STRUCTURAL STABILITY ASSESSMENT

CFR 257.73(d)

Primary Ash Pond

Flint Creek Plant
Gentry, Arkansas

October, 2016

Prepared for: Southwestern Electric Power Company

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza

Columbus, OH 43215

GERS-16-027

Structural Stability Assessment
CFR 257.73(d)
Flint Creek Plant
Primary Bottom Ash Pond

PREPARED BY Gary F. Zych DATE 9/7/2016

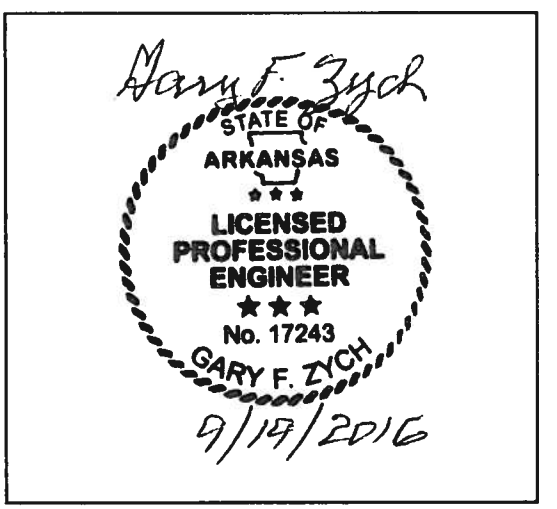
Gary F. Zych, P.E.

REVIEWED BY DATE 9/19/16

Satyananda Chakrabarti, Ph.D., P.E.

APPROVED BY Gary F. Zych DATE 9/19/2016

Gary F. Zych, P.E.
Manager – AEP Geotechnical Engineering



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)

Table of CONTENTS

1.0 OBJECTIVE 257.73(d) 4
2.0 NAME AND DESCRIPTION OF CCR SURFACE IMPOUNDMENT 4
3.0 STABLE FOUNDATION AND ABUTMENTS 257.73(d)(1)(i) 4
4.0 SLOPE PROTECTION 257.73(d)(1)(ii) 4
5.0 EMBANKMENT CONSTRUCTION 257.73 (d)(1)(iii) 4
6.0 VEGETATION CONTROL 257.73 (d)(1)(iv) 4
7.0 SPILLWAY SYSTEM 257.73(d)(1)(v) 5
8.0 BURIED HYDRAULIC STRUCTURES 257.73 (d)(1)(vi) 5
9.0 SUDDEN DRAWDOWN 257.73 (d)(1)(vii) 5

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 Flint Creek Power Plant is located near the City of Gentry, Benton County, Arkansas.
It is owned and operated by Southwestern Electric Power Company (SWEPCO). The facility operates one surface impoundment for storing CCR called the Primary Ash Pond.

The Primary Ash Pond dam is a cross valley dam on a tributary to the Little Flint Creek. The dam is 45 feet high and has side slopes of 3H:1V. The downstream slope is partially submerged by the Little Flint Creek Reservoir.

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.]

Based on the design drawings, a foundation key was constructed along the centerline of the dam. The key was excavated 6-8 feet below existing ground. The construction specifications required the area beneath the extent of the dike to be stripped of all organics and vegetation. After stripping and prior to placing compacted fill, the specifications required proofrolling of the subgrade.

Based on recent subsurface investigations, the relative density and description of the foundation materials are adequate for this CCR unit.

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 riprap on both the upstream slope and downstream slope for protection against erosion and wave action. The current condition of the riprap layer is adequate. The remaining sections of the slopes above the riprap is vegetated and maintained. 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 design drawings show that the embankment materials were to be compacted to 90% Modified proctor density. Recent borings through the embankment indicate that the material is stiff and representative of compacted earthen materials.

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

[Describe the maintenance plan for vegetative cover.]

The vegetative 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 spillway system consists of a primary weir box and pipe for normal operations and an open channel spillway to pass flood events. The CCR unit has a Low Hazard rating and design flood is the 100-year flood. The facility can safely pass this flood as well as the full PMF 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.]

There are no pipes that are part of the spillway system that are buried within or beneath the embankment.

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 downslope is partially inundated by the Little Flint Creek reservoir. The reservoir is used to supply the power plant with a source of water for operations. The principal/emergency spillway is a concrete overflow section that is only activated during large precipitation events. The overflow section has only operated 2 times since the construction of the dam. The pool level is maintained by the plant via pumps for the operation of the plant. The reservoir area and volume is large compared to the pump capacity of the plant. Therefore, the condition for a sudden drawdown of the reservoir is not feasible. The dam for the primary bottom ash pond was designed for the normal fluctuations of the Little Flint Creek Reservoir.