

PERIODIC STRUCTURAL STABILITY ASSESSMENT
391-3-4-.10(4) and 40 C.F.R. Part 257.73
PLANT BOWEN ASH POND 1 (AP-1)
GEORGIA POWER COMPANY

The Federal CCR Rule, and, for Existing Surface Impoundments where applicable, the Georgia CCR Rule (391-3-4-.10) require the owner or operator of an existing CCR surface impoundment to conduct initial and periodic structural stability assessments. The owner or operator must conduct an assessment of the CCR unit and document whether the design, construction, operation and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein. *See* 40 C.F.R. § 257.73(d); Ga. Comp. R. & Regs. r. 391.3-4-.10(4)(b)¹. In addition, the Rules require a subsequent assessment be performed within 5 years of the previous assessment. *See* 40 C.F.R. § 257.73(f)(3); Ga. Comp. R. & Regs. r. 391.3-4-.10(4)(b)¹.

The CCR surface impoundment known as Plant Bowen AP-1 is located on Plant Bowen property near Euharlee in south Bartow County, Georgia, approximately 7 miles west-southwest of the city of Cartersville. The Notification of Intent to Initiate Closure was placed in the Operating Record on 12/31/2020 and closure has been designed to have no negative impacts on the stability of the perimeter embankments.

AP-1 was formed by the construction of an engineered perimeter dike which bounds the impoundment on the east, south and west sides, and approximately two-thirds of the north dike. The remaining portions of the impoundment are contained by natural ground. The embankment foundation and abutments consist of residual silty and sandy clays of low to medium plasticity. The residual soils immediately underlying the embankment soils are considered to be stiff to very stiff. The strength of the residual soil generally decreases with depth to the top of rock, a common phenomenon in karst terrain. In certain sections of the embankment, the lower residual soils have been improved through a grouting program. However, as discussed in the Location Restriction document for Unstable Areas (§ 257.64), the Plant Bowen AP-1 does not meet the unstable ground requirements.

^[1] In a typographical error, 391.3-4.10(4)(b) references the “structural integrity criteria in 40 CFR 247.73,” when the reference to such criteria should be 40 CFR 257.73.

AP-1 is full except for the approximate 30-acre Recycle Pond located in the southern portion of the pond. The northern 125 acres is a dry stack area with ash stacked above the normal full pond elevation. Water does not impound in this area. In the southern approximate 129 acres of the pond, there are areas that have historically impounded water, including the lined gypsum dewatering cells, the lined ash dewatering cells and the Recycle Pond. Current closure construction activities are removing some of the lined components of this area. The perimeter dike's inboard slope protection for the Recycle Pond area consists of an HDPE geomembrane. The remaining inboard slope of the dike does not impound water. A perimeter drainage ditch in the southwestern portion of the pond is lined with an HDPE geomembrane. The Recycle Pond is not operated in such a manner as to normally be subjected to rapid drawdown conditions. Therefore, wave action and rapid drawdown are not a concern at this site due to the characteristics of the impoundment. However, historic stability analyses have been conducted for such conditions, and these analyses have indicated that the slopes are stable for rapid drawdown under current slope conditions. The outboard slope of the perimeter dike is well vegetated.

The perimeter earth embankments have been properly constructed using mechanical stabilization and compacted to a density sufficient to withstand the range of loading conditions.

Vegetated slopes of the dike are properly maintained to a manageable height that allows for routine visual inspections.

In the northern 125-acre dry stack portion of the impoundment, storm water run-off from the stack area is currently collected in a HDPE lined perimeter drainage ditch and routed to water treatment facilities. In 2016, activities were completed for a modification to the west dike to divert storm water discharges from the HDPE lined northern perimeter ditch to a detention pond constructed at the downstream toe. The modifications consisted of the construction of a lined channel from the existing ditch to discharge pipes installed in the upper section of the west dike. The piping extends down the downstream slope to the detention pond. The storm water is routed from the detention pond to Euharlee Creek through a low volume waste basin. In the southern portion of the Ash Pond, all run-off is routed to the water treatment facilities supporting closure activities. There are no primary or auxiliary spillways constructed in the impoundment's perimeter dike. Manual valves located upstream of the NPDES pumps can be used to divert emergency discharges to a tributary to Euharlee Creek. The existing water management systems, except for certain sections of the perimeter toe ditch for the northern stack area,

are designed, constructed, operated and maintained to adequately manage flow during and following the peak discharge from the 1,000-year flood. The toe drainage ditch collects storm water run-off from only the outboard slope below the lined perimeter drainage ditch for the northern stack. This slope has a final cover consisting of 18-inches of protective soil and 6-inches of topsoil overlying a drainage geocomposite and geosynthetic clay liner and is well vegetated. Improvements to the toe ditch capacity that are being considered to handle the 1,000-year flood include, but are not limited to: 1) additional, or larger, drainage pipes from the ditch, or 2) construction of an auxiliary spillway through the dike at multiple points.

The impoundment was originally designed with an emergency discharge structure which was located in the northern dike. This structure was abandoned by grouting in the 1980's. The only other penetrations are the NPDES intake pipes located in the southern dike at the Recycle Pond which are being grouted as a part of the ongoing closure construction activities.

A review of current conditions indicates the downstream slopes of the embankment are not subject to inundation from adjacent water bodies.

I hereby certify that the structural stability assessment was conducted in accordance with 40 C.F.R. §257.73(d).

James C. Pegues, P.E.

Licensed State of Georgia, #PE017419

