PERIODIC INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
391-4-4-.10(4) AND 40 C.F.R. PART 257.82
PLANT MCDONOUGH ASH POND 3 (AP-3) AND ASH POND 4 (AP-4)
GEORGIA POWER COMPANY

The Federal CCR Rule and the Georgia CCR Rule (391-3-4-.10) require the owner or operator of a CCR surface impoundment to design, construct, operate and maintain an inflow design flood control system capable of adequately managing flow during and following the peak discharge of the specified inflow design flood. A direct final rule revision to a partial vacatur of the Final Rule became effective on October 4, 2016. This revision eliminated the exemption for inactive CCR surface impoundments and required such units to meet the same requirements as existing CCR surface impoundments. The owner or operator 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. § 257.82; Ga. Comp. R. & Regs. r. 391.3-4-.10(5)(b). In addition, the Rules require 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); Ga. Comp. R. & Regs. r. 391.3-4-.10(5)(b).

The CCR surface impoundments known as Ash Pond 3 (AP-3) and Ash Pond 4 (AP-4), owned, and operated by Georgia Power Company, are located at Plant McDonough-Atkinson (Plant McDonough) in Cobb County, Georgia. These units no longer receive CCR or other waste streams and no longer function as CCR surface impoundments. At the time of this submittal, AP-3 and AP-4 are being consolidated and closed in place as combined unit AP-3/4 in accordance with §257.102(d) and are in the process of obtaining a solid waste permit under the Georgia Rules for Solid Waste Management, 391-3-4-.10.

Engineering analysis of AP-3 and AP-4 (combined CCR Unit AP-3/4) in its current condition demonstrates that the unit meets the inflow design flood control system requirements. As indicated in the *Hazard Potential Classification Assessment* for AP-3 and AP-4, the current conditions for the impoundments are assigned a “Low” hazard potential for AP-3 and “High” hazard potential rating for AP-4 per 40 CFR §257.73. According to 40 CFR §257.82(a)(3)(ii), a hazard potential rating of “High” for AP-4 requires an evaluation of the probable maximum flood event (PMP). The 6-hour PMP storm depth for the site is 30.5 inches.

The 6-hour PMP was utilized for evaluation of AP-4 and combined elements of AP-3/4, and the 100-year 24-hour storm was used for evaluation of AP-3 based on the respective hazard ratings of the Units. The hydrologic conditions of AP-3/4 in the interim condition were evaluated as were captured through a survey performed in November 2022. The topography analyzed represents construction conditions in progress towards the closure of combined CCR unit AP-3/4. These conditions include a system of three detention ponds that attenuate stormwater through a combination of discharge structures and a series of pumps placed on attenuation ponds 1 and 2 to maintain low water level elevations within the ponds and to convey water to the either permitted discharge or the dewatering treatment units during the construction process. AP-3 and AP-4 are capable of adequately managing the inflow from the design storm events without overtopping the embankment of any of the system’s storm channels and have adequate spillway capacity to manage the resulting outflow.

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I certify that the inflow design flood control plan for AP-3 and AP-4 is prepared in accordance with 40 CFR Part 257.82.

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CALCULATIONS

Date:	03 March 2023	**Made by:**	EC
Subject:	Inflow Design Flood Control System - Hydrology and Hydraulic Calculation	**Checked by:**	LDH / LS
		Reviewed by:	GLH
Project:	**ASH POND 3 (AP-3) AND ASH POND 4 (AP-4) (COMBINED CCR UNIT AP-3/4) PLANT MCDONOUGH-ATKINSON, GEORGIA POWER COMPANY**		

1.0 OBJECTIVE

The objective of this report is to demonstrate engineering calculations for the hydraulic capacity of CCR Units Ash Pond 3 (AP-3) and Ash Pond 4 (AP-4) as required by the United States Environmental Protection Agency's final rule for Disposal of CCR from Electric Utilities. AP-3 and AP-4, located at Georgia Power Company's Plant McDonough-Atkinson (Plant McDonough) were evaluated during closure construction from November 2022 LiDAR.

At the time of this evaluation, AP-3 and AP-4 are being consolidated and closed in place as combined unit AP-3/4 in accordance with §257.102(d) and are in the process of obtaining a solid waste permit under the Georgia Rules for Solid Waste Management, 391-3-4-.10.

2.0 METHODOLOGY

Conditions were analyzed at AP-3 and AP-4 to determine if adequate capacity exists in the interim condition to safely manage inflows from a series of storm events. WSP delineated three basins that contributes runoff to a system of three detention ponds designated as ponds 1, 2 and 3. The use of pumps during the construction process allows all runoff to be managed during a storm event and maintain low water elevations within the ponds.

3.0 PRECIPITATION

Table 1: 24 Hour Storm Depths

Storm Event	Depth (in)
100 year	7.52
1000 year	10.40

National Oceanic and Atmospheric Association (NOAA)'s Atlas 14 was used to determine storm depths for a series of 24 hour storms ranging from the 100 year to 1,000 year storm event as shown in Table 1. The 6 hour probable maximum precipitation (PMP) storm was also analyzed, with a total PMP storm depth of 30.5 inches as taken from the NOAA and United States Department of the Army Corps of Engineers Hydrometeorological Report No. 51 – Probable Maximum Precipitation Estimates, United States East of the 105th Meridian.

4.0 STAGE STORAGE

A stage storage curve was generated for ponds 1,2 and 3 based on November 2022 LiDAR information. Table 2 provides this storage information.

Table 2: Stage-Storage Curve for ponds 1, 2, and 3

POND 1		POND 2		POND 3	
Elevation	Volume (acre-ft)	Elevation	Volume (acre-ft)	Elevation	Volume (acre-ft)
830	0.0	773	0.0	833	0.0
831	0.8	774	0.1	834	0.0
832	1.9	775	0.5	835	0.0
833	3.3	776	1.0	836	0.2
834	4.7	777	1.7	837	0.4
835	6.2	778	2.7	838	0.8
836	7.9	779	4.1	839	1.4
837	9.6	780	6.1	840	2.4
838	11.5	781	9.0	841	3.7
839	13.5	782	12.9	842	5.3
840	15.6	783	17.8	843	7.2
841	17.8	784	24.0	844	9.2
842	20.2	785	31.2	845	11.4
843	22.8	786	39.0		
844	25.5	787	47.4		
845	28.3	788	56.2		

5.0 HYDROLOGY AND RUNOFF VOLUME ANALYSIS

An analysis of the hydrology of AP-3 and AP-4 was performed based on topography present in November 2022. Three basins discharging to each pond were delineated and encompasses the area of AP-3 and AP-4. Table 3 gives an estimation of the peak inflow's volumes for the different storm events managed by the attenuation ponds and pumps within the AP-3 and AP-4 system.

Table 3: AP-3 and AP-4 Hydrology Parameters and Inflow Volume

CCR Unit AP-3/4		Basin Size (acres)	Storm Depth (in)	Total Inflow Volume (acre-ft)
Pond 1	100 Year, 24 Hour Storm	28	7.52	16
	1000 Year, 24 Hour Storm	28	10.4	23
	PMP, 6 Hour Storm	28	30.5	70
Pond 2	100 Year, 24 Hour Storm	37	7.52	21
	1000 Year, 24 Hour Storm	37	10.4	30
	PMP, 6 Hour Storm	37	30.5	86
Pond 3	100 Year, 24 Hour Storm	20	7.52	12
	1000 Year, 24 Hour Storm	20	10.4	17
	PMP, 6 Hour Storm	20	30.5	50

6.0 REFERENCES

Haubner, S., Reese, A., Brown, T., Claytor, R., & Debo, T. (2001). Georgia stormwater management manual: Volume 2 technical handbook. *Georgia: Atlanta Regional Commission and Georgia Department of Natural Resources—Environmental Protection Division Atlanta*, 844.

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Schreiner, L. C., & Riedel, J. T. (1978). Hydrometeorological Report No. 51: Probable Maximum Precipitation Estimates, United States East of the 105th Meridian. U.S. Department of Commerce, National Oceanic and Atmospheric Administration and U.S. Department of the Army, Corps of Engineers.