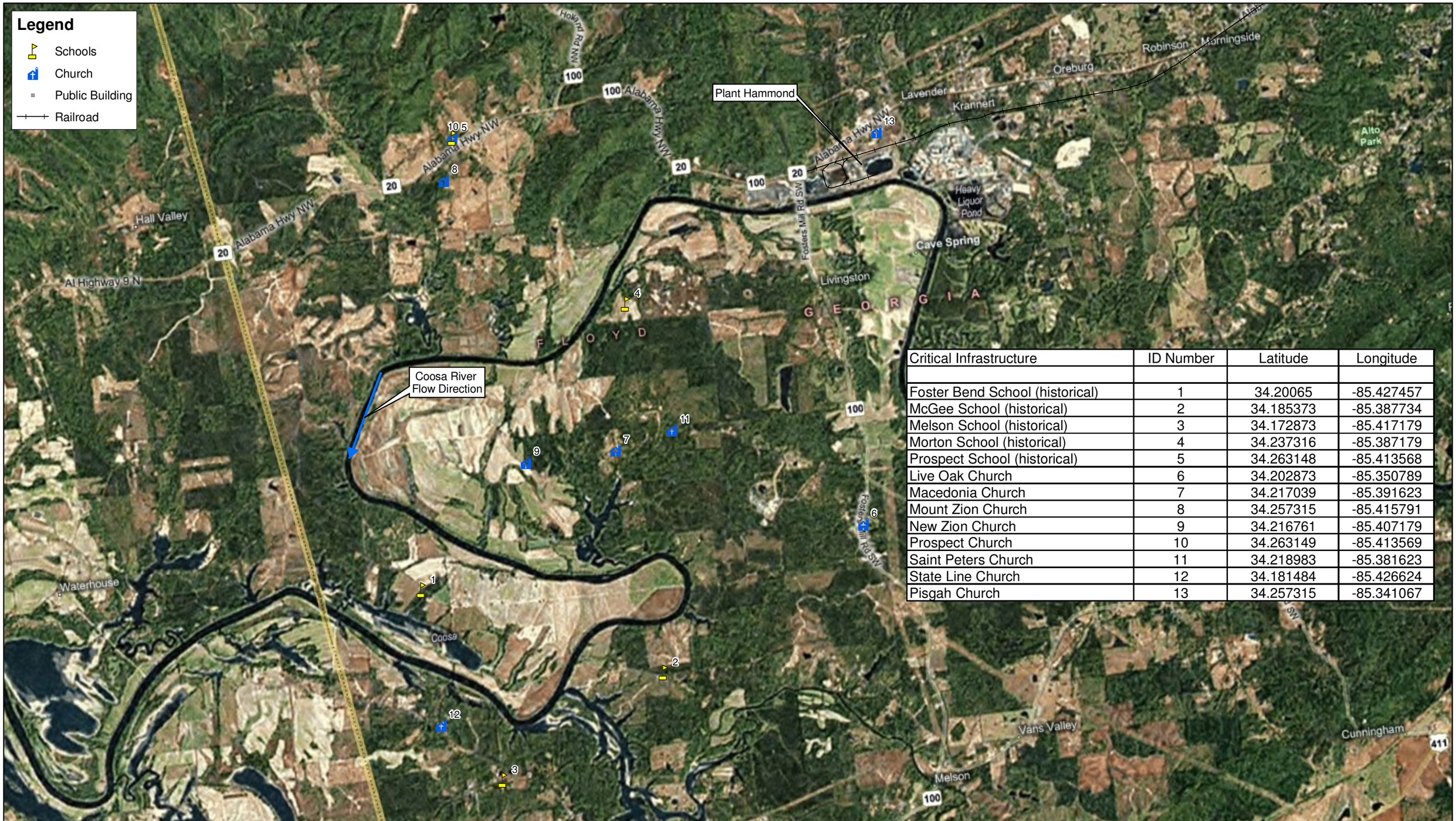
AMEC Earth & Environmental
690 Commonwealth Business Center
11003 Bluegrass Parkway
Louisville, KY 40299

DWN BY:	ATJ
CKD BY:	MS
Datum:	NAD 83
Projection:	Albers
Scale:	As Shown

ASSESSMENT OF DAM SAFETY OF
COAL COMBUSTION SURFACE IMPOUNDMENTS

GEORGIA POWER
PLANT HAMMOND ROME, GA
SITE PLAN

REV. No.:	A
Date:	5-21-10
Project No:	3-2106-0174-0500
Figure No:	2



Critical Infrastructure	ID Number	Latitude	Longitude
Foster Bend School (historical)	1	34.20065	-85.427457
McGee School (historical)	2	34.185373	-85.387734
Melson School (historical)	3	34.172873	-85.417179
Morton School (historical)	4	34.237316	-85.387179
Prospect School (historical)	5	34.263148	-85.413568
Live Oak Church	6	34.202873	-85.350789
Macedonia Church	7	34.217039	-85.391623
Mount Zion Church	8	34.257315	-85.415791
New Zion Church	9	34.216761	-85.407179
Prospect Church	10	34.263149	-85.413569
Saint Peters Church	11	34.218983	-85.381623
State Line Church	12	34.181484	-85.426624
Pisgah Church	13	34.257315	-85.341067

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AMEC Earth & Environmental
690 Commonwealth Business Center
11003 Bluegrass Parkway
Louisville, KY 40299

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

DRAWN BY: ATJ
CHK'D BY: MS
DATUM: NAD83
PROJECTION: Albers
SCALE: AS SHOWN
DATE: 5/21/2010

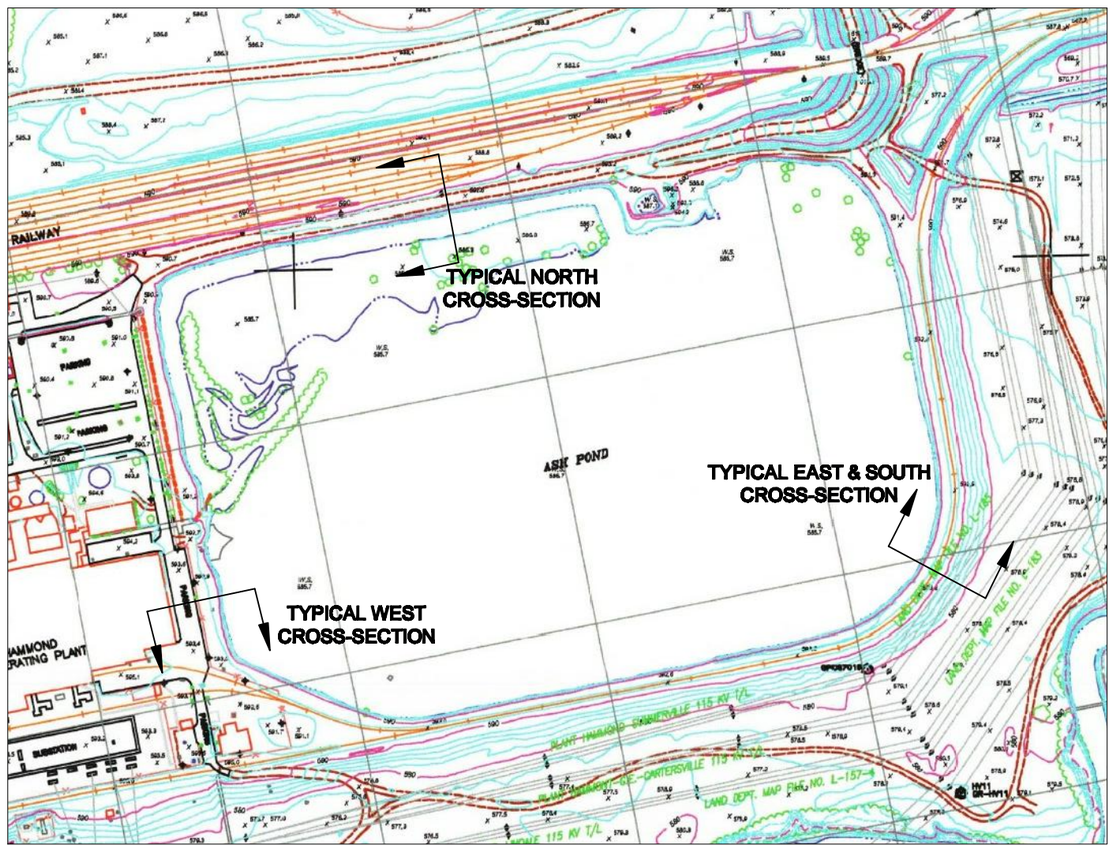
ASSESSMENT OF DAM SAFETY OF
COAL COMBUSTION SURFACE IMPOUNDMENTS

GEORGIA POWER
PLANT HAMMOND ROME, GA
CRITICAL INFRASTRUCTURE

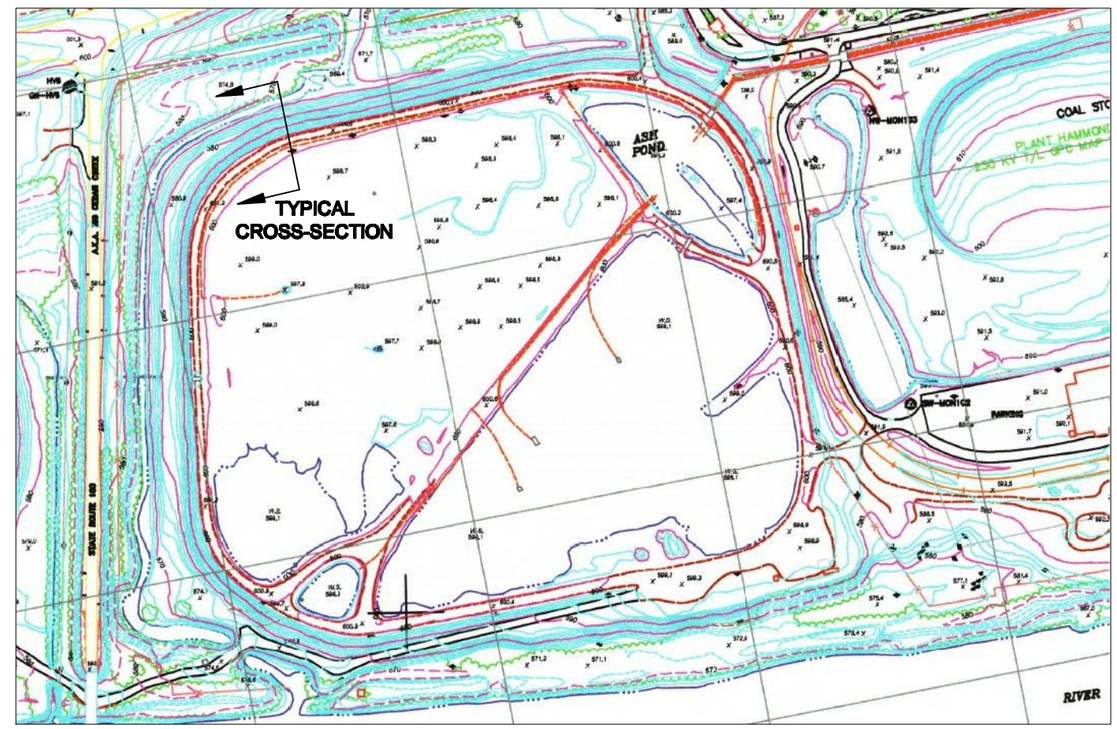
N
0 1 Miles
0 1 Kilometers

Notes: Critical infrastructure data provided by ESRI

FIGURE
3



POND 1



POND 2

0' 150' 300' 450'

1" = 300'

NOTE: THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC EARTH & ENVIRONMENTAL REPORT

CLIENT LOGO

CLIENT: ENVIRONMENTAL PROTECTION AGENCY

AMEC Earth & Environmental
690 Commonwealth Center
11003 Bluegrass Parkway
Louisville, Ky 40299
(502) 267-0700

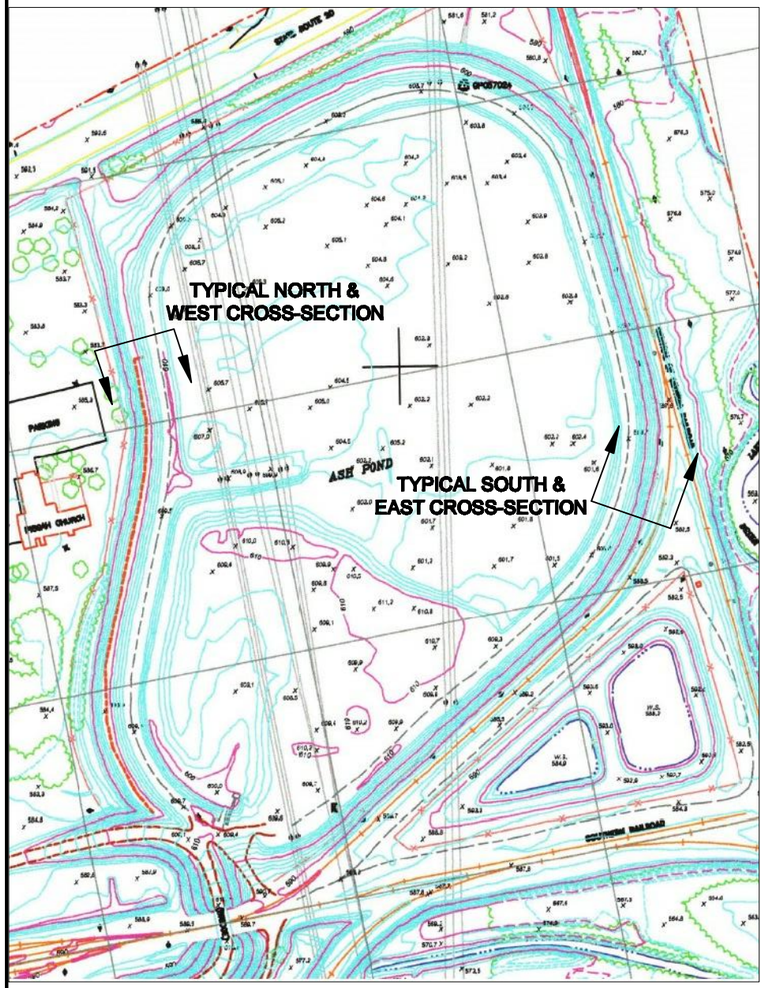
DWN BY:	CAE
CHK'D BY:	MS
DATUM:	
PROJECTION:	
SCALE:	AS SHOWN

PROJECT: ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS

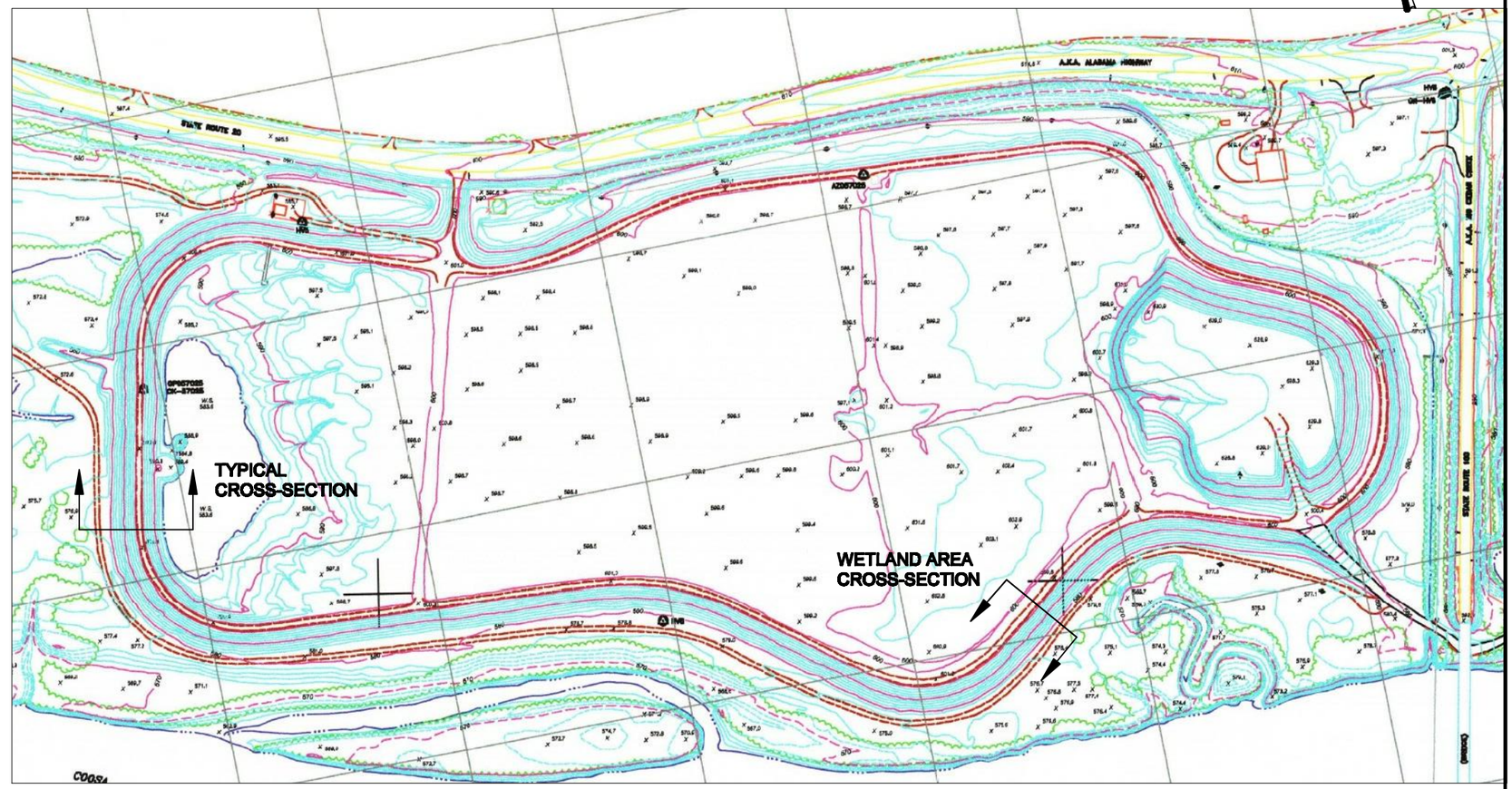
TITLE: GEORGIA POWER
PLANT HAMMOND, ROME, GA.
CROSS-SECTION LOCATIONS PONDS 1 AND 2

DATE:	5/21/10
PROJECT NO:	3-2106-0174.0500
REV. NO.:	
FIGURE No.	4

S:\Geosciences\Proposals\EPA Coal Impoundment Inspection\March 2010 RFP Pro\Georgia Power\Plant Hammond\PONDPLANVIEWS.dwg – Layout2 – May. 26, 2010 9:51am – chris.eger



POND 3



POND 4

0' 150' 300' 450'

1" = 300'

NOTE: THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC EARTH & ENVIRONMENTAL REPORT

CLIENT LOGO

CLIENT: ENVIRONMENTAL PROTECTION AGENCY

AMEC Earth & Environmental
690 Commonwealth Center
11003 Bluegrass Parkway
Louisville, Ky 40299
(502) 267-0700

DWN BY:	CAE
CHK'D BY:	MS
DATUM:	
PROJECTION:	
SCALE:	AS SHOWN

PROJECT: ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS

TITLE: GEORGIA POWER
PLANT HAMMOND, ROME, GA.
CROSS-SECTION LOCATIONS POND 3 AND 4

DATE:	5/21/10
PROJECT NO:	3-2106-0174.0500
REV. NO.:	
FIGURE No.	5

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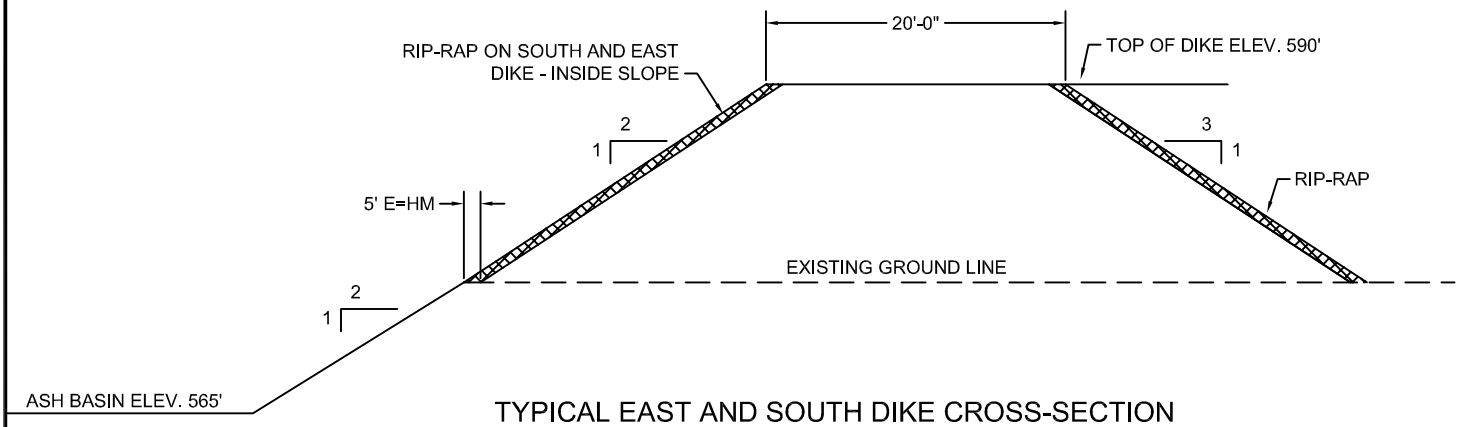
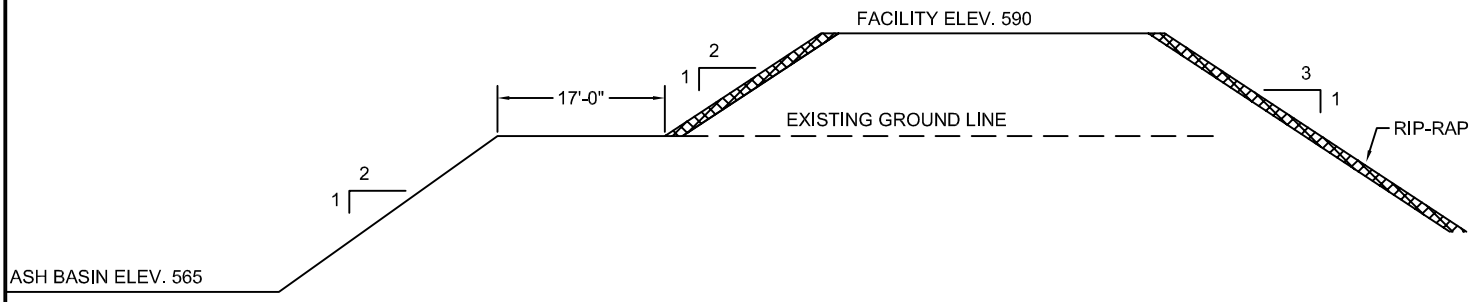
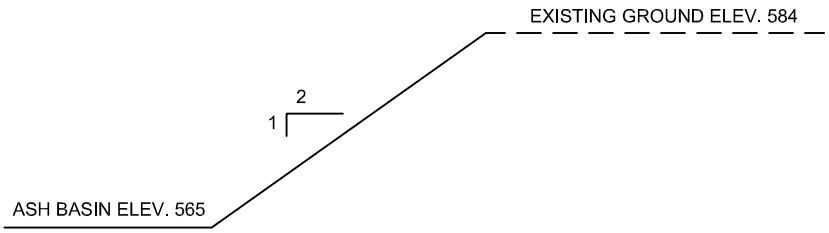


TYPICAL EAST AND SOUTH DIKE CROSS-SECTION

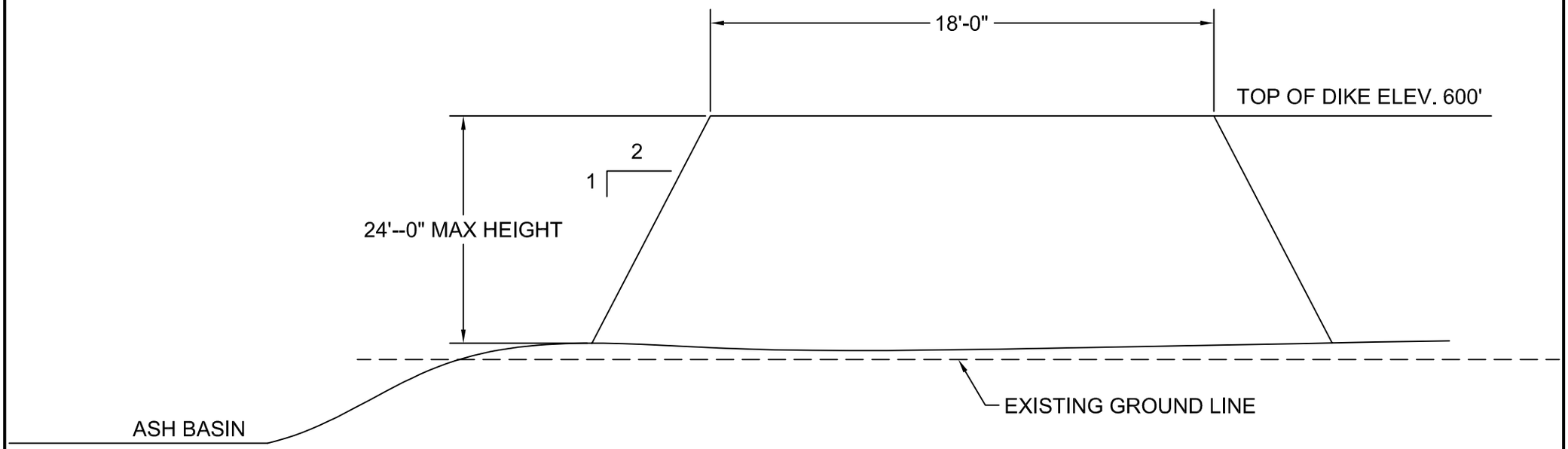


TYPICAL WEST DIKE CROSS-SECTION



TYPICAL NORTH DIKE CROSS-SECTION

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/21/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. TYPICAL CROSS-SECTION HAMMOND ASH POND 1		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: NOT TO SCALE	FIGURE NO. 6



CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	DWN BY: CAE CHK'D BY: MS	PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. NO.: A DATE: 5/21/10
AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	DATUM: PROJECTION: SCALE: NOT TO SCALE	TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA TYPICAL CROSS-SECTION HAMMOND ASH POND 2	PROJECT NO: 3-2106-0174.0500 FIGURE No. 7

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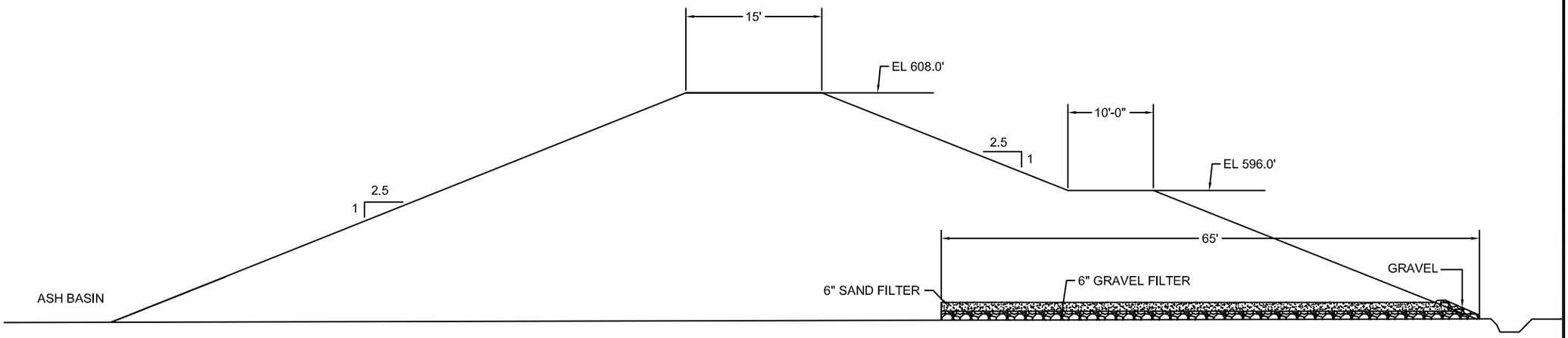
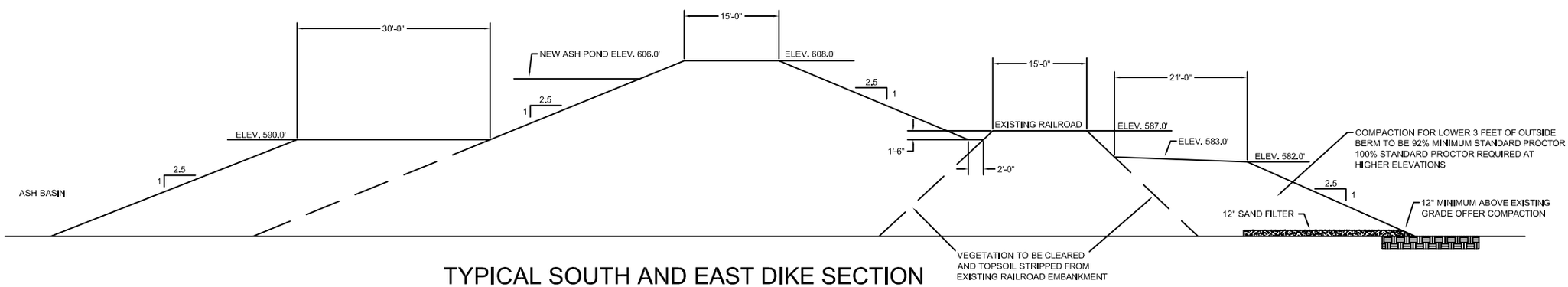


TYPICAL NORTH AND WEST DIKE SECTION



TYPICAL SOUTH AND EAST DIKE SECTION

CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	DWN BY: CAE CHK'D BY: MS	PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. NO.: A DATE: 5/21/10
AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	DATUM: PROJECTION: SCALE: NOT TO SCALE	TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. TYPICAL DIKE CROSS-SECTION HAMMOND ASH POND 3	PROJECT NO: 3-2106-0174.0500 FIGURE No. 8

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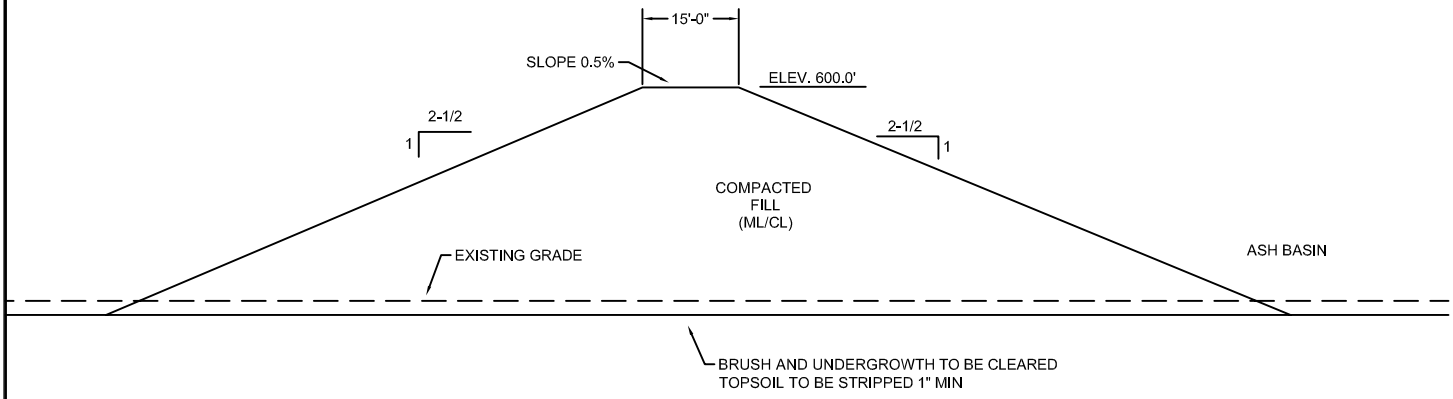
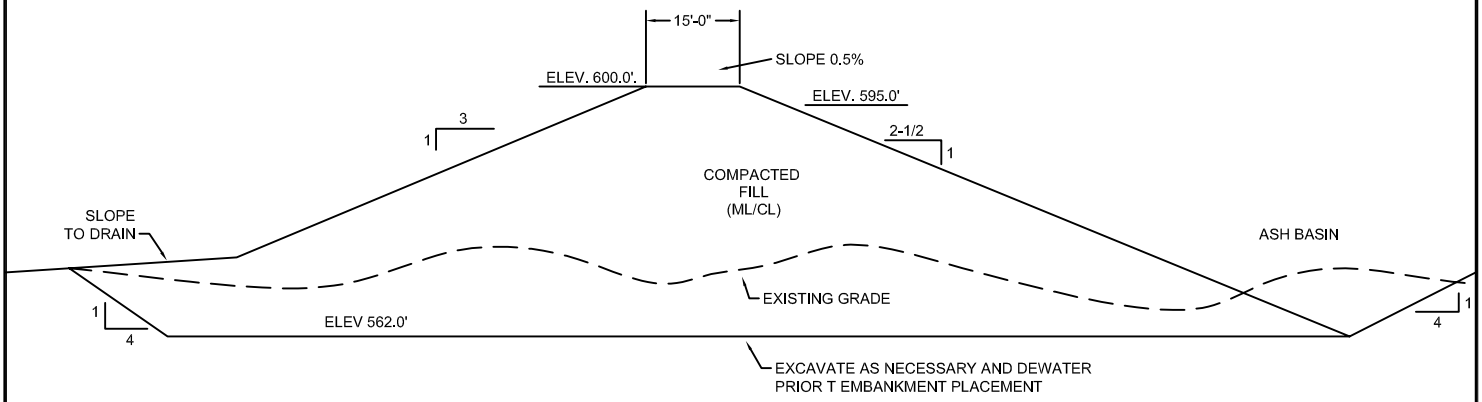
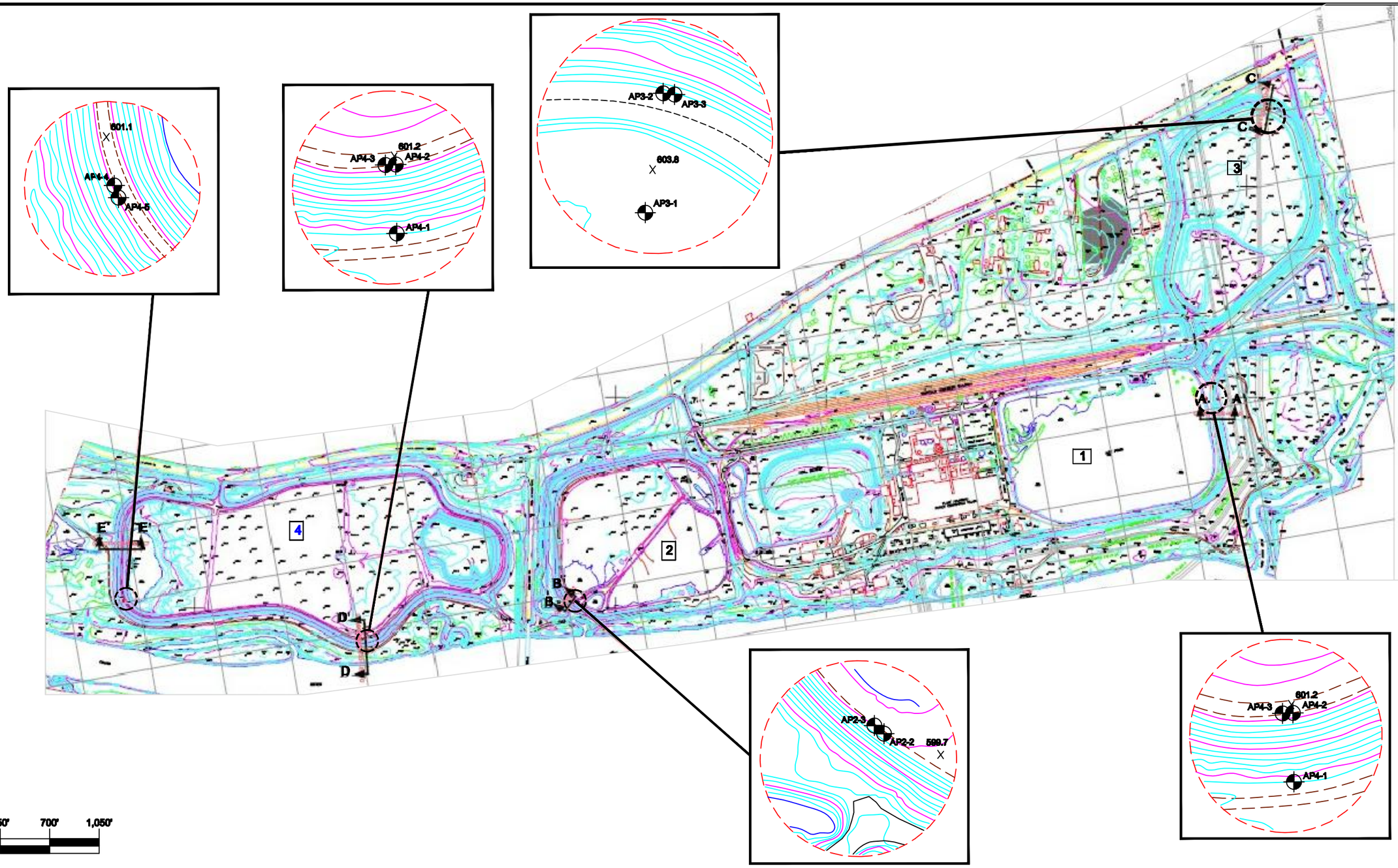


TYPICAL DIKE CROSS-SECTION



TYPICAL DIKE CROSS-SECTION
FOR EMBANKMENT IN VICINITY OF
SOUTH SIDE WETLAND AREA

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/21/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. TYPICAL DIKE CROSS-SECTION HAMMOND ASH POND 4		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: NOT TO SCALE	FIGURE No. 9



NOTE: THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE AMEC EARTH & ENVIRONMENTAL REPORT

CLIENT LOGO

CLIENT:
ENVIRONMENTAL PROTECTION AGENCY

AMEC Earth & Environmental
690 Commonwealth Center
11003 Bluegrass Parkway
Louisville, Ky 40299
(502) 267-0700

amec

DWN BY:	CAE
CHK'D BY:	MS
DATUM:	
PROJECTION:	
SCALE:	AS SHOWN

PROJECT
ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS

TITLE
GEORGIA POWER PLANT HAMMOND, ROME GA.
ASH PONDS 1-4 PIEZOMETER LOCATIONS AND MAY 2010 STABILITY ANALYSIS CROSS-SECTIONS

DATE:	5/25/10
PROJECT NO:	3-2108-0174.0500
REV. NO.:	
FIGURE No.	10

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APPENDIX A
Waste Impoundment Inspection Forms

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name:	Plant Hammond	Date:	4/26/10
Unit Name:	Ash Pond No. 1	Operator's Name:	Georgia Power
Unit I.D.:	Ash Pond No. 1	Hazard Potential Classification:	High ☐ Significant ✔ Low ☐
Inspector's Name:	Don Dotson P.E., Mary Swiderski		

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Semi Annual		18. Sloughing or bulging on slopes?		✔
2. Pool elevation (operator records)?	584.8		19. Major erosion or slope deterioration?		✔
3. Decant inlet elevation (operator records)?	572.0		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	581.0		Is water entering inlet, but not exiting outlet?		✔
5. Lowest dam crest elevation (operator records)?	590.0		Is water exiting outlet, but not entering inlet?		✔
6. If instrumentation is present, are readings recorded (operator records)?		✔	Is water exiting outlet flowing clear?	✔	
7. Is the embankment currently under construction?		✔	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	✔		From underdrain?		✔
9. Trees growing on embankment? (If so, indicate largest diameter below)		✔	At isolated points on embankment slopes?		✔
10. Cracks or scarps on crest?		✔	At natural hillside in the embankment area?		✔
11. Is there significant settlement along the crest?		✔	Over widespread areas?		✔
12. Are decant trashracks clear and in place?	✔		From downstream foundation area?		✔
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		✔	"Boils" beneath stream or ponded water?		✔
14. Clogged spillways, groin or diversion ditches?		✔	Around the outside of the decant pipe?		✔
15. Are spillway or ditch linings deteriorated?		✔	22. Surface movements in valley bottom or on hillside?		✔
16. Are outlets of decant or underdrains blocked?		✔	23. Water against downstream toe?	✔	
17. Cracks or scarps on slopes?		✔	24. Were Photos taken during the dam inspection?	✔	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue #	Comments
20	- Outlet from emergency spillway was not visible due to high tailwater elevation, however emergency spillway sampling point was observed, and appeared to be running clear and unobstructed.

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # 001457

INSPECTOR Don Dotson/ Mary Swiderski

Date 4/26/10

Impoundment Name Plant Hammond – Ash Pond #1
Impoundment Company Georgia Power
EPA Region 4
State Agency (Field Office) Address Georgia Power DNR
2 MLK Jr. Drive, Suite 1152 East Tower, Atlanta, GA 30334
Name of Impoundment Ash Pond #1
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New X Update _____

	Yes	No
Is impoundment currently under construction?		X
Is water or ccw currently being pumped into the impoundment?	X	

IMPOUNDMENT FUNCTION: Recirculation Pond, Stormwater Detention

Nearest Downstream Town : Name Centre, Alabama
Distance from the impoundment Approximately 15 miles
Impoundment
Location: Longitude 85 Degrees 20 Minutes 647 Seconds
Latitude 34 Degrees 15 Minutes 152 Seconds
State GA County Floyd

Does a state agency regulate this impoundment? YES _____ NO X

If So Which State Agency?_____

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____**LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____**LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

__X__**SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

_____**HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

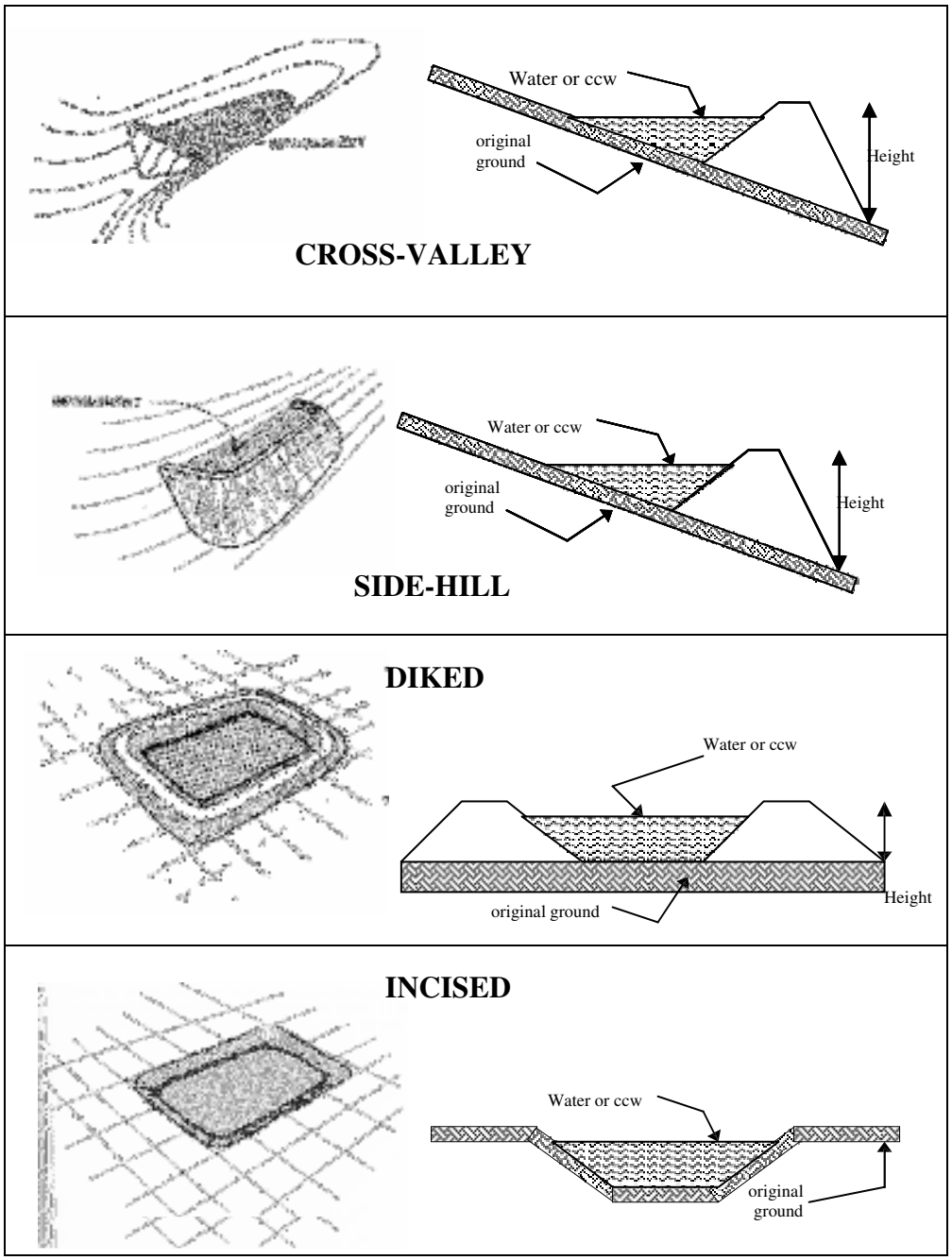
DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

-Location and size of pond indicate that loss of life would be unlikely in the event of a failure, power plant is primarily surrounded by Coosa River and farmland, however Pisgah Church is located to the North of Ash Pond #1 .

- Coosa River located within close proximity of Ash Pond #1, if failure were to occur, river would be contaminated resulting in environmental damage.

- Due to failure possibly resulting in contamination of Coosa River, losses would not only be limited to owners property.

CONFIGURATION:

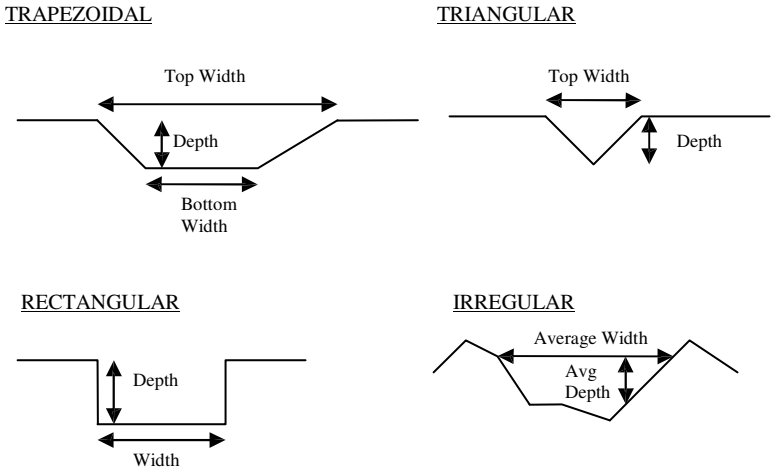


_____Cross-Valley
_____Side-Hill
_____Diked
_____Incised (form completion optional)
__X__Combination Incised/Diked

Embankment Height ____25_____feet Embankment Material On-site soils
Pool Area _____35_____ acres Liner N/A
Current Freeboard _Approx 9___ feet Liner Permeability _N/A_____

TYPE OF OUTLET (Mark all that apply)

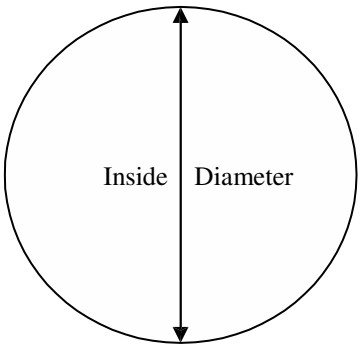
_____**Open Channel Spillway**
_____Trapezoidal
_____Triangular
__X__Rectangular
_____Irregular



__17'__depth
__3'8"__bottom (or average) width
__3'8"__top width

Emergency Outlet

__36"__inside diameter



Material
_____corrugated metal
_____welded steel
_____concrete
_____plastic (hdpe, pvc, etc.)
__X__other (specify) FRP (Fiberglass reinforced Pipe)

Is water flowing through the outlet? YES __X*__ NO _____

***Probable – Tailwater too high to see if water was flowing through outlet, however, sampling point for emergency outlet was flowing clear and unobstructed. Therefore, we assume the outlet is flowing but cannot confirm.**

_____**No Outlet**

_____**Other Type of Outlet** (specify) _____

The Impoundment was Designed By Owner's Chief Engineer

Has there ever been a failure at this site? YES _____ NO ___X_____

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES _____NO ___X___

If So When? _____

IF So Please Describe: _____

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____NO __X____

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name:	Plant Hammond	Date:	4/26/10
Unit Name:	Ash Pond No. 2	Operator's Name:	Georgia Power
Unit I.D.:	Ash Pond No. 2	Hazard Potential Classification:	High Significant ✓ Low
Inspector's Name:	Don Dotson P.E., Mary Swiderski		

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Semi Annual		18. Sloughing or bulging on slopes?		✓
2. Pool elevation (operator records)?	594.0		19. Major erosion or slope deterioration?		✓
3. Decant inlet elevation (operator records)?	592.8		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	594.1		Is water entering inlet, but not exiting outlet?		✓
5. Lowest dam crest elevation (operator records)?	598.9		Is water exiting outlet, but not entering inlet?		✓
6. If instrumentation is present, are readings recorded (operator records)?	✓		Is water exiting outlet flowing clear?		
7. Is the embankment currently under construction?		✓	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?		✓	From underdrain?		✓
9. Trees growing on embankment? (If so, indicate largest diameter below)		✓	At isolated points on embankment slopes?		✓
10. Cracks or scarps on crest?		✓	At natural hillside in the embankment area?		✓
11. Is there significant settlement along the crest?		✓	Over widespread areas?		✓
12. Are decant trashracks clear and in place?	✓		From downstream foundation area?		✓
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		✓	"Boils" beneath stream or ponded water?		✓
14. Clogged spillways, groin or diversion ditches?		✓	Around the outside of the decant pipe?		✓
15. Are spillway or ditch linings deteriorated?		✓	22. Surface movements in valley bottom or on hillside?		✓
16. Are outlets of decant or underdrains blocked?		✓	23. Water against downstream toe?	✓	
17. Cracks or scarps on slopes?		✓	24. Were Photos taken during the dam inspection?	✓	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue # Comments

20 Flow not observable

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # 001457

INSPECTOR Don Dotson/ Mary Swiderski

Date 4/26/10

Impoundment Name Plant Hammond – Ash Pond #2
Impoundment Company Georgia Power
EPA Region 4
State Agency (Field Office) Address Georgia Power DNR
2 MLK Jr. Drive, Suite 1152 East Tower, Atlanta, GA 30334
Name of Impoundment Ash Pond #2
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New X Update _____

	Yes	No
Is impoundment currently under construction?		X
Is water or ccw currently being pumped into the impoundment?	X	

IMPOUNDMENT FUNCTION: Collection/Dewatering of bottom ash/gypsum (on occasion)

Nearest Downstream Town : Name Centre, Alabama
Distance from the impoundment Approximately 15 miles
Impoundment
Location: Longitude 85 Degrees 21 Minutes 239 Seconds
Latitude 34 Degrees 14 Minutes 984 Seconds
State GA County Floyd

Does a state agency regulate this impoundment? YES _____ NO X

If So Which State Agency?_____

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____**LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____**LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

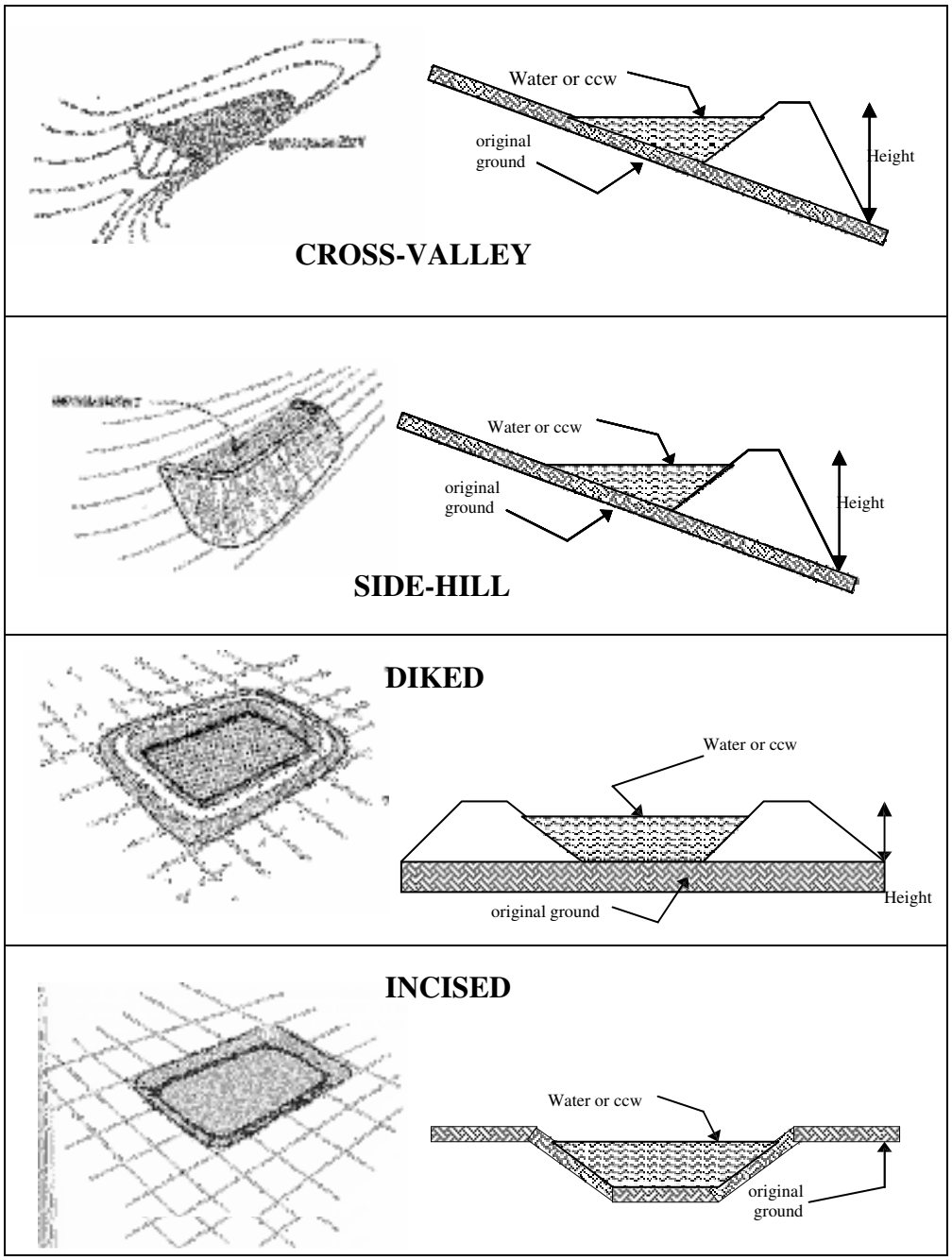
___X__**SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

_____**HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

-Location of Ash Pond #2 is in close proximity to Coosa River, implies that failure could possible result in environmental damage and would not principally be limited to the owners property.

CONFIGURATION:



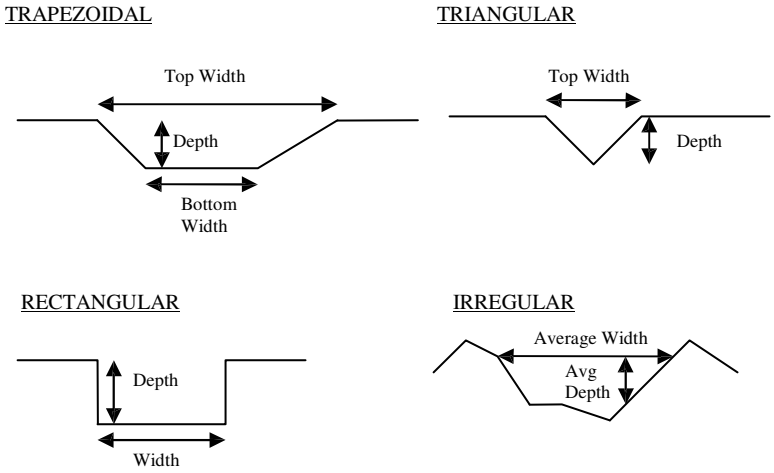
_____Cross-Valley
_____Side-Hill
__X__Diked
_____Incised (form completion optional)
_____Combination Incised/Diked

Embankment Height ____24_____feet Embankment Material Clayey Sand
Pool Area _____21.2_____ acres Liner N/A
Current Freeboard _> 6'_____ feet Liner Permeability N/A

TYPE OF OUTLET (Mark all that apply)

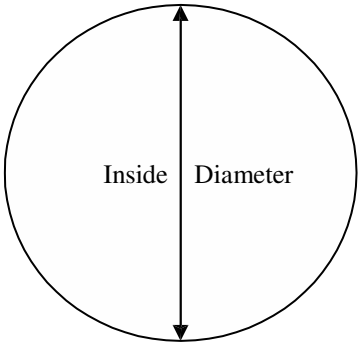
N/A Open Channel Spillway
_____Trapezoidal
_____Triangular
_____Rectangular
_____Irregular

_____depth
_____bottom (or average) width
_____top width
_____



Primary Outlet (Flows into Ash Pond #1)

30” inside diameter



Material
_____corrugated metal
_____welded steel
_____concrete
_____plastic (hdpe, pvc, etc.)
X other (specify) Fiber Glass (FRP)
_____

Is water flowing through the outlet? YES X* NO _____

***Assuming is recirculating back into Ash Pond #1.**

_____**No Outlet**

_____**Other Type of Outlet** (specify) _____

The Impoundment was Designed By Owner’s Chief Engineer
_____

Has there ever been a failure at this site? YES _____ NO ___X_____

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES _____NO ___X___

If So When? _____

IF So Please Describe: _____

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____NO __X____

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name:	Plant Hammond	Date:	04/26/10
Unit Name:	Ash Pond No. 3	Operator's Name:	Georgia Power
Unit I.D.:	Ash Pond No. 3	Hazard Potential Classification:	High Significant ✓ Low
Inspector's Name:	Don Dotson P.E., Mary Swiderski		

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Semi Annual		18. Sloughing or bulging on slopes?		✓
2. Pool elevation (operator records)?			19. Major erosion or slope deterioration?		✓
3. Decant inlet elevation (operator records)?			20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	604.5		Is water entering inlet, but not exiting outlet?		✓
5. Lowest dam crest elevation (operator records)?	609.1		Is water exiting outlet, but not entering inlet?		✓
6. If instrumentation is present, are readings recorded (operator records)?	✓		Is water exiting outlet flowing clear?		✓
7. Is the embankment currently under construction?		✓	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	✓		From underdrain?		✓
9. Trees growing on embankment? (If so, indicate largest diameter below)		✓	At isolated points on embankment slopes?		✓
10. Cracks or scarps on crest?		✓	At natural hillside in the embankment area?		✓
11. Is there significant settlement along the crest?		✓	Over widespread areas?		✓
12. Are decant trashracks clear and in place?		✓	From downstream foundation area?		✓
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		✓	"Boils" beneath stream or ponded water?		✓
14. Clogged spillways, groin or diversion ditches?		✓	Around the outside of the decant pipe?		✓
15. Are spillway or ditch linings deteriorated?		✓	22. Surface movements in valley bottom or on hillside?		✓
16. Are outlets of decant or underdrains blocked?		✓	23. Water against downstream toe?		✓
17. Cracks or scarps on slopes?		✓	24. Were Photos taken during the dam inspection?	✓	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue #	Comments
2	No liquid CCW
3	N/A
20	No flow observed

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # 001457

INSPECTOR Don Dotson/ Mary Swiderski

Date 4/26/10

Impoundment Name Plant Hammond – Ash Pond #3
Impoundment Company Georgia Power
EPA Region 4
State Agency (Field Office) Address Georgia Power DNR
2 MLK Jr. Drive, Suite 1152 East Tower, Atlanta, GA 30334
Name of Impoundment Ash Pond #3
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New X Update _____

	Yes	No
Is impoundment currently under construction?	_____	X
Is water or ccw currently being pumped into the impoundment?	_____	X

IMPOUNDMENT FUNCTION: Solids Containment

Nearest Downstream Town : Name Centre, Alabama
Distance from the impoundment Approximately 15 miles
Impoundment
Location: Longitude 85 Degrees 20 Minutes 294 Seconds
Latitude 34 Degrees 15 Minutes 574 Seconds
State GA County Floyd

Does a state agency regulate this impoundment? YES _____ NO X

If So Which State Agency?_____

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____**LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____**LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

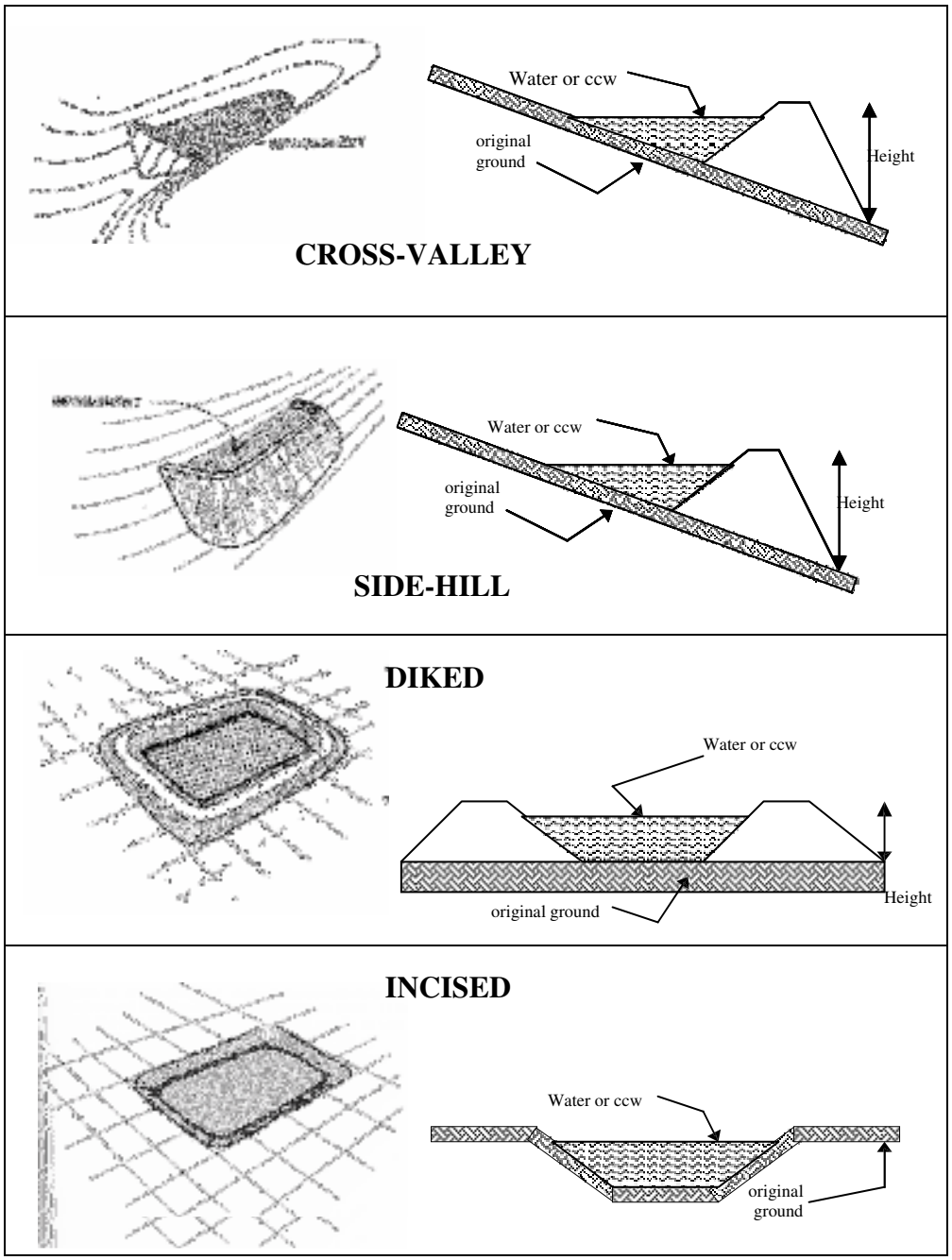
___X__**SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

_____**HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

-Failure would most likely cause land slide, possibility of environmental impact does exist, but would be limited. To the west of Ash Pond #3 is Pisgah Church, however chance for loss of life is not probable.

CONFIGURATION:



_____Cross-Valley
_____Side-Hill
__X__Diked
_____Incised (form completion optional)
_____Combination Incised/Diked

Embankment Height ____28_____feet Embankment Material Clayey Sand
Pool Area _____25_____ acres Liner N/A
Current Freeboard _N/A_____ feet Liner Permeability _N/A_____

TYPE OF OUTLET (Mark all that apply)

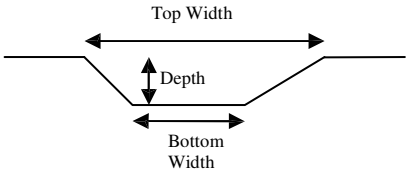
N/A (Out of service/Abandoned)

Open Channel Spillway

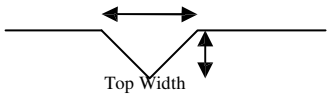
_____Trapezoidal
_____Triangular
_____Rectangular
_____Irregular

__6'__depth
__8'__bottom (or average) width
__8'__top width

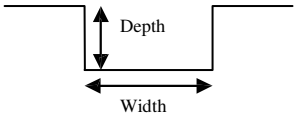
TRAPEZOIDAL



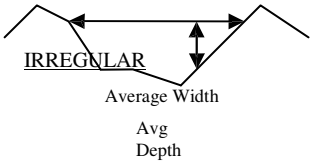
TRIANGULAR



RECTANGULAR

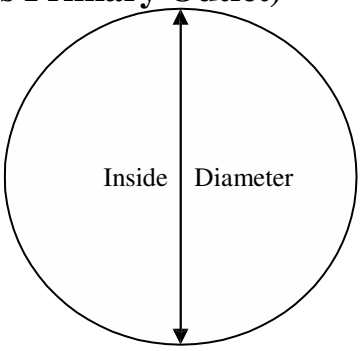


IRREGULAR



Emergency Outlet (Emergency Spillway acting as Primary Outlet)

__36"__inside diameter



Material
_____corrugated metal
_____welded steel
_____concrete
_____plastic (hdpe, pvc, etc.)
__X__other (specify) BBCMP

Is water flowing through the outlet? YES _____ NO __X____

_____**No Outlet**

_____**Other Type of Outlet** (specify) _____

The Impoundment was Designed By Owner's Chief Engineer

Has there ever been a failure at this site? YES _____ NO ___X_____

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES ___X___NO _____

If So When? Late 1970's Early 1980's

IF So Please Describe:

Filling of Ash Pond #3 began in June 1977, and was terminated on July 20, 1977 due to high piezometer levels and seepage along the toe of the west side of the dike. Water was seeping into a concrete trench and was ponding on the adjacent church property. As a result of the seepage, a subsurface investigation was performed by Law Engineering to determine the source of the seepage. Law Engineering indicated that approximately 1 million gallons per day was leaking from Ash Pond No. 3. Further, the report state the removal of relatively impermeable material overlying the jointed bedrock had allowed water to move from the pond. Additionally, low to very high permeability measurements in materials below the dike, including solution cavities were encountered during coring operations.

An interoffice memo dated March 14, 1980, indicate a sinkhole investigation at Ash Pond No. 3 was performed and recommendations were submitted. No documentation related to subsequent sinkhole repair or final disposition of the sinkhole issue was found as of 5/4/10. On-site visits and discussions with personnel indicate that Ash Pond #3 was closed at this time to liquid ccw, and utilized as a dry stack storage basin. At the time of the site visit, the pond was not receiving additional ccw and was covered with vegetation. Personnel indicated that initiation of final closure would commence within the year.

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES X NO _____

If so, which method (e.g., piezometers, gw pumping,...)? Stopped Filling Pond

If so Please Describe :
See above.

Coal Combustion Dam Inspection Checklist Form

US Environmental Protection Agency

Site Name:	Plant Hammond	Date:	4/27/10
Unit Name:	Ash Pond No. 4	Operator's Name:	Georgia Power
Unit I.D.:	Ash Pond No. 4	Hazard Potential Classification:	High Significant ✓ Low
Inspector's Name:	Don Dotson P.E., Mary Swiderski		

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?	Semi Annual		18. Sloughing or bulging on slopes?	✓	
2. Pool elevation (operator records)?			19. Major erosion or slope deterioration?		✓
3. Decant inlet elevation (operator records)?			20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	596.0		Is water entering inlet, but not exiting outlet?		✓
5. Lowest dam crest elevation (operator records)?	600.1		Is water exiting outlet, but not entering inlet?		✓
6. If instrumentation is present, are readings recorded (operator records)?	✓		Is water exiting outlet flowing clear?		✓
7. Is the embankment currently under construction?		✓	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation,stumps, topsoil in area where embankment fill will be placed)?	✓		From underdrain?		✓
9. Trees growing on embankment? (If so, indicate largest diameter below)		✓	At isolated points on embankment slopes?		✓
10. Cracks or scarps on crest?		✓	At natural hillside in the embankment area?		✓
11. Is there significant settlement along the crest?		✓	Over widespread areas?		✓
12. Are decant trashracks clear and in place?	✓		From downstream foundation area?		✓
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		✓	"Boils" beneath stream or ponded water?		✓
14. Clogged spillways, groin or diversion ditches?		✓	Around the outside of the decant pipe?		✓
15. Are spillway or ditch linings deteriorated?		✓	22. Surface movements in valley bottom or on hillside?		✓
16. Are outlets of decant or underdrains blocked?		✓	23. Water against downstream toe?	✓	
17. Cracks or scarps on slopes?		✓	24. Were Photos taken during the dam inspection?	✓	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Issue #	Comments
2	No Pool Observed
3	Out of service

U. S. Environmental Protection Agency

Coal Combustion Waste (CCW)
Impoundment Inspection

Impoundment NPDES Permit # 001457

INSPECTOR Don Dotson/ Mary Swiderski

Date 4/27/10

Impoundment Name Plant Hammond – Ash Pond #4
Impoundment Company Georgia Power
EPA Region 4
State Agency (Field Office) Address Georgia Power DNR
2 MLK Jr. Drive, Suite 1152 East Tower, Atlanta, GA 30334
Name of Impoundment Ash Pond #4
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New X Update _____

	Yes	No
Is impoundment currently under construction?	_____	X
Is water or ccw currently being pumped into the impoundment?	_____	X

IMPOUNDMENT FUNCTION: Solids Containment

Nearest Downstream Town : Name Centre, Alabama
Distance from the impoundment Approximately 15 miles
Impoundment
Location: Longitude 85 Degrees 21 Minutes 841 Seconds
Latitude 34 Degrees 15 Minutes 087 Seconds
State GA County Floyd

Does a state agency regulate this impoundment? YES _____ NO X

If So Which State Agency?_____

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

_____**LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

_____**LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

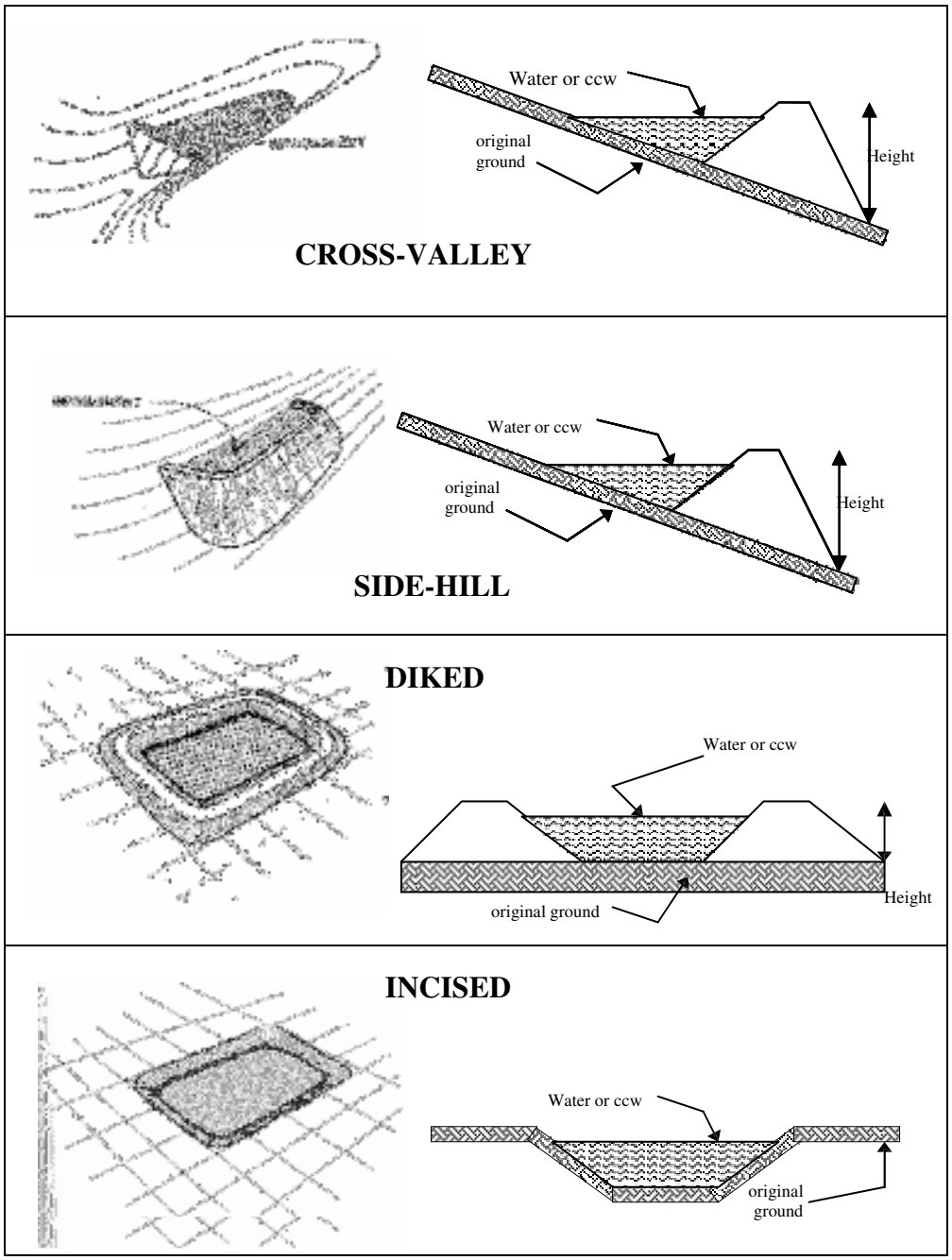
___X__**SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

_____**HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

-Location of Ash Pond #4 is in close proximity to Coosa River, implies that failure could possible result in environmental damage and would not principally be limited to the owners property.

CONFIGURATION:



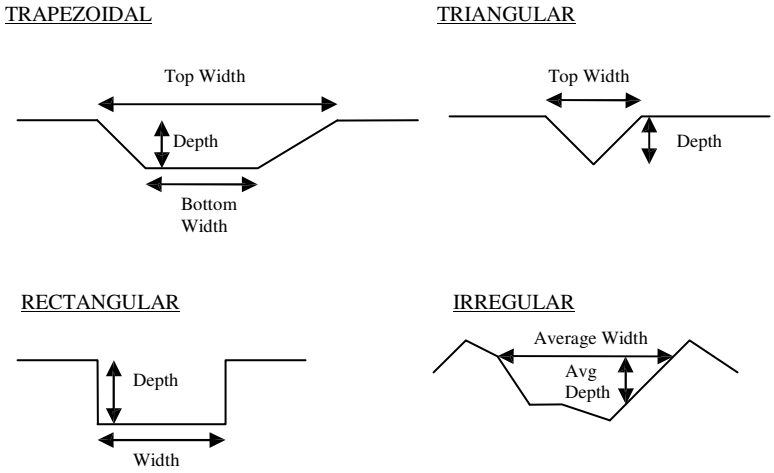
_____Cross-Valley
_____Side-Hill
__X__Diked
_____Incised (form completion optional)
_____Combination Incised/Diked

Embankment Height ____35_____feet Embankment Material sdy silt, silty clay
Pool Area _____54_____ acres Liner N/A
Current Freeboard _+/- 10'_____ feet Liner Permeability N/A

TYPE OF OUTLET (Mark all that apply)

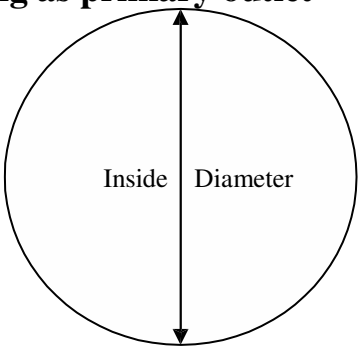
_____**Open Channel Spillway**
_____Trapezoidal
_____Triangular
_____Rectangular
___X___Irregular

_____depth
___4'___bottom (or average) width
___4'___top width



Emergency Outlet – Emergency Outlet functioning as primary outlet

___18"___inside diameter



Material
_____corrugated metal
_____welded steel
_____concrete
___X___plastic (hdpe, pvc, etc.)
_____other (specify) _____

Is water flowing through the outlet? YES _____ NO ___X___

_____**No Outlet**

_____**Other Type of Outlet** (specify) _____

The Impoundment was Designed By Owner's Chief Engineer

Has there ever been a failure at this site? YES _____ NO ___X_____

If So When? _____

If So Please Describe : _____

Has there ever been significant seepages at this site? YES _____NO ___X___

If So When? _____

IF So Please Describe: Low spots at toe which collected were remediated with trench and finger drains.

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? YES _____NO __X____

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

APPENDIX B
Site Photo Log Map and Site Photos

ENVIRONMENTAL PROTECTION AGENCY	DWN BY: ATJ	ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. No.: A
	CKD BY: MS		Date: 5-21-10
AMEC Earth & Environmental 690 Commonwealth Business Center 11003 Bluegrass Parkway Louisville, KY 40299	Datum: NAD 83	GEORGIA POWER PLANT HAMMOND ROME, GA ASH POND 1 PHOTO LOCATION MAP	Project No: 3-2106-0174-0500
	Projection: Albers		Figure No: B-1
	Scale: As Shown		

ENVIRONMENTAL PROTECTION AGENCY	DWN BY: ATJ	ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. No.: A
	CKD BY: MS		Date: 5-21-10
AMEC Earth & Environmental 690 Commonwealth Business Center 11003 Bluegrass Parkway Louisville, KY 40299	Datum: NAD 83	GEORGIA POWER PLANT HAMMOND ROME, GA ASH POND 2 PHOTO LOCATION MAP	Project No: 3-2106-0174-0500
	Projection: Albers		Figure No: B-2
	Scale: As Shown		

ENVIRONMENTAL PROTECTION AGENCY

AMEC Earth & Environmental
690 Commonwealth Business Center
11003 Bluegrass Parkway
Louisville, KY 40299

DWN BY:	ATJ
CKD BY:	MS
Datum:	NAD 83
Projection:	Albers
Scale:	As Shown

ASSESSMENT OF DAM SAFETY OF
COAL COMBUSTION SURFACE IMPOUNDMENTS

GEORGIA POWER
PLANT HAMMOND ROME, GA
ASH POND 3
PHOTO LOCATION MAP

REV. No.:	A
Date:	5-21-10
Project No:	3-2106-0174-0500
Figure No:	B-3

ENVIRONMENTAL PROTECTION AGENCY	DWN BY: ATJ	ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. No.: A
	CKD BY: MS		Date: 5-21-10
AMEC Earth & Environmental 690 Commonwealth Business Center 11003 Bluegrass Parkway Louisville, KY 40299	Datum: NAD 83	GEORGIA POWER PLANT HAMMOND ROME, GA ASH POND 4 PHOTO LOCATION MAP	Project No: 3-2106-0174-0500
	Projection: Albers		
	Scale: As Shown		Figure No: B-4

ASH POND 1
SITE PHOTOS

1-1

GENERAL SITE PHOTO FROM NORTHERN BANK LOOKING SOUTH WEST

1-2

GENERAL SITE PHOTO FROM NORTHERN BANK LOOKING SOUTH EAST

AMEC Earth & Environmental 600 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE NO. B-5

1-3

TYPICAL NORTHERN UPSTREAM FACE

1-4

TYPICAL NORTHERN UPSTREAM FACE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE NO. B-6

1-5

TYPICAL NORTHERN UPSTREAM FACE

1-6

TYPICAL NORTHERN UPSTREAM FACE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE NO. B-7

1-7

GENERAL SITE PHOTO FROM EASTERN BANK LOOKING WEST

1-8

GENERAL SITE PHOTO FROM EASTERN BANK LOOKING NORTH-WEST

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE NO. B-8

1-9

RAILROAD TRACKS ALONG CREST OF EASTERN DIKE

1-10

PIEZOMETER (AP1-1) LOCATION ALONG EASTERN DOWNSTREAM DIKE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE No. B-9

1-11

PIEZOMETER AP1-2 AND AP1-3 LOCATIONS ALONG EASTERN UPSTREAM DIKE

1-12

UNKNOWN STRUCTURE ALONG EASTERN UPSTREAM DIKE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE No. B-10

1-13
UNKNOWN STRUCTURE ALONG EASTERN UPSTREAM DIKE

1-14
RAILROAD TRACKS ALONG CREST OF EASTERN DIKE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE No. B-11

1-15
GENERAL SITE PHOTO FROM EASTERN BANK LOOKING SOUTH-WEST

1-16
SLIGHT SURFACE DEPRESSION ALONG CREST OF SOUTHERN DIKE

AMEC Earth & Environmental
690 Commonwealth Center
11003 Bluegrass Parkway
Louisville, Ky 40299
(502) 267-0700

CLIENT LOGO	CLIENT: ENVIRONMENTAL PROTECTION AGENCY		
PROJECT: ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE: ASH POND 1 SITE PHOTOS	CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
	PROJECTION:	SCALE: AS SHOWN	PAGE No. B-12

1-17
EMERGENCY OVERFLOW

1-18
DRAINAGE POINT FROM SEWER TREATMENT PLANT (ALONG SOUTHERN DIKE)

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE NO. B-13

1-19
EMERGENCY OVERFLOW

1-20
GENERAL SITE PHOTO FROM WESTERN BANK LOOKING NORTH

AMEC Earth & Environmental
690 Commonwealth Center
11003 Bluegrass Parkway
Louisville, Ky 40299
(502) 267-0700

CLIENT LOGO	CLIENT: ENVIRONMENTAL PROTECTION AGENCY		
PROJECT: ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE: ASH POND 1 SITE PHOTOS	CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
	PROJECTION:	SCALE: AS SHOWN	PAGE No. B-14

1-21

DRAINAGE POINT FROM ADJACENT PARKING AREAS ALONG WESTERN DIKE

1-22

PRIMARY SPILLWAY ALONG WESTERN DIKE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE No. B-15

1-23

PRIMARY SPILLWAY ALONG WESTERN DIKE

1-24

PRIMARY SPILLWAY ALONG WESTERN DIKE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
		PROJECTION:	SCALE: AS SHOWN	PAGE No. B-16

1-25

SLIGHT SURFACE DEPRESSION ALONG SOUTHERN DIKE

1-26

SLIGHT SURFACE DEPRESSION ALONG SOUTHERN DIKE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE ASH POND 1 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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TYPICAL SOUTHERN DOWNSTREAM FACE

1-28

SURFACE DEPRESSIONS ALONG SOUTHERN DOWNSTREAM FACE

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
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SURFACE DEPRESSIONS ALONG SOUTHERN DOWNSTREAM FACE

1-30

WATER ALONG SOUTHERN DIKE OF DOWNSTREAM TOE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
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WATER ALONG SOUTHERN DIKE OF DOWNSTREAM TOE

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GENERAL SITE PHOTO ALONG EASTERN DOWNSTREAM TOE

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GENERAL SITE PHOTO ALONG EASTERN DOWNSTREAM TOE

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GENERAL SITE PHOTO ALONG EASTERN DOWNSTREAM TOE

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Louisville, Ky 40299
(502) 267-0700

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PROJECT: ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	DWN BY: CAE	DATUM:	DATE: 5/17/10
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WATER ALONG SOUTHERN DIKE OF DOWNSTREAM TOE

1-36

WET AREA ALONG SOUTHERN DOWNSTREAM TOE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
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EMERGENCY FILTER STOCKPILE

1-38

EMERGENCY FILTER STOCKPILE

AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	
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OUTFALL NUMBER 7, DRAINAGE POINT FOR ASH POND #1 INTO COOSA RIVER

1-40

OUTLET FOR ASH POND #1, TAILWATER COVERING OUTLET

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
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NUMBER 7 EMERGENCY OVERFLOW SAMPLING POINT

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WATER FLOWING WITHIN NUMBER 7 EMERGENCY OVERFLOW SAMPLING POINT

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GAUGE LOCATED ADJACENT TO PRIMARY SPILLWAY

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ASH POND 2
SITE PHOTOS

2-1

GENERAL SITE PHOTO FROM EASTERN BANK LOOKING NORTH WEST

2-2

GENERAL SITE PHOTO FROM EASTERN BANK LOOKING SOUTH EAST

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/17/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 2 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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GENERAL SITE PHOTO FROM EASTERN BANK LOOKING NORTH WEST

2-4

GENERAL SITE PHOTO FROM EASTERN BANK LOOKING NORTH WEST

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INLET/OUTLET POINT FROM POWER PLANTS ALONG EASTERN BANK

2-6

INLET/OUTLET POINT FROM POWER PLANTS ALONG EASTERN BANK

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2-7

DRAINAGE DITCH ALONG NORTHERN DOWNSTREAM FACE

2-8

GENERAL SITE PHOTO FROM NORTHERN BANK LOOKING SOUTH

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2-9

CREEK ALONG BASE OF NORTHERN DOWNSTREAM TOE

2-10

CREEK ALONG BASE OF NORTHERN DOWNSTREAM TOE

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BULGE ALONG NORTHERN DOWNSTREAM FACE

2-12

CREEK ALONG BASE OF NORTHERN DOWNSTREAM TOE

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CONSTRUCTED ROCK FACE ALONG NORTH WESTERN DOWNSTREAM FACE

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CONSTRUCTED ROCK FACE ALONG NORTH WESTERN DOWNSTREAM FACE

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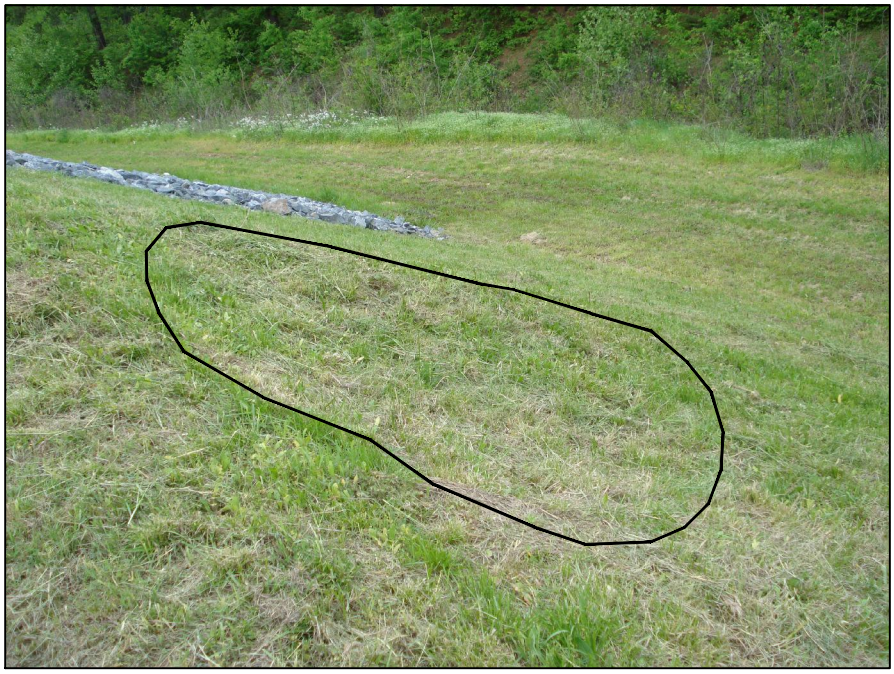
WET AREA ALONG WESTERN DOWNSTREAM TOE



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DEPRESSION ALONG WESTERN DOWNSTREAM FACE

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CONSTRUCTED ROCK FACE ALONG WESTERN DOWNSTREAM SLOPE

2-18

CONSTRUCTED ROCK FACE ALONG WESTERN DOWNSTREAM SLOPE

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CONSTRUCTED ROCK FACE ALONG WESTERN DOWNSTREAM SLOPE

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GENERAL SITE PHOTO FROM WESTERN BANK LOOKING EAST

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UNEVEN GROUND SURFACE AREAS ALONG WESTERN DOWNSTREAM SLOPE

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UNEVEN GROUND SURFACE AREAS ALONG WESTERN DOWNSTREAM SLOPE

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UNEVEN GROUND SURFACE AREAS ALONG WESTERN DOWNSTREAM SLOPE

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EXISTING PIEZOMETERS ALONG SOUTHERN BANK (AP2-2 AND AP2-3)

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ASH POND #2 EMERGENCY OVERFLOW

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ASH POND #2 EMERGENCY OVERFLOW

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GRAVEL AREAS LOCATED ALONG SOUTHERN DOWNSTREAM TOE ADJACENT TO HAUL ROAD

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EMERGENCY OVERFLOW OUTLET PIPE

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GRAVEL AREAS AND STEEP SLOPES ALONG SOUTHERN FACE

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STEEP SLOPES ALONG SOUTHERN DOWNSTREAM SLOPE

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STEEP SLOPES ALONG SOUTHERN DOWNSTREAM SLOPE

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STEEP SLOPES ALONG SOUTHERN DOWNSTREAM SLOPE

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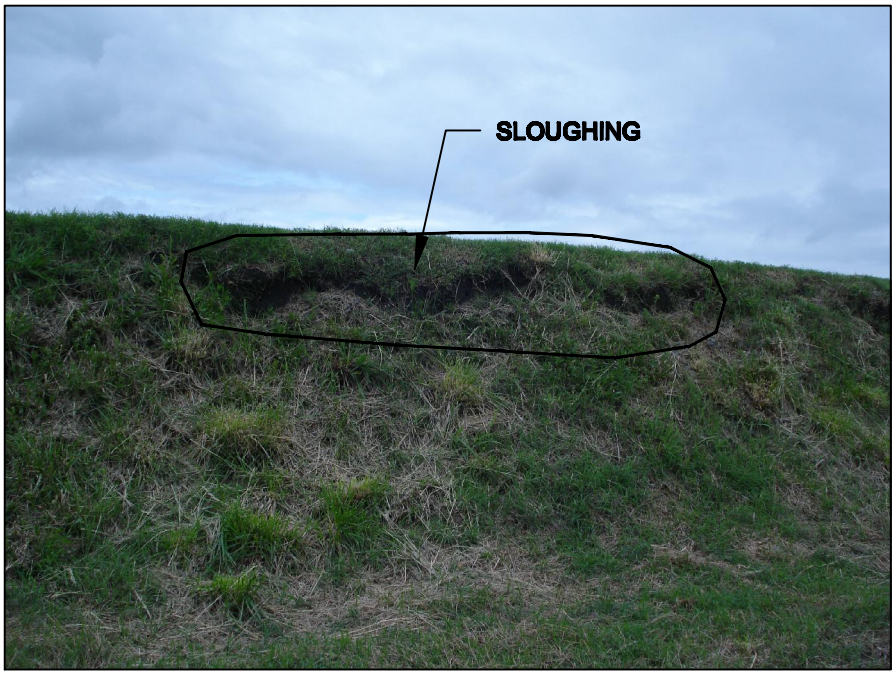

2-33

SLOUGHING ALONG SOUTHERN DOWNSTREAM SLOPE

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STEEP SLOPES ALONG SOUTHERN DOWNSTREAM SLOPE

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STEEP SLOPES ALONG SOUTHERN DOWNSTREAM SLOPE

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CRACKS IN HAUL ROAD ALONG SOUTHERN DOWNSTREAM TOE

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GENERAL SITE PHOTO ALONG SOUTHERN DOWNSTREAM TOE

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WET AREA ALONG SOUTH WESTERN DOWNSTREAM TOE

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WET AREA ALONG SOUTH WESTERN DOWNSTREAM TOE

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WET AREAS ALONG WESTERN DOWNSTREAM TOE

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WET AREAS ALONG WESTERN DOWNSTREAM TOE

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PREVIOUS PIEZOMETER LOCATION

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SLOUGHING AT BASE OF ROCK FACE

2-44

CREEK ALONG BASE OF NORTHERN DOWNSTREAM TOE

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GENERAL SITE PHOTO ALONG NORTHERN DOWNSTREAM TOE

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CREEK ALONG BASE OF NORTHERN DOWNSTREAM TOE

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CREEK ALONG BASE OF NORTHERN DOWNSTREAM TOE

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DRAINAGE DITCH ALONG NORTHERN DOWNSTREAM FACE

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WEIR STRUCTURE WITHIN ASH POND

2-50

NOTE FENCE ALIGNMENT ALONG EASTERN BANK

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ASH POND 3
SITE PHOTOS

3-1

GENERAL SITE PHOTO LOOKING NORTH FROM SOUTH WESTERN BANK

3-2

GENERAL SITE PHOTO FROM WESTERN BANK LOOKING EAST

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GENERAL SITE PHOTO FROM WESTERN BANK LOOKING EAST

3-4

GENERAL SITE PHOTO FROM WESTERN BANK LOOKING SOUTH

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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GENERAL SITE PHOTO FROM WESTERN BANK LOOKING EAST

3-6

GENERAL SITE PHOTO FROM WITHIN POND LOOKING NORTH

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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GENERAL SITE PHOTO FROM WITHIN POND LOOKING NORTH

3-8

GENERAL SITE PHOTO FROM WITHIN POND LOOKING NORTH EAST

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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3-9
INACTIVE ASH INLET

3-10
INACTICE RETURN

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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GENERAL SITE PHOTO ALONG NORTHERN FACE LOOKING SOUTH

3-12

GENERAL SITE PHOTO ALONG NORTHERN FACE LOOKING WEST

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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3-13

GENERAL SITE PHOTO ALONG NORTHERN FACE LOOKING SOUTH

3-14

RAILROAD TRACKS ALONG EASTERN DOWNSTREAM TOE

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TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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RAILROAD TRACKS ALONG SOUTHERN DOWNSTREAM TOE

3-16

RAILROAD TRACKS/DETENTION POND ALONG SOUTHERN DOWNSTREAM TOE

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PROJECT: ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	DWN BY: CAE	DATUM:	DATE: 5/18/10
TITLE: GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS	CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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GENERAL SITE PHOTO FROM SOUTHERN BANK LOOKING NORTH

3-18

RAILROAD TRACKS ALONG SOUTHERN DOWNSTREAM TOE

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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3-19

GENERAL SITE PHOTO ALONG SOUTHERN DIKE LOOKING NORTH WEST

3-20

2 PIEZOMETERS (AP3-2 AND AP3-3) INSTALLED ALONG NORTHERN DOWNSTREAM CREST

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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GENERAL SITE PHOTO ALONG EASTERN BANK

3-22

GENERAL SITE PHOTO ALONG NORTHERN FACE LOOKING SOUTH

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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3-23

BASE OF EMERGENCY SPILLWAY

3-24

GENERAL SITE PHOTO FROM WITHIN POND LOOKING EAST

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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3-25

EMERGENCY SPILLWAY ALONG NORTHERN FACE

3-26

INLET STRUCTURE (ABANDONED)

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INLET STRUCTURE (INACTIVE)

3-28

PREVIOUSLY INSTALLED PIEZOMETER ALONG WESTERN BANK

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TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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EMERGENCY OVERFLOW OUTLET

3-30

GENERAL SITE PHOTO ALONG EASTERN BANK

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	PROJECTION:	SCALE:	PAGE No. B-66

ASH POND 4
SITE PHOTOS

4-1

VEGETATION ALONG EASTERN DOWNSTREAM FACE

4-2

VEGETATION ALONG EASTERN DOWNSTREAM FACE

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4-3

ABANDONED PIPE ALONG EASTERN DOWNSTREAM FACE

4-4

GENERAL SITE PHOTO LOOKING EAST FROM EASTERN BANK

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4-5

WATER AT BASE OF SOUTHERN DOWNSTREAM TOE

4-6

PIEZOMETER AP4-1 ALONG SOUTHERN DOWNSTREAM TOE

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4-7

SLOUGHING ALONG SOUTHERN DOWNSTREAM SLOPE

4-8

TRENCH AND FINGER DRAINS ALONG SOUTHERN DOWNSTREAM TOE

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4-9

TRENCH AND FINGER DRAINS ALONG SOUTHERN DOWNSTREAM TOE

4-10

TRENCH AND FINGER DRAINS ALONG SOUTHERN DOWNSTREAM TOE

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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4-11

TRENCH AND FINGER DRAINS ALONG SOUTHERN DOWNSTREAM TOE

4-12

TRENCH AND FINGER DRAINS ALONG SOUTHERN DOWNSTREAM TOE

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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4-13

SLOUGHING ALONG SOUTHERN DOWNSTREAM SLOPE

4-14

EXISTING MONITORING WELL

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4-15

TRENCH AND FINGER DRAINS ALONG SOUTHERN DOWNSTREAM TOE

4-16

ABANDONED FIRING RANGE

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ABANDONED FIRING RANGE

4-18

EMERGENCY SPILLWAY OUTLET

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4-19
PUMP STATION

4-20
VIEW FROM TOP OF DRY-STACKED EMBANKMENT

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PROJECT: ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	DWN BY: CAE	DATUM:	DATE: 5/18/10
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VIEW FROM TOP OF DRY-STACKED EMBANKMENT

4-22

VIEW FROM TOP OF DRY-STACKED EMBANKMENT

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4-23

LOCATIONS OF PIEZOMETERS AP4-2 AND AP4-3 ALONG SOUTHERN DOWNSTREAM CREST

4-24

PIEZOMETER (AP4-1) LOCATED ALONG SOUTHERN DOWNSTREAM TOE

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TITLE: GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 4 SITE PHOTOS	CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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GENERAL SITE PHOTO ALONG SOUTHERN CREST LOOKING WEST

4-26

LACK OF VEGETATION ALONG SOUTHERN DOWNSTREAM SLOPE (NOTE TRENCH AND FINGER DRAINS AT TOE)

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LACK OF VEGETATION ALONG SOUTHERN DOWNSTREAM SLOPE

4-28

GENERAL SITE PHOTO ALONG SOUTHERN CREST LOOKING EAST

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TRENCH AND FINGER DRAINS ALONG SOUTHERN DOWNSTREAM TOE

4-30

LACK OF VEGETATION ALONG SOUTHERN DOWNSTREAM SLOPE

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RESEEDED AREA ALONG SOUTHERN DOWNSTREAM SLOPE

4-32

RESEEDED AREA ALONG SOUTHERN DOWNSTREAM SLOPE

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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GENERAL SITE PHOTO ALONG SOUTHERN DIKE LOOKING NORTH

4-34

GENERAL SITE PHOTO ALONG SOUTHERN DIKE LOOKING NORTH

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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4-35

LOCATIONS OF PIEZOMETERS AP4-4 AND AP4-5 ALONG SOUTHERN DOWNSTREAM CREST

4-36

BARE SOIL AT BASE OF WESTERN DOWNSTREAM TOE

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UNEVEN GROUND SURFACE AREA ALONG WESTERN DOWNSTREAM SLOPE

4-38

UNEVEN GROUND SURFACE AREA ALONG WESTERN DOWNSTREAM SLOPE

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EMERGENCY OVERFLOW STRUCTURE

4-40

EMERGENCY OVERFLOW OUTLET

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TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 4 SITE PHOTOS		CHK'D BY: MS	REV. NO.:	PROJECT NO: 3-2106-0174.0500
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EMERGENCY OVERFLOW STRUCTURE

4-42

GENERAL SITE PHOTO ALONG NORTHERN FACE

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PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS		DWN BY: CAE	DATUM:	DATE: 5/18/10
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4-43

WET AREAS ALONG NORTHERN DOWNSTREAM TOE

4-44

DEWATERING DRAINAGE DITCH ALONG UPSTREAM CREST

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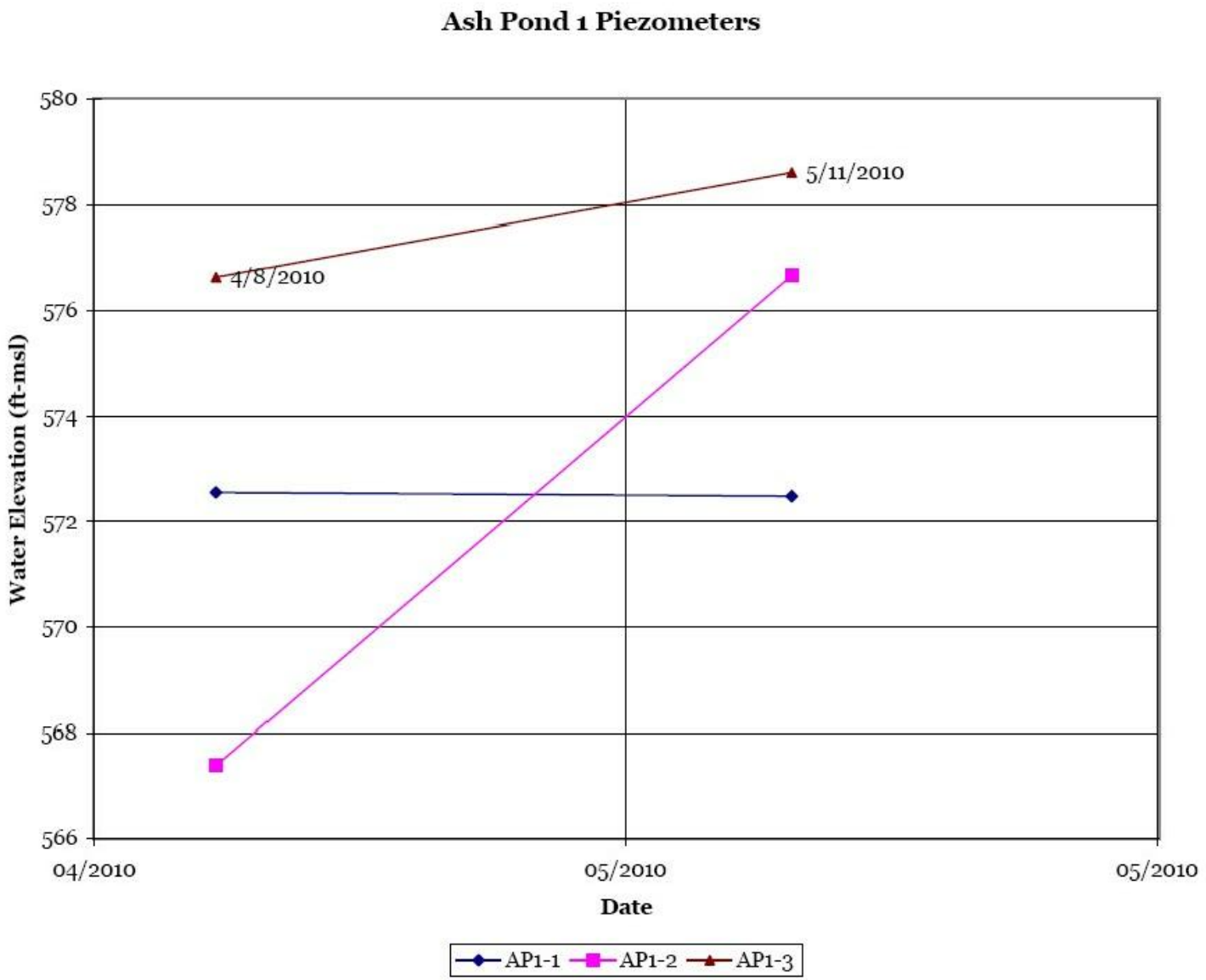
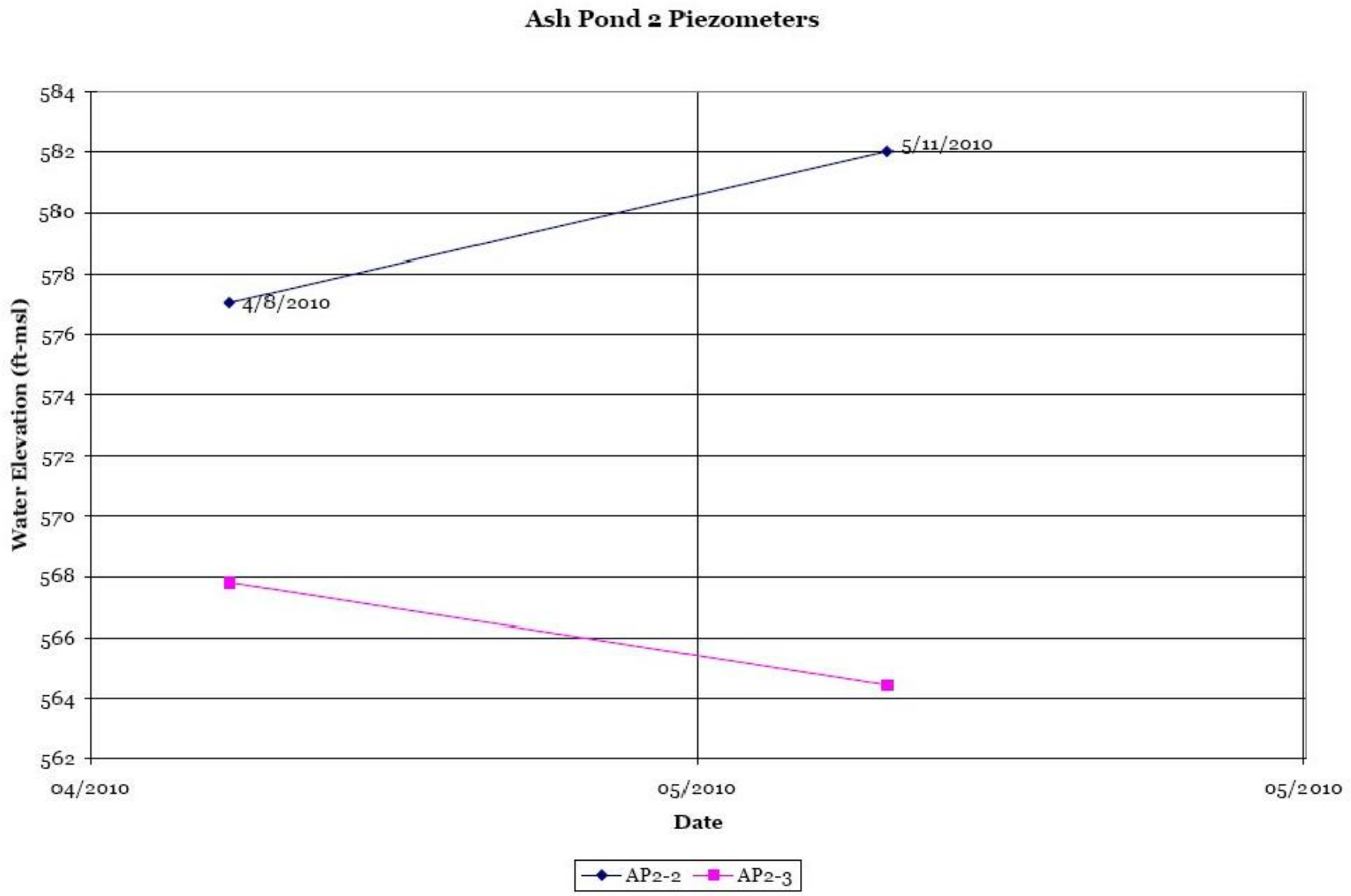
APPENDIX C
Ash Pond 1-4 Piezometer Data Graphs



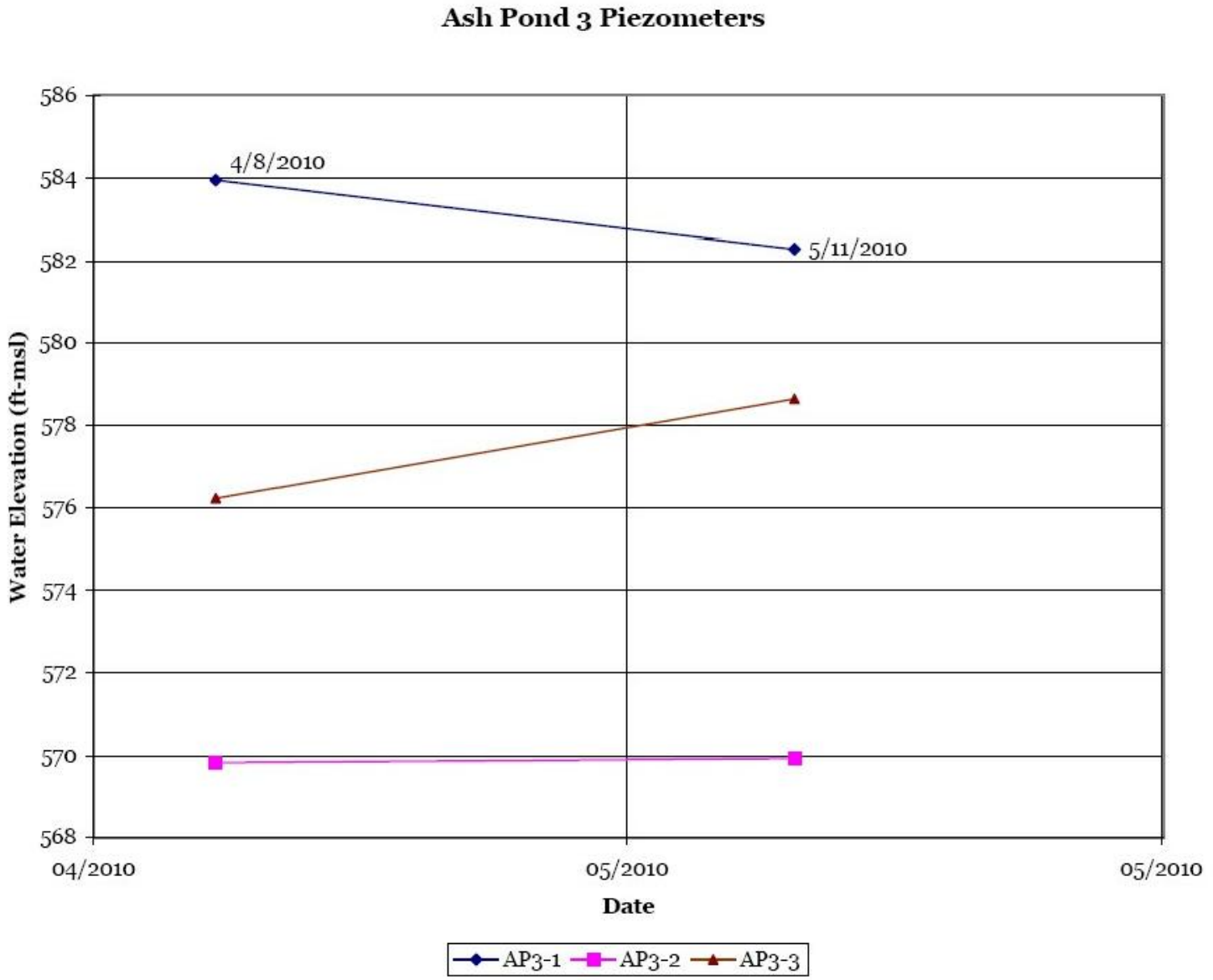
CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	DWN BY: CAE CHK'D BY: MS	PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. NO.: A DATE: 5/21/10
AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	DATUM: PROJECTION: SCALE: NTS	TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 1 PIEZOMETER DATA GRAPH	PROJECT NO: 3-2106-0174.0500 PAGE NO. C-1

S:\Geosciences\Proposals\EPA Coal Impoundment Inspection\March 2010 RFP Pro\Georgia Power\Plant Hammond\Hammond Ash Pond #4\PIEZOMETERWEST.dwg – C–1 – Jun. 03, 2010 8:01am – chris.eger



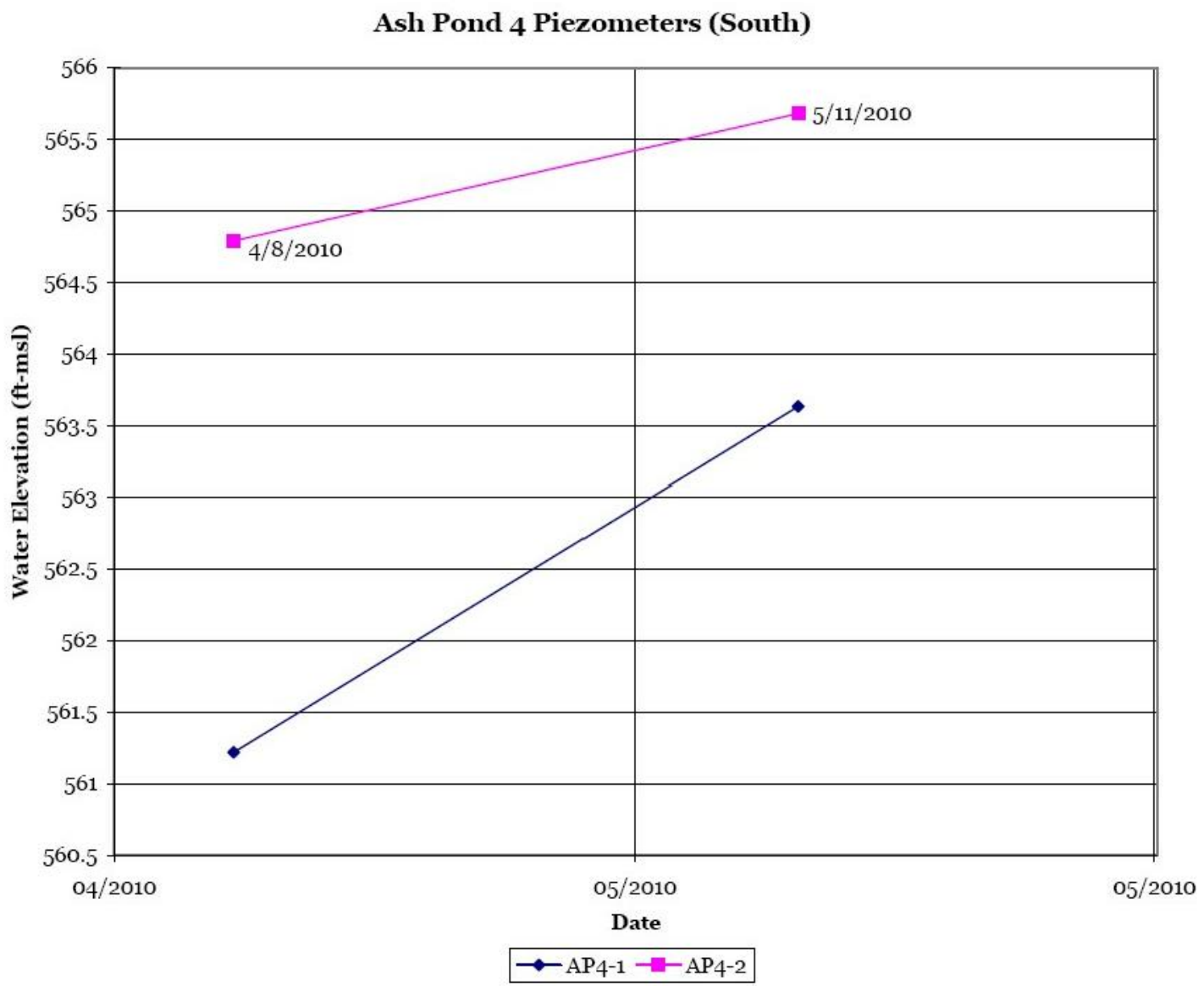
CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	DWN BY: CAE CHK'D BY: MS	PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. NO.: A DATE: 5/21/10
AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	DATUM: PROJECTION: SCALE: NTS	TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 2 PIEZOMETER DATA GRAPH	PROJECT NO: 3-2106-0174.0500 PAGE NO. C-2

S:\Geosciences\Proposals\EPA Coal Impoundment Inspection\March 2010 RFP Pro\Georgia Power\Plant Hammond\Hammond Ash Pond #4\PIEZOMETERWEST.dwg – C–2 – Jun. 03, 2010 8:01am – chris.eger



CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	DWN BY: CAE CHK'D BY: MS	PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. NO.: A DATE: 5/21/10
AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	DATUM: PROJECTION: SCALE: NTS	TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 3 PIEZOMETER DATA GRAPH	PROJECT NO: 3-2106-0174.0500 PAGE NO. C-3

S:\Geosciences\Proposals\EPA Coal Impoundment Inspection\March 2010 RFP Pro\Georgia Power\Plant Hammond\Hammond Ash Pond #4\PIEZOMETERWEST.dwg – C-3 – Jun. 03, 2010 8:01am – chris.eger



CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	DWN BY: CAE CHK'D BY: MS	PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. NO.: A DATE: 5/21/10
AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	DATUM: PROJECTION: SCALE: NTS	TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 4 SOUTH PIEZOMETER DATA GRAPH	PROJECT NO: 3-2106-0174.0500 PAGE NO. C-4

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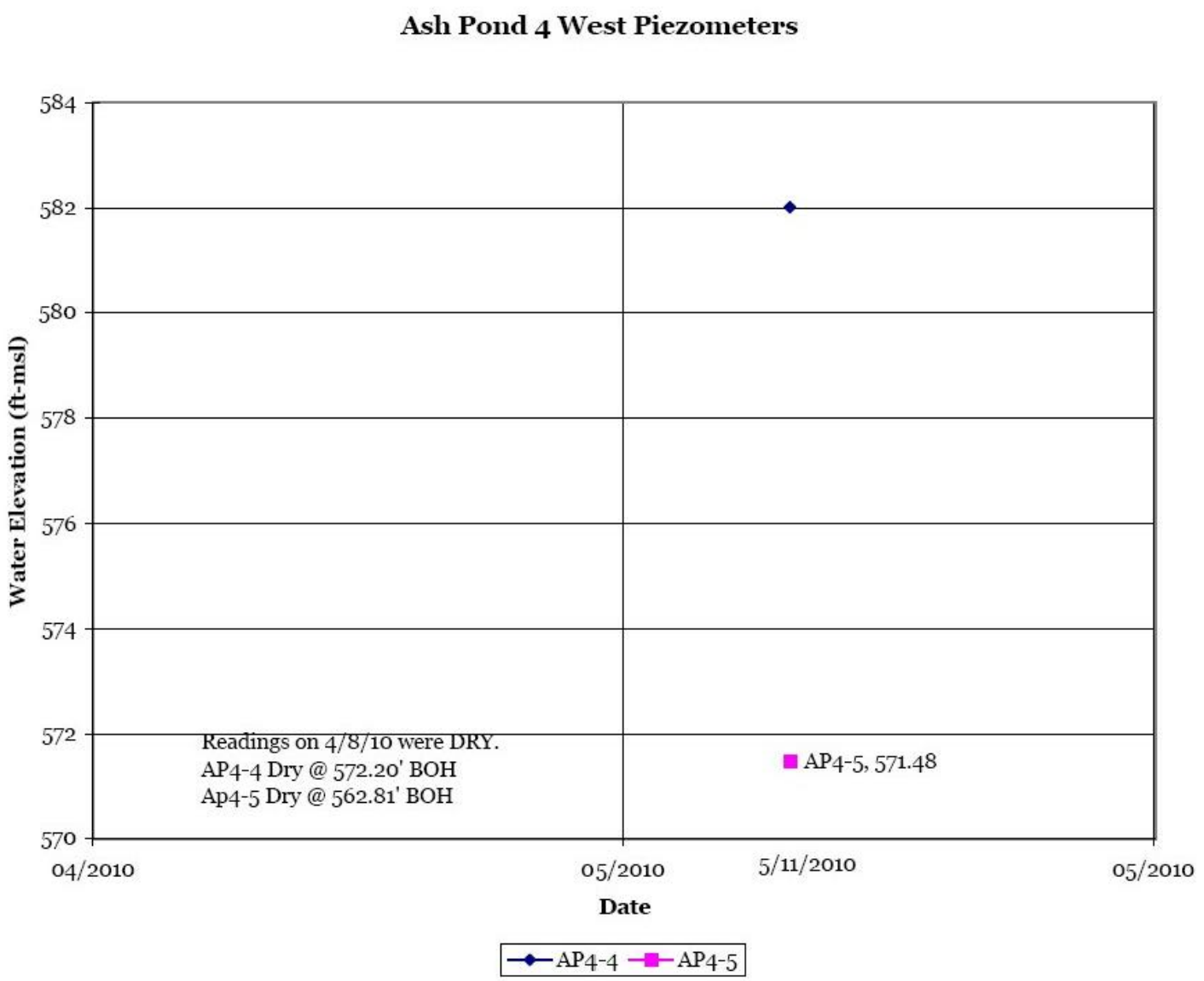

CLIENT LOGO	CLIENT ENVIRONMENTAL PROTECTION AGENCY	DWN BY: CAE CHK'D BY: MS	PROJECT ASSESSMENT OF DAM SAFETY OF COAL COMBUSTION SURFACE IMPOUNDMENTS	REV. NO.: A DATE: 5/21/10
AMEC Earth & Environmental 690 Commonwealth Center 11003 Bluegrass Parkway Louisville, Ky 40299 (502) 267-0700	amec	DATUM: PROJECTION: SCALE: NTS	TITLE GEORGIA POWER PLANT HAMMOND, ROME, GA. ASH POND 4 WEST PIEZOMETER DATA GRAPH	PROJECT NO: 3-2106-0174.0500 PAGE NO. C-5

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APPENDIX D
Inventory of Provided Materials

5963 Alabama Highway SW
Rome, Georgia 30165

GEORGIA POWER
A SOUTHERN COMPANY

Confidential Business Information – Do Not Disclose

April 27, 2010

VIA E-MAIL

Stephen Hoffman
Office of Resource Conservation and Recovery
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, D.C. 20460

Re: Documents Provided to EPA and Claims of Confidentiality

Dear Mr. Hoffman:

This letter confirms the documents provided by Georgia Power to the Environmental Protection Agency (EPA) during EPA's inspection of Plant Hammond Ash Ponds on April 26th and 27th, 2010. The following table lists the documents provided to EPA during the inspection. Georgia Power has provided some of the documents under a claim of confidentiality for purposes of Part 2, Subpart B of EPA's regulations. The documents claimed as confidential have been marked as such, and are noted as "Yes" under the column for CBI, which stands for confidential business information. Georgia Power also claims this letter as confidential business information due to the information it conveys with respect to Georgia Power's facilities and management practices.

Bates	Document Description	CBI
HAM-API 001	1/13/2005 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 002	7/20/2005 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 003	1/9/2006 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 004	8/18/2006 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 005	10/16/2007 Dam Safety Surveillance Semi Annual Report	Yes

Bates	Document Description	CBI
HAM-API 006	6/9/2008 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 007	1/2/2009 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 008	7/10/2009 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 009	2/26/2010 Dam Safety Surveillance Semi Annual Report	Yes
HAM-API 010	6/16/1975 Plant Hammond Thermal Plant Inspection Ash Pond Dike Modifications	Yes
HAM-API 011	1/14/1985 Letter from J. Leonard Ledbetter of Georgia Department of Natural Resources to W. R. Woodall re: Hammond Pond #1 and #2 has been classified a Category II structure	No
HAM-API 012	Hammond Drilling Logs AP1-1 through AP1-3 3/16/2010	Yes
HAM-API 013	Hammond Drilling Logs AP2-2 through AP2-3 3/16/2010	Yes
HAM-API 014	Hammond Drilling Logs AP3-1 through AP3-3 3/16/2010	Yes
HAM-API 015	Hammond Drilling Logs AP4-1 through AP4-6 3/16/2010 (no 4-4)	Yes
HAM-API 016	Hammond Boring Locations and Cross Sections 2000 Survey Drawing ES1844S1	Yes
HAM-API 017	Hammond Topographical Map	Yes
HAM-API 018	Hammond Aerial photo of Ash Ponds 1 – 4 Drawing ES1844S2	Yes
HAM-API 019	Hammond Ash pond 4 Ash Stacking Drawing P-161-8	Yes
HAM-API 020	D-100 Modifications to Ash Pond #1 at Cabin Creek Discharge Structure	Yes
HAM-API 021	H-35 Ash Basin Area – Excavation and Drainage	Yes
HAM-API 022	H-48 Details of Ash Basin Overflow Piping	Yes
HAM-API 023	H-125 East to West Cross Section and North to South Cross Section Across Entire Plant Area	Yes
HAM-API 024	H-8570 Connector Track Layout Plan and Profile	Yes
HAM-API 025	Plant Hammond Ash Pond Cotreatment Summary Table	Yes
HAM-API 026	D-444 Recycle Line AP #2 to AP #1 Plan and Profile	Yes

Bates	Document Description	CBI
HAM-API 027	E-8543 Ash Pond #2 Separator Dike Location and Detail	Yes
HAM-API 028	E-8544 Ash Pond #2 Excavation Plan and Northern Cell	Yes
HAM-API 029	H-254 Ash Sluice Pipe Trench Modifications Neatlines and Reinforcing (#2)	Yes
HAM-API 030	H-400 General Layout of Plant Area and New Ash Pond (#2) West of Powerhouse	Yes
HAM-API 031	H-401 Cross Sections and Volume Calculations for New Ash Pond (#2) West of Powerhouse	Yes
HAM-API 032	H-409 Ash Pond (#2) Discharge Sluice Neat Lines and Reinforcing	Yes
HAM-API 033	A-408 Ash Pond #3 – Emergency Discharge	Yes
HAM-API 034	Plant Hammond Topographical Map Ash Pond No. 3	Yes
HAM-API 035	C-102 Ash Pond #3 Discharge Structure "B" Notes and Reference Drawings	Yes
HAM-API 036	D-50 Ash Pond #3 Boring Plan	Yes
HAM-API 037	D-51 Ash Pond #3 Generalized Soil Profile	Yes
HAM-API 038	D-449 Topographic Map of Pl. Hammond 1973 Ash Pond As Built	Yes
HAM-API 039	10/6/1977 Law Engineering Testing company Investigation Of Water Loss Georgia Power Ash Pond # 3	Yes
HAM-API 040	3/11/1980 Georgia Power Interoffice Communication from Major Thompson, Jr., to W. T. Nickerson, re: Hammond Ash Pond No. 3	Yes
HAM-API 041	H-435 1973 Ash Pond Stage I Construction	Yes
HAM-API 042	H-436 1973 Ash Pond Plan and Sections	Yes
HAM-API 043	H-497 Ash Pond #3 – Emergency Discharge Structure	Yes
HAM-API 044	This number was not assigned (no document)	N/A
HAM-API 045	Southern Company Generation Construction Field Services Scope of Work, Plant Hammond Ash Pond #2 Dike Slope Repair	Yes
HAM-API 046	10/13/1967 Plant Hammond Pond #2Work Sheets Law Engineering Testing Company Field Density Test	Yes
HAM-API 047	H-267 Ash Pond #4 Layout	Yes
HAM-API 048	H-268 Ash Pond #4 Recycle Intake Structure Details – Sheet 1	Yes

Bates	Document Description	CBI
HAM-API 049	H-269 Ash Pond #4 Recycle Intake Structure Details – Sheet 2	Yes
HAM-API 050	This number was not assigned (no document)	N/A
HAM-API 051	H-272 Ash Pond #4 Dike Cross Sections and Misc. Details	Yes
HAM-API 052	H-277 Ash Pond #4 Foundation Plan Investigation, Clearing, Grubbing and Stripping	Yes
HAM-API 053	This number was not assigned (no document)	N/A
HAM-API 054	This number was not assigned (no document)	N/A
HAM-API 055	H-280 Ash Pond #4 Borrow Areas General Notes and Quantities	Yes
HAM-API 056	H-281 Ash Pond #4 Foundation Profile	Yes
HAM-API 057	2/5/1975 Interoffice Communication Plant Hammond Ash Pond Final Acceptance Review Dike Drawing	Yes
HAM-API 058	GPC Plant Hammond – Fly Ash Pond Law Engineering Testing Company Report of Field Density: Job No. SAG-658	Yes
HAM-API 059	GPC Plant Hammond – Fly Ash Pond Law Engineering Testing Company Report of Field Density: Job No. SAG-658	Yes
HAM-API 060	3/14/1986 Georgia Dept. of Natural Resources, Proposed Plant Hammond Ash Pond No. 4 Lake Dam Floyd County, Classified as a Category II	No
HAM-API 061	Georgia Power Plant Hammond Ash Pond, Boring Log-Soil	Yes
HAM-API 062	8/11/1986 GPC Plant Hammond Ash Pond #4, Law Engineering Testing Company, Periodic Report 7/20/86 through 8/2/86	Yes
HAM-API 063	11/9/2007 Georgia Dept. of Natural Resources Plant Hammond NPDES Permit No. GA0001457	No
HAM-API 064	January 2000 Georgia Power Company Plant Hammond NPDES Permit Flow Diagram	No
HAM-API 065	February 2, 2010 Transmittal letter from Charles Huling to Richard Kinch of EPA re: Hammond responses to 104(e) request	No
HAM-API 066	February 2, 2010 Responses to EPA's 104(e) request for Plant Hammond	Yes - as indicated in document
HAM-API 067	Drawing H-459 Plant Hammond Ash Sluice Recycle And Neutralization Intake Structure Outdoor Concert Plan – Sections Detail 6/26/1976	Yes

Bates	Document Description	CBI
HAM-API 068	**4/29/1971 Law Engineering Testing Company Plant Hammond East Ash Pond dike Stability Report, Job # SA-280**	Yes

I trust this list is consistent with your understanding of the documents we have provided to you today and is clear with respect to Georgia Power's claims of confidentiality. Please advise me immediately if you should become aware of any discrepancy with respect to the documents Georgia Power has provided, or if there is any question as to which documents are claimed as confidential.

Sincerely,

Brandon W. Dillard
Plant Manager
Plant Hammond

cc: Don W. Dotson, P.E.
Mary Swiderski, P.E.
Charles H. Huling