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Mr. Ronnie Miller
Manager of Production
Crisp County Power Commission
961 Power Dam Road
Warwick, GA 31796

2020 ANNUAL INSPECTION REPORT

PLANT CRISP ASH POND

CRISP COUNTY POWER COMMISSION

Dear Mr. Miller:

This letter report summarizes the observations and resulting recommendations from our annual inspection of the Plant Crisp Ash Pond performed on Monday, December 28, 2020.

1. INTRODUCTION

Plant Crisp is a dual-fuel (coal and natural gas) electrical generation facility, with a 12.5-megawatt (MW) capacity coal-fired unit and 5 MW capacity natural gas combustion turbine. The byproducts of power generation from the combustion of coal (commonly referred to as CCR) at Plant Crisp included mainly fly ash and bottom ash. The CCR was disposed into a 6.5-acre ash pond (AP) located within the plant property using wet sluicing method. The AP was constructed in the mid-1970s and started to receive sluiced ash in 1976. The coal burning and resulting ash disposal was conducted until August 2015. The coal burn unit was briefly re-activated in December 2016 to eliminate an existing small coal supply. The last burning of coal took place on March 22, 2017. In October 2016, CCPC submitted notification of closure of the by removal in accordance with 40 C.F.R. §257 (USEPA CCR Rule). In August 2020, CCPC received the CCR handling permit for the closure of the ash pond by removal in accordance with GA EPD Rule 391-3-4-.10 (GA EPD CCR Rule).

Both USEPA and GA EPD CCR Rules require the AP to be inspected annually by a qualifed professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards.

This document is organized to provide a summary of the recently completed site inspection in accordance with the requirements outlined in USEPA and GA EPD CCR Rules.

2. GENERAL INFORMATION

The AP is located to the west of Plant Crisp and southwest of the Lake Blackshear Dam. The trapezoidal shaped impoundment consists of builtup earthen embankments on all sides ranging in height from 2 feet (ft) to 5 ft high on the east and south embankments to approximately 22 ft high on the west and north embankments. The west embankment runs against the CCPC property line, with a sand-clay public road along its toe on the adjacent property. **Table 2.1** summarizes the general details of the AP.

The inspection was performed by Mehmet Iscimen, P.E., CPESC of Geosyntec Consultants (Geosyntec). Mr. Iscimen was accompanied by Victoria Cheplak, P.E. (Geosyntec) and Michael Ivey, Ronnie Miller, and Joseph Rogers of CCPC. The inspection included a walk-down of the AP and was performed starting from the east embankment and proceeding in a counter-clockwise direction to the north, west, and then south embankments, respectively, followed by a walkdown of the toe in a clockwise direction. The weather was clear with the temperatures at low 60 degrees Fahrenheit. Photos from the inspection of the AP and surrounding areas are included in **Appendix A**.

Table 2.1. General Details of the AP

Item	Information
Geographical Location:	Worth County, GA Latitude: 31º 50’ 40.81’ N Longitude: 83º 56’ 28.74” W
USEPA-Recommended Hazard Classification:	Low Hazard
Drainage Area:	6.5 acres (ac)
Embankment Type:	Earthen
Maximum Embankment Height:	22 ft
Embankment Length (Approximate):	Total Embankment: 2,222 ft North Embankment: 720 ft East Embankment: 570 ft South Embankment: 448 ft

Item	Information
	West Embankment: 484 ft
Design Slopes: (Upstream and Downstream)	2H:1V
Crest Elevation:	245 ft MSL
Normal Pool Elevation:	Varies but ≤ 240.95 ft MSL
Reservoir Area:	6.5 ac
Storage Capacity:	29 ac-ft
Primary Spillway Type	Vertical corrugated metal pipe (riser)
Primary Spillway Diameter	12-in inlet with 24-in diameter screen 12-in discharge
Primary Spillway Inlet Elevation	240.95 ft MSL
Spillway Design Flood (SDF)	0.25 Probable Maximum Flood (PMF)
Primary Spillway Capacity	±3.2 cubic feet per second (cfs)
Auxiliary Spillway Type	Earth chute at northeast corner
Auxiliary Spillway Dimensions	Approximately 6-in deep by 80-ft long

3. OWNER'S PERIODIC MONITORING

CCPC conducts and documents weekly walk-down inspections of the AP. In addition, four groundwater quality monitoring wells, identified as MW-U1, MW-D1, MW-D2, and MW-D3, are being used to monitor the groundwater levels and quality around the AP. Weekly and annual inspection reports, groundwater monitoring reports, and other documents relevant to the AP are posted to the CCPC CCR Rule Compliance Data and Information website (URL: https://crispcountypower.com/ccr-rule).

4. PREVIOUS INSPECTION REPORTS

The following documents were reviewed prior to the site visit and used as a basis for the inspection:

- Weekly Ash Pond Inspection Reports [CCPC, 2020];
- 2015 Dam Safety Assessment Report [Rizzo, 2015a];

- 2016 – 2019 Annual Ash Pond Inspection Reports [Rizzo, 2015b, 2017, 2018, and 2019];
- 2020 Periodic Assessment of the Inflow Design Flood Control System Plan [Geosyntec, 2020a]; and
- 2020 Periodic Dam Safety Assessment Report [Geosyntec, 2020b].

5. FINDINGS

Based on the visual inspection and review of available documents, it is Geosyntec's opinion that the AP is properly classified as a Low Hazard Class Impoundment. Previous studies [Rizzo, 2015a and Geosyntec, 2020a] have confirmed that spillway capacity was adequate for the design flood event. No signs of general slope instability or embankment distress such as sloughs, tension cracks, bulges at the toe of the slope, or excessive crest settlement were noted. There were no changes in geometry of the impounding structure since the previous annual inspection. The impoundment is not instrumented.

During the inspection, the AP had virtually no free water stored within except two small puddles measuring approximately 20 ft x 30 ft and 30 ft x 30 ft in size, with water depths less than a foot (estimated total water volume < 0.05 ac-ft). The estimated volume of the impounded CCR at the time of the inspection is approximately 51,000 cubic yards. Depth of CCR is estimated to vary from 0 to 10 ft; top of CCR elevations vary from approximately 230 ft MSL to 240 ft MSL. No new CCR was added to the impoundment since March 2017. In the past 12 months, depth of water ranged from approximately 0.0 ft to 4.2 ft, as measured at the staff gauge near the boardwalk, which corresponds to top of water elevations ranging from 232.95 ft MSL to 237.12 ft MSL.

The inspection checklist utilized for this inspection was consistent with those utilized for past inspections and is included as **Appendix B**.

The following visual observations were made during the inspection:

1. Hummocky areas and minor soil erosion with missing grass cover was observed at several locations on both internal and external slopes of the AP embankments.

2. The latest mowing of the slopes was conducted in July 2020. Overall grass cover on the embankment slopes is acceptable, with grass heights

generally less than six inches. A small area on the external slope of the Northern Dike had overgrown vegetation taller than 6-inches, which appeared to consist of bamboo saplings (Photograph No. 09). Following the inspection, CCPC mowed the overgrown vegetation, which is documented on Photograph No. 10.

3. Three short trees (<5 ft) were observed along the toe of the external slope of the west embankment during the inspection (Photograph No. 07). Following the inspection, CCPC removed the trees, which is documented on Photograph No. 08.

4. The spillway outfall area was covered with overgrown vegetation which impeded visual inspection of the outlet pipe and would obstruct flow if discharge were to occur from the AP (Photograph No. 11). The inspectors carefully removed the vegetation locally and observed the outfall area to be dry. Following the inspection, CCPC trimmed the vegetation and cleared the area, which is documented on Photograph No. 12.

5. Previous safety inspections reported a wet area in the vicinity of monitoring well MW-D3, near the toe of the north embankment [Rizzo, 2019; Geosyntec, 2020b]. However, this area appeared to be dry during this inspection (Photograph No. 14). Additionally, the groundwater level in monitoring well MW-D3 was measured to be approximately 3.5 ft below ground surface at the time of the inspection.

6. CONCLUSIONS AND RECOMMENDATIONS

Overall, the AP is in good condition, with adequate vegetative cover and no signs of active slope instability or other conditions that require immediate action. Previous studies have confirmed that the spillway capacity was adequate for the design flood event, and the spillway outlet has been maintained after the inspection to ensure that flow would not be obstructed if the outlet pipe were to discharge water.

CCPC has received GA EPD's approval for the closure of the AP and is in the process of initiating the construction in 2021. Based on the findings of the field inspection, the following recommendations are made which should be valid as applicable until the closure of the AP:

- **Recommendation No.1:** Continue to monitor the areas of minor erosion at both internal and external slopes during weekly inspections. If any changes are observed that are pointing to further degradation of the slopes, CCPC should repair these areas locally to prevent further erosion.

- **Recommendation No.2:** Continue to mow the external and internal slopes of the embankments and the outfall area to discourage overgrowth. Remove small volunteer trees as early as practical. Trees allowed to grow and develop root systems in the slopes of dams can create preferential seepage pathways and potential instability.

- **Recommendation No.3:** Continue to monitor the vicinity of monitoring well MW-D3 for wetness, signs of general slope instability, or embankment distress such as sloughs, tension cracks, bulges.

Mehmet Iscimen, P.E., CPESC
Georgia P.E. License No. PE034164
Principal Engineer
Geosyntec Consultants
15 January 2021

7. REFERENCES

[1] Crisp County Power Commission, Environment – CCR Rule Compliance Data and Information, https://crispcountypower.com/ccr-rule. Accessed 10 Jan. 2021.

[2] GA DNR (2016). Solid Waste Rule 391-3-4-.10 entitled "Coal Combustion Residuals"; effective November 22, 2016.

[3] Geosyntec Consultants (2020a). "Periodic Assessment of the Inflow Design Flood Control System Plan, Plant Crisp Ash Pond, Crisp County Power Commission." Prepared for Crisp County Power Commission, January 2020.

[4] Geosyntec Consultants (2020b). "Periodic Dam Safety Assessment, Plant Crisp Ash Pond, Crisp County Power Commission." Prepared for Crisp County Power Commission, January 2020.

[5] Rizzo Associates. (2015a). "Dam Safety Assessment Report Plant Crisp Coal Combustion Waste Impoundment." Submitted to Crisp County Power Commission, 14-5232, Rev. 0, January 2015.

[6] Rizzo Associates. (2015b). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 14-5232 13 September 2015.

[7] Rizzo Associates. (2017). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 17-5796. 9 June 2017.

[8] Rizzo Associates. (2018). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 17-5796A. 14 June 2018.

[9] Rizzo Associates. (2019). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 17-5796B. 13 June 2019.

[10] USEPA. (2015). “Subpart D – Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments,” Title 40 Code of Federal Regulations, Pt. 257, April 2015.

APPENDIX A

Annual Inspection Photolog

Photograph No. 01 Date: 12/28/2020 Direction: Southeast Description: Panorama of the AP from its northwest corner	
Photograph No. 02 Date: 12/28/2020 Direction: Northwest Description: Panorama of the AP from its southeast corner	

Photograph No. 03 Date: 12/28/2020 Direction: East Description: Internal slope of north embankment, boardwalk, 12-in spillway riser with 24-in trash screen, staff gauge	
Photograph No. 04 Date: 12/28/2020 Direction: North Description: Boardwalk, 12-in spillway riser with 24-in trash screen	

Photograph No. 05 Date: 12/28/2020 Direction: South Description: Two small puddles along the internal slope toe of the west embankment	
Photograph No. 06 Date: 12/28/2020 Direction: North Description: Hummocky areas and minor surface erosion on the external slope of the west embankment	

Photograph No. 07 Date: 12/28/2020 Direction: South Description: External slope of the west embankment with short trees on the slope	
Photograph No. 08 Date: 12/31/2020 Direction: West Description: Documentation of Maintenance - External slope of the north embankment after the short trees in Photograph No. 07 were removed	

Photograph No. 09 Date: 12/28/2020 Direction: East Description: External slope of north embankment with bamboo saplings on the slope	
Photograph No. 10 Date: 12/31/2020 Direction: West Description: Documentation of Maintenance – External slope of north embankment after the bamboo saplings on Photograph No. 09 were removed	

Photograph No. 11 Date: 12/28/2020 Direction: Southwest Description: Spillway outlet (installed with a protective grate for animal control) covered by overgrown vegetation; no flow/discharge observed	
Photograph No. 12 Date: 12/31/2020 Direction: West Description: Documentation of Maintenance – Spillway outlet pipe after the overgrown vegetation on Photograph No. 11 were removed	

Photograph No. 13 Date: 12/28/2020 Direction: North Description: Groundwater monitoring well MW-D2 near the northwest corner of the AP	
Photograph No. 14 Date: 12/28/2020 Direction: East Description: External slope of north embankment; groundwater monitoring well MW-D3	

APPENDIX B

Annual Inspection Checklist

ANNUAL INSPECTION CHECKLIST
CCPC PLANT CRISP ASH POND

Reservoir Area			
Items	Yes	No	Remarks
1. Signs of Shoreline Instability		×	
2. Sedimentation		×	The coal fired plant has not been operated in the past year. Historically, CCR was sluiced into the impoundment via an 8-inch ductile iron pipe on the southern side of the East Embankment. CCR solids (bottom ash, other larger granular waste products) were periodically deposited in the impoundment from the east side.
3. Debris		×	
4. Ice-Related Problems		×	
5. Operating Constraints		×	
6. Environmental Concerns		×	
7. Rim Stability		×	
8. Other	×		Shrubs and bushy vegetation have grown within the eastern side of the impoundment.

Service Spillway 12-Inch Corrugated Metal Pipe (CMP) Riser Pipe with 24-Inch CMP Trash Rack			
Items	Yes	No	Remarks
1. CMP Riser			
a. Settlements?		×	None apparent, original installation elevation not available.
b. Displacements?		×	Foundation of inlet unknown but appears to be plumb.
c. Cracking?		×	
d. Deterioration?		×	Galvanized CMP and strainer appear to be in acceptable condition. A valved/gated opening into the reservoir is included in the original construction. However, the actuator has since been cut off due to corrosion. While the condition of the valve/gate is unknown, previous inspections noted that it appears to be intact, based on flow through the outlet following removal of an obstruction. Recommend periodic clearing of the outfall area to facilitate discharge from the AP, if needed.
e. Exposed Reinforcement?		×	
f. Boils Downstream?		×	
g. Springs?		×	
2. Discharge Channel			
a. Deterioration?			N/A
b. Undercutting?			N/A
c. Erosion?			N/A
d. Obstruction?			N/A

Earth Embankments			
Items	Yes	No	Remarks
1. Alignment			
a. Alignment?		×	The crest and toe alignments appear uniform.
b. Displacement?		×	
c. Settlement?		×	None noticeable during walkdown.
2. Deterioration			
a. Erosion?		×	There is some minor surface erosion/missing grass cover on both internal and external embankment slopes.
b. Sloughs or Slumps?		×	Hummocky areas at several locations on the west embankment; however, no sloughs, slumps, circular slip surfaces, or cracks observed. No apparent change since last inspection.
c. Riprap?		×	
d. Damage from nuisance wildlife?		×	
3. Seepage			
a. Where?		×	
b. Quantity?		×	

Earth Embankments (Cont.)			
Items	Yes	No	Remarks
4. Abutment Contacts			
a. Abutment instability?		×	
b. Erosion?		×	
c. Undercutting?		×	
e. Visible Displacement?		×	
f. Seepage from Contact		×	
g. Boils Downstream?		×	
h. Springs?		×	
i. Abutment Shoreline Freeboard			>5 feet at northeast and southeast corners
5. Instrumentation			No instrumentation but groundwater levels and samples being periodically collected from four groundwater monitoring wells.