COLETO CREEK POWER, LLC
Fannin, Texas

COAL COMBUSTION RESIDUALS
PRIMARY ASH POND
STRUCTURAL STABILITY ASSESSMENT
5-Year Periodic Update

COLETO CREEK POWER PLANT
FANNIN, TEXAS

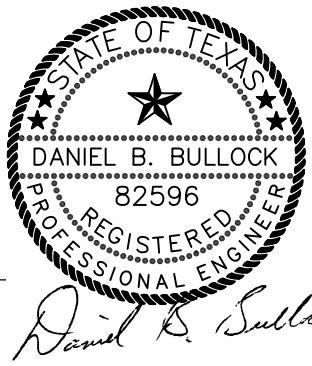
October 11, 2021

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Registrations: Engineering F-8542, Geoscience 50127
www.bbaengineering.com

Certification Statement 40 *CFR* § 257.73(d) and 30 T.A.C. § 352.731 - Structural Integrity Criteria for Existing CCR Surface Impoundments, 5-Year Periodic Structural Stability Assessment

CCR Unit: Coleto Creek Power, LLC; Coleto Creek Power Plant; Coleto Creek Primary Ash Pond

I, Daniel Bullock, being a Registered Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this assessment report has been prepared in accordance with the accepted practice of engineering. I certify, for the above referenced CCR Unit, that the information contained in the Structural Stability Assessment, dated October 11, 2021, meets the requirements of 40 *CFR* § 257.73(d) and 30 T.A.C. § 352.731.



Daniel B. Bullock, P.E. (TX 82596)

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1.0 INTRODUCTION

Coleto Creek Power Plant is located at 45 FM 2987 just outside the city of Fannin in Goliad County, Texas. The power plant consists of one coal-fired boiler. Bottom ash and fly ash, or coal combustion residuals (CCR), generated in the boiler are either shipped off-site for beneficial re-use or managed in an on-site CCR surface impoundment (Coleto Creek Primary Ash Pond). Figures 1 and 2 provide site location maps showing the Primary Ash Pond configuration.

In April 2015, the Environmental Protection Agency (EPA) promulgated rules (40 C.F.R. Part 257, Subpart D) to address potential risks associated with operating CCR surface impoundments at coal-fired power plants. The State of Texas subsequently codified 30 T.A.C. Chapter 352 to address CCR management in surface impoundments and landfills in the state of Texas. This report has been prepared to specifically address the requirements identified in 40 CFR §257.73(d) and 30 T.A.C. § 352.731 regarding periodic Structural Stability Assessments to be performed every 5 years.

2.0 5-YEAR PERIODIC STRUCTURAL STABILITY ASSESSMENT

According to §257.73(d) and codified in §352.731 by reference, the owner or operator of a CCR non-incised surface impoundment "must conduct initial and periodic structural stability assessments 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." Requirements for the Structural Stability Assessment are addressed below.

§257.73(d)(1)(i) Stable foundations and abutments. The Primary Ash Pond was constructed on a foundation of in-place cohesive soils whose geotechnical characteristics either met or exceeded Texas Department of Water Resources technical guidelines for the design and construction of wastewater ponds that were in force at the time of construction (S&L, 1978). The Primary Ash Pond and Secondary Pond dikes are continuous, with no abutments constructed against other structures. A review of the geotechnical data collected at the time of construction confirms that the foundation for the pond should continue to be stable over its operational life.

§257.73(d)(1)(ii) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown. The Primary Ash Pond dikes were constructed with 2.5 to 3 horizontal to 1 vertical side slopes. Outer slopes were seeded for slope protection, but interior dike surfaces were not. Vegetation does naturally occur on these surfaces thus assisting in the control of erosion. The interior dike sections in areas impounding water are armored with rock riprap. The dikes are regularly inspected in accordance with §257.83(a) and (b) and repaired as necessary to maintain their integrity. An engineering site inspection was performed in November 2020 in accordance with the requirements defined in §257.83(b) which included an evaluation of the surface impoundment dikes. No additional slope protection was deemed to be necessary at that time (BBA, 2021a).

§257.73(d)(1)(iii) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit. The dike system was engineered by S&L and constructed in approximately 1978 (S&L, 1978). Dike fill material was placed in controlled, mechanically compacted lifts, averaging approximately 98% maximum dry density as determined by ASTM D698. Full time field inspection was performed during construction, with approximately 420 field density tests performed on the dikes.

§257.73(d)(1)(iv) Vegetated slopes of dikes and surrounding areas not to exceed a height of six inches above the slope of the dike, except for slopes which have an alternate form or forms of slope protection. The slopes of the dikes and surrounding areas are vegetated as required. The slopes are reportedly mowed as necessary to comply with height of grass requirements.

§257.73(d)(1)(v) A single spillway or a combination of spillways configured as specified in paragraph (d)(1)(v)(A) of the section of the rule. As is common with surface impoundments of this type, the Primary Ash Pond was not constructed with a spillway. The results of the hydraulic analysis completed in support of the Periodic Inflow Design Flood Control System evaluation (BBA, 2021b) showed that the Primary Ash Pond, as configured without a spillway and when operated at a maximum storage operating elevation of 136.1 feet NAVD88, has sufficient capacity to manage the design flood. The design flood is designated by rule for a Low Hazard Potential surface impoundment to equal the 100-year rainfall event. It is therefore not necessary for the surface impoundment to have a spillway.

§257.73(d)(1)(vi) Hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure. The weir system and pipe penetrations were visually inspected by a professional engineer in November of 2020 (BBA, 2021a). There were no observations of conditions that would negatively impact operation of the structures

§257.73(d)(1)(vii) For CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body. The dike that separates the Primary Ash Pond from the Secondary Pond was evaluated for stability in the event of rapid drawdown of the Secondary Pond, as further discussed in the periodic Safety Factor Assessment report (BBA, 2021c). The modeled slope stability results indicate this divider dike exceeds the required safety factors under the max surcharge pool/rapid drawdown scenario.

3.0 CONCLUSION

No structural stability deficiencies were identified in this 5-year periodic Structural Stability Assessment that would require corrective measures.

4.0 REFERENCES

BBA. (2021a). *2020 Annual CCR Unit Inspection Report Coleto Creek Power, LLC Primary Ash Pond.* Bullock, Bennett & Associates, LLC.

BBA. (2021b). *Coal Combustion Residuals CCR Primary Ash Pond Inflow Design Flood Control System Plan 5-Year Periodic Update.* Bullock, Bennett & Associates, LLC.

BBA. (2021c). *Coal Combustion Residuals CCR Primary Ash Pond Hazard Potential Classification 5-Year Periodic Update.* Bullock, Bennett & Associates, LLC.

S&L. (December 1978). *Design and Construction Summary for Coal Pile and Wastewater Pond Facilities, Coleto Creek Power Station Unit 1, Report SL-3689.* Sargent & Lundy Engineers.

FIGURES

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APPROXIMATE SCALE: 1" = 3000'

0 750 1500 3000

SOURCE: AERIAL PHOTO PROVIDED BY BING, PHOTO TAKEN 2021.

STATE OF TEXAS
DANIEL B. BULLOCK
82596
REGISTERED
PROFESSIONAL ENGINEER

10-11-2021

Coleto Creek Power, LLC

Figure 1

SITE LOCATION MAP

PROJECT: 21424-1	BY: RCAD-RR	DATE: OCT 2021	CHECKED: DBB

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Plot Date: 10/11/21 - 1:23pm, Plotted by: Admin
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APPROXIMATE SCALE: 1" = 1000'

0 500 1000 2000

SOURCE: AERIAL PHOTO PROVIDED BY BING, PHOTO TAKEN 2021.

STATE OF TEXAS
DANIEL B. BULLOCK
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Figure 2

PRIMARY ASH POND LOCATION MAP

PROJECT: 21424-1	BY: RCAD-RR	DATE: OCT 2021	CHECKED: DBB

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