

**INITIAL INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN**  
**40 C.F.R. § 257.100(f)(3)(v) and 40 C.F.R. § 257.82(c)**  
**PLANT ARKWRIGHT ASH POND NO.3 (AP-3)**  
**GEORGIA POWER COMPANY**

A rule amendment to the Federal CCR Rule became effective on November 8, 2024. See Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities; Legacy CCR Surface Impoundments, 89 Fed. Reg. 38950 (“Legacy Rule”) The Legacy Rule defines the term “legacy CCR surface impoundment” and establishes regulatory requirements for units that meet the definition of a legacy CCR surface impoundment. The owner or operator of a legacy surface impoundment must prepare an inflow design flood system written plan documenting how the inflow design flood control system has been designed and constructed. See 40 C.F.R. § 257.100(f)(3)(v) and 40 C.F.R. § 257.82(c). In addition, the Rule requires periodic inflow design flood control system plans within 5 years of development of the previous plan. See 40 C.F.R. § 257.82(c)(4).

In 2009, AP-3 was closed by constructing an engineered cap consisting of a geosynthetic clay liner overlain by a geocomposite drainage medium, eighteen (18) inches of soil cover and vegetation in accordance with Georgia Solid Waste Rules 391.3-4. With this final cover system in place, AP-3 is no longer designed to, nor has the ability to, impound water. On August 19, 2010, a Final CCR Surface Impoundment Closure Construction Certification Report was submitted and approved by the Georgia Environmental Protection Division.

AP-3, as originally constructed, received stormwater run-on from two intermittent streams from the north and west. In 2005, the configuration of AP-3 was adjusted, and a pond was established at the North end to divert the offsite stormwater drainage into a diversion channel constructed on the east side of AP-3. This man-made surface channel discharges surface water through a weir structure located at the southeastern corner of the site and into the wetlands area located further south near Beaverdam Creek. As part of the closure of AP-3, the drop outlet structure near the dam at AP-3 was removed and two 36-inch diameter pipes were installed at the southeast corner of AP-3 to direct flow from the top deck into the diversion channel.


For a significant hazard potential facility, the inflow design flood is the 1,000-year storm event. For AP-3, the primary means to convey stormflow runoff from the site is through the two 36-inch diameter pipes

at the southeast corner of AP-3. An analysis of the capacity of these culverts was completed. The peak inflow for the 1,000-year storm event was calculated using the Rational Method. The National Oceanic and Atmospheric Administration's (NOAA's) Precipitation Frequency Data Server (Atlas-14) was used to obtain the 1,000-year, 24-hour precipitation depth. The watershed for AP-3 was generated based on available topographic data. Land use was evaluated using aerial imagery.

The Federal Highway Administration's HY-8 computer software program for culvert hydraulic computations was utilized to evaluate the capacity of the two 36-inch diameter pipes. Resulting calculations indicate that AP-3 can pass the 1,000-year, 24-hour inflow design flood through the two 36-inch diameter pipes without overtopping the roadway and dam. The supporting engineering calculations are attached.

The facility is operated subject to and in accordance with § 257.3-3 of EPA's regulations.

I hereby certify that the inflow design flood control system plan meets the requirements of 40 C.F.R. § 257.100(f)(3)(v) and 40 C.F.R. § 257.82(c).



---

Matthew Vaughan, P.E.



Licensed State of GA, P.E. No. 044791

**Inflow Design Control System Plan:  
Hydrologic and Hydraulic Calculation Summary**  
For  
***Plant Arkwright Ash Pond 3***

Prepared for:  
Georgia Power Company

Prepared by:  
Stantec Consulting Services, Inc.

## 1. Purpose of Calculation

The purpose of this memo is to demonstrate the hydraulic capacity of the subject CCR impoundment as part of the inflow design flood control plan as required by the United States Environmental Protection Agency's (EPA) final rule for Disposal of CCR from Electric Utilities (EPA 40 CFR 257) and the Georgia Environmental Protection Division's (EPD) Georgia CCR Rule (391-3-4-.10).

## 2. Summary of Conclusions

Hydrologic and hydraulic calculations were developed for the Plant Arkwright Ash Pond No. 3 (AP-3) to evaluate the hydraulic capacity of the two 36-inch diameter pipes at the southeast corner of the unit. AP-3 is located in the western portion of the Plant Arkwright property. Stormwater is not stored or impounded within the limits of AP-3. The unit is graded to direct flow from the cover through two 36-inch diameter corrugated metal pipes (CMPs) and then discharge water into a wetland area downstream of the unit.

The design storm for the Plant Arkwright AP-3 is a 1,000-year rainfall event. The rational method was used to estimate the peak discharge from a 1,000-year rainfall event. The pipe capacity of was then evaluated using the Federal Highway Administration's HY-8 computer software program for culvert hydraulic computations. The results of routing a 1,000-year rainfall event through the unit are presented in Table 1 below. Elevations presented in this memo reference the vertical datum NAVD88.

**Table 1. Flood Routing Results for Plant Arkwright AP-3**

Pipe Upstream Invert (ft NAVD88)	Pipe Downstream Invert (ft NAVD88)	Peak Water Surface Elevation (ft NAVD88)	Top of Embankment Elevation (ft NAVD88)	Free-board (ft) <sup>1</sup>	Peak Inflow (cfs)
345.9	345.5	349.6	352.0	2.4	81.4

## 3. Methodology

### 3.1. Hydrologic Analyses

AP-3 is classified as a significant hazard structure. The design storm for a significant hazard structure is a 1,000-year rainfall event. A summary of the design storm parameters and rainfall methodology for these calculations is summarized below in Table 2.

**Table 2. Plant Arkwright Rational Method Calculations**

Hazard Classification	Return Frequency (years)	Time of Concentration (minutes)	Rainfall Intensity (inches/hour)	Rainfall Source	Runoff Coefficient	Maximum Runoff (cfs)
Significant	1,000	43	6.62	NOAA Atlas 14	0.3	81.4

The contributing drainage area to the pipes is approximately 41 acres and consists of the ground surface of AP-3. The drainage basin for AP-3 is shown on Figure 1 within the supporting information.

### 3.2. Hydraulic Analyses

The hydraulic capacity of AP-3 was evaluated by completing a discharge capacity analysis in HY-8 of the two 36-inch diameter pipes during the 1,000-year storm event. The geometry parameters for the pipe were taken from the 2008 Final Grading Plan for Ash Pond 3 and Ash Monofill Drawings prepared by Southern Company Generation Engineering and Construction Services. No spillways exist at the unit and the unit does not currently impound water. Table 3 summarizes the culvert system at AP3.

**Table 3. AP-3 Hydraulic Characteristics**

Description	Material / Size	Pipe Upstream Invert (ft NAVD88)	Pipe Downstream Invert (ft NAVD88)	Length (ft)
Two Culverts at Southeast Corner of Unit	CMP/ 36-inch diameter pipe	345.94	345.50	62.5

Based on calculation results in HY-8 (See Table 1), the 1,000-yr, 24-hr storm inflow is able to pass through the pipes without overtopping the embankment located at the southern edge of the unit.

## 4. Supporting Information

### 4.1. Drainage Basin



## 4.2. HY-8 Results

### Crossing Summary Table

Culvert Crossing: Crossing 1

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
345.94	0.00	0.00	0.00	1
347.47	20.00	20.00	0.00	1
348.20	40.00	40.00	0.00	1
348.84	60.00	60.00	0.00	1
349.50	80.00	80.00	0.00	1
349.55	81.40	81.40	0.00	1
351.65	120.00	120.00	0.00	1
352.35	140.00	130.71	9.27	5
352.66	160.00	135.51	24.42	4
352.93	180.00	139.42	40.64	4
353.17	200.00	142.73	57.26	4
352.00	125.46	125.46	0.00	Overtopping

Crossing - Crossing 1, Design Discharge - 81.4 cfs  
Culvert - Culvert 1, Culvert Discharge - 81.4 cfs

