STRUCTURAL STABILITY ASSESSMENT

CFR 257.73(d)

Bottom Ash Pond Complex

Gavin Plant
Cheshire, Ohio

October, 2016

Prepared for: AEP Generation Resources, Inc. (GENCO) - Gavin Plant

Cheshire, Ohio

Prepared by: American Electric Power Service Corporation

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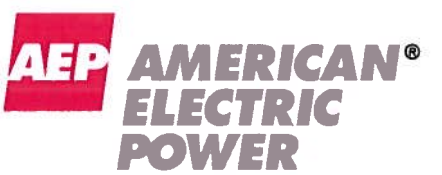
Columbus, OH 43215



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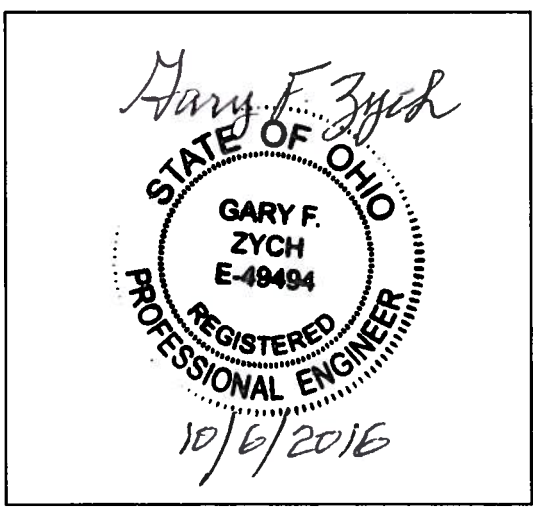

I certify to the best of my knowledge, information and belief that the information contained in this structural stability assessment meets the requirements of 40 CFR 257.73(d)

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1.0 OBJECTIVE 257.73(d)

This report was prepared by AEP- Geotechnical Engineering Services (GES) section to fulfill requirements of CFR 257.73(d) and document whether the design, construction, operations, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices. This is the initial assessment as per the Rule.

2.0 NAME AND DESCRIPTION OF CCR SURFACE IMPOUNDMENT

The Bottom Ash Pond Complex is located adjacent to the Ohio River and Ohio SR 7, north of Gallipolis, Cheshire, Ohio and immediately downstream from the plant. Access to the bottom ash complex is via plant roads. It is owned and operated by AEP Generation Resources (GENCO). The purpose of the Bottom Ash Pond is for the disposal of bottom ash produced at the Gavin Plant. The Bottom Ash Pond Complex consists of the bottom ash pond and the reclaim pond which are upground reservoirs consisting of continuous earthen dikes on four sides. The total length of the exterior embankment is 6,550 feet and the embankment varies above the exterior grade from 28 to 39 feet. The bottom ash pond and reclaim pond pool levels are operated at approximately Elevations 578 feet and 576 feet, respectively. Storage capacity of the pond is 1,122 acre-feet at the top of the dikes.

Bottom ash slurry is pumped into the bottom ash pond and the water is decanted through a drop inlet structure into a reclaim pond within the diked area and is pumped to the plant for reuse or discharge to the Ohio River via an overflow structure.

List of Main Ponds within the Bottom Ash Complex

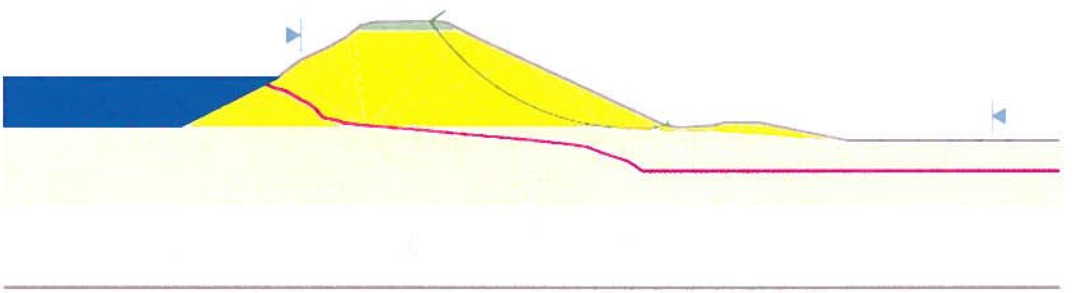
Bottom Ash Pond

Reclaim Pond

3.0 STABLE FOUNDATION AND ABUTMENTS 257.73(d)(1)(i)

[Was the facility designed for and constructed on stable foundations and abutments? Describe any foundation improvements required as part of construction.]

The foundation soils under the embankment consist of very-soft to hard brown mottled with dark brown and gray silty clay. This stratum contained many zones of silty clay interbedded with loose silt and/or fine to medium sand, as well as many fine to medium sand seams and lenses, typical of alluvium soils. Hand penetrometer readings on soil samples collected within this stratum ranged from zero to 4.5+ tons per square foot and the SPT (N-values) ranged between zero and 22 blows per foot (bpf) with an average of 13 bpf. The foundation soils predominantly classified as lean clay (CL) per the Unified Soil Classification System. Based on the subsurface investigation and engineering properties of the subsurface soils, it is concluded that the Bottom Ash Pond dikes are supported on a stable foundation base. A typical cross-section and subsurface foundation soils properties are provided below.



Layer	γ_m	c'	φ'	Permeability	
	pcf	psf	degrees	k_v (cm/sec)	k_h / k_v
Cohesive Embankment Fill	125	100	24	1.0E-07	5
Roadway Fill	125	0	30	1.0E-06	1
Alluvium Silt/Clay	125	0	26	1.0E-05	2
Lo to MDe Glacial Outwash Sand/Gravel	115	0	32	1.0E-03	1

SOURCE: BOTTOM ASH POND INVESTIGATION REPORT, PREPARED BY S&ME ENGINEERING (FORMERLY NAMED BBCM ENGINEERING, INC), 2009.

4.0 SLOPE PROTECTION 257.73(d)(1)(ii)

[Describe the slope protection measures on the upstream and downstream slopes.]

The unit has been constructed with a layer of bottom ash on the interior slope of the ash pond and limited riprap on the interior slope of the reclaim pond that provides slope protection from erosion and wave action. The exterior slopes consist of vegetative cover. Any erosion that may occur is repaired within a timely period.

5.0 EMBANKMENT CONSTRUCTION 257.73 (d)(1)(iii)

[Describe the specifications for compaction and/or recent boring to give a relative comparison of density.]

The Bottom Ash Pond was formed by constructing continuous perimeter dike. The dike consists of the upper veneer of roadway fill followed by silty clay embankment fill. Construction records indicate that the dike was constructed by placing fill and compacting to 95 percent of the maximum dry density (Standard Proctor). Also based on subsurface investigations (Bottom Ash Pond Investigation Report, Prepared By S&ME Engineering (Formerly Named BBCM Engineering, Inc), 2009, the relative density and description of the foundation materials are adequate for this CCR unit.

6.0 VEGETATION CONTROL 257.73 (d)(1)(iv)

[Describe the maintenance plan for vegetative cover.]

The vegetative slopes/areas are mowed to facilitate inspections and maintain the growth of the vegetative layer; and prevent the growth of woody vegetation.

7.0 SPILLWAY SYSTEM 257.73(d)(1)(v)

[Describe the spillway system and its capacity to pass the Inflow Design Flood as per its Hazard Classification.]

The primary spillway structure at the Bottom Ash Pond is composed of a concrete riser structure that controls the pool elevations with stop logs or large metal plates that are raised and lowered from a hoist. The structure is designed to allow water to flow freely within the structure. The outlet structure at the Reclaim Pond consists of an open concrete channel that discharges into a 30-inch diameter HDPE pipe. The water surface elevation within the pond is controlled by wooden stop logs at the inlet to the concrete channel. The water from the Reclaim Pond is either reclaimed by the plant or discharged to an outfall at the Ohio River. The facility is classified as a

High Hazard Potential Dam. The inflow design flood is the Probable Maximum Flood (PMF). The PMF was calculated using the probable maximum precipitation (PMP). The facility can safely pass this flood without overtopping the dam crest.

8.0 BURIED HYDRAULIC STRUCTURES 257.73 (d)(1)(vi)

[Describe the condition of the sections of any hydraulic structure that in buried beneath and/or in the embankment.]

A 42 inch diameter steel pipe is buried under the west dike of the Reclaim Pond where the abandoned decant structure exists. After abandonment of the decant structure, this pipe was not used and was grouted in place. No additional post-grouting information or condition of the pipe interior is known. Another decant structure was installed at the north dike of the Reclaim Pond. A 30-inch diameter HDPE Spirolite encased in a 42-inch diameter steel pipe is installed under the north dike, between the decant structure and a manhole located at the toe of the exterior slope. The annular between the two pipes were filled with grout.

9.0 SUDDEN DRAWDOWN 257.73 (d)(1)(vii)

[If the downstream slope is susceptible to inundation, discuss the stability due to a sudden drawdown.]

The downstream slope of the Bottom Ash dikes will not be unundated from any adjacent water bodies.