

January 8, 2022

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

**2021 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 Wednesday, November 10, 2021.

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 the 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 AP 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). In early part of 2021, CCPC bid the the ash pond closure construction work out and selected Kemron Environmental Services, Inc. as its General Contractor. In October 2021, CCPC received the NPDES permit for the discharge of ash pond water and construction activities were initiated at the Site.

Both USEPA and GA EPD CCR Rules require the AP to be inspected annually by a qualified 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 built-up 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 Mr. Conrad Ginther, P.E. (Geosyntec) and Mr. Ronnie Miller (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 mid 70 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: 31° 50' 40.81' N Longitude: 83° 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

Item	Information
	North Embankment: 720 ft East Embankment: 570 ft South Embankment: 448 ft West Embankment: 484 ft
Design Slopes: (Upstream and Downstream)	2H:1V
Crest Elevation:	245 ft MSL
Normal Pool Elevation:	Varies but \leq 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	\pm 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, 2021];
- 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];
- 2020 Periodic Dam Safety Assessment Report [Geosyntec, 2020b]; and
- 2020 Annual Inspection Report [Geosyntec, 2021].

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 one small puddle measuring approximately 15 ft x 100 ft in size, with water depths less than 3 ft (estimated total water volume < 0.11 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. Kemron initiated stripping of vegetation (grass and brush) within the ash pond and has started excavation and stockpiling of ash for future hauling to the receiving landfill. No new CCR was added to the impoundment since March 2017. In the past 12 months, depth of water ranged from approximately 0.00 ft to 2.08 ft, as measured at the staff gauge near the boardwalk, which corresponds to top of water elevations ranging approximately equal or less than 232.95 ft MSL to 235.03 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. Initial erosion and sediment control measures as required by the Erosion, Sedimentation, and Pollution Control Plan (ESPCP) for the ash pond

closure construction were mostly installed at the time of the inspection (Photographs 01, 07, 08, 12, and 13).

2. Hummocky areas and minor soil erosion with missing grass cover was observed at a few locations on both internal and external slopes of the AP embankments (Photograph 12).
3. Overall grass cover on the embankment slopes is acceptable, with grass heights generally less than six inches on the external slopes. A small area on the external slope of the Western Dike and majority of the internal slopes had overgrown vegetation approximately 6 to 12 inches (Photographs 09, 11, and 12). CCPC indicated that the overgrown vegetation will be mowed as part of the continued maintenance activities. It is noted that the ash pond is already in the process of closure with an ongoing construction where the water levels are and will continue to be maintained as low as possible to facilitate ash removal. Following removal of the ash, the dikes will be lowered and breached.
4. The spillway outfall area was clear of vegetation and appeared to be dry (Photograph No. 10).
5. Some of the historical 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. 13), consistent with the previous annual inspection. Additionally, the groundwater level reading on 10/26/2021 at monitoring well MW-D3 was measured to be approximately 3.3 ft below ground surface.

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 to ensure that flow would not be obstructed if the outlet pipe were to discharge water.

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CCPC has started the AP's closure construction and plans to complete it in 2022. 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 monitoring the areas of minor erosion at both internal and external slopes during weekly inspections. If any changes are observed that indicate further degradation of the slopes, CCPC should repair these areas locally to prevent further erosion.
- **Recommendation No.2:** Continue mowing the external and internal slopes of the embankments periodically to discourage overgrowth and facilitate inspection.
- **Recommendation No.3:** Continue monitoring 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
8 January 2022

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] Geosyntec Consultants (2021). "Annual Inspection Report, Plant Crisp Ash Pond, Crisp County Power Commission." Prepared for Crisp County Power Commission, January 2021.
- [6] 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.
- [7] Rizzo Associates. (2015b). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 14-5232 13 September 2015.
- [8] Rizzo Associates. (2017). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 17-5796. 9 June 2017.
- [9] Rizzo Associates. (2018). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 17-5796A. 14 June 2018.
- [10] Rizzo Associates. (2019). "Dam Safety Inspection Report Plant Crisp CCW Impoundment, Crisp Country Power Commission. Project No. 17-5796B. 13 June 2019.

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- [11] 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

2021 Annual Inspection Photolog

Photograph No. 01

Date: 11/10/2021

Direction: West

Description:
Construction
Entrance and Initial
Best Management
Practices



Photograph No. 02

Date: 11/10/2021

Direction: North

Description: East
Embankment



Photograph No. 03

Date: 11/10/2021

Direction: West

Description:
Stripping of
vegetation within the
ash pond



Photograph No. 04

Date: 11/10/2021

Direction: Northwest

Description: Initial
ash removal
activities within the
ash pond



Photograph No. 05

Date: 11/10/2021

Direction: Southwest

Description:
Panorama of the ash pond from its northeast corner



Photograph No. 06

Date: 11/10/2021

Direction: Southeast

Description:
Panorama of the ash pond from its northwest corner



Photograph No. 07

Date: 11/10/2021

Direction: West

Description: North Embankment and external slope at crest



Photograph No. 08

Date: 11/10/2021

Direction: West

Description: North Embankment and external slope at toe



Photograph No. 09

Date: 11/10/2021

Direction: South

Description: Internal slope of North Embankment, boardwalk, 12-in spillway riser with 24-in trash screen, and staff gauge



Photograph No. 10

Date: 11/10/2021

Direction: East

Description: Spillway outlet (installed with a protective grate for animal control); no flow/discharge observed



Photograph No. 11

Date: 11/10/2021

Direction: East

Description: A small puddle along the internal slope toe of the North Embankment



Photograph No. 12

Date: 11/10/2021

Direction: North

Description: Hummocky areas and minor surface erosion on the external slope of the West Embankment



Photograph No. 13

Date: 11/10/2021

Direction: East

Description:
External slope of
North Embankment;
groundwater
monitoring well
MW-D3



APPENDIX B

2021 Annual Inspection Checklist

2021 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; however, they are being removed as part of the closure construction.

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.
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 are being periodically collected from four groundwater monitoring wells.