

STRUCTURAL STABILITY ASSESSMENT

CFR 257.73(d)

Pond 21, Pond 22, Pond 23 & WWSP

Oklahoma Power Station
Vernon, Texas

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Prepared for: Public Service Company of Oklahoma

Prepared by: American Electric Power Service Corporation

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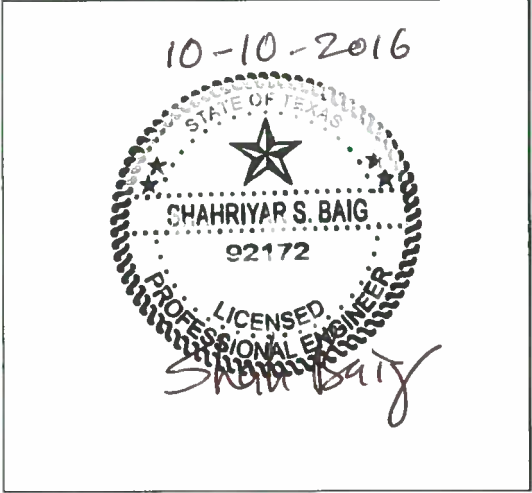
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OKLAUNION POWER STATION
POND 21, POND 22, POND 23, WWSP

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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) – document the design, construction, operations, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices.

2.0 NAME AND DESCRIPTION OF CCR SURFACE IMPOUNDMENT

The Oklaunion Power Station is located near the City of Vernon, Texas. It is owned and operated by Public Service Company of Oklahoma (PSO). Oklaunion Ponds for storing CCR include two, 5+ acre ponds for bottom ash storage and dewatering (Pond 21 and Pond 22), a 13+ acre pond for fly ash storage and dewatering (Pond 23), and a 22+ acre pond for Waster Water and Sludge (WWSP) storage and dewatering pond. These ponds are located at the south- central edge of the main evaporation pond complex of the generating station. The ponds were constructed as a continuous upground earthen embankment with 3H:1V inboard and outboard slopes and crest width of 20 feet. The design elevation of the crest is 1215 feet. These evaporation ponds do not have any outlet structures or spillways and relies on evaporation to remove water from the impoundments. These impoundments retain the wastes until it is sufficiently dry to be hauled away and landfilled.

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 construction design specifications and construction drawings, a foundation key was constructed along the centerline of the dam. The key constructed by excavating 5 feet below existing ground or to the top of rock. The foundation was stripped and the subgrade was prepared prior to construction of the embankment.

The construction specifications required stripping of the soil including all organics and vegetation beneath the extent of the dike. The stripped material was then replaced with suitable compacted embankment fill material. The subgrade was preapproved and accepted by an engineer prior to construction of the embankment. Any soft or otherwise unsuitable materials encountered during construction were removed to a depth as authorized by an engineer and replaced with suitable embankment fill material.

Based on recent subsurface investigations entitled Geotechnical Data Report prepared by Terracon, dated September 2016, the foundation materials of Pond 21, Pond 22, Pond 23, & WWSP consist of fill material over native clay soils. The consistency of the native soils increased with increasing depth, transitioning into hard soils, weathered rock followed by underlying claystone bedrock. Based on the findings, subsurface soil properties, and description of the foundation materials are adequate for this CCR unit.

Operation of the impoundment is performed so as to not adversely affect the foundation. As required by the CCR rules the CCR ponds are inspected at least every 7 days by a qualified person. Also as a requirement of the CCR rules the impoundment is also inspected annually by a professional engineer. Maintenance items are addressed as they are discovered as part of those inspections.

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

[Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown.]

Pond 21, Pond 22, Pond 23, & WWSP were constructed as a continuous above-ground earthen embankments with 3H:1V inboard and outboard slopes and crest width of 20 feet. The inboard slopes were lime stabilized to a minimum depth of two feet above the operational water level, to approximately 8 feet beyond the inboard toe. Any erosion or slips 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 construction specifications required the embankment materials and inner core to be compacted to 95% of the maximum dry unit weight. The final in-place moisture content was required to be within a range of 2 to 4 percent above optimum. 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.]

Pond 21, Pond 22, Pond 23, & WWSP have been determined to be a Low Hazard potential CCR impoundment. Based on this hazard classification the design flood as determined by section 257.82(a)(3) to be the 100-year storm which corresponds to 8.95 inches in 24 hours for this site. These ponds function purely as evaporation ponds and only receives direct rainfall as there is no water other flows into the pond area; therefore there are no outlet structures. Top of crest elevation is 1,215 ft-msl and the normal pool level is 1,213 ft-msl. The facility can safely pass the design flood without overtopping the dam crest.

Maintenance of the pond is performed as needed based on periodic 7-day and annual inspections.

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

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

Pond 21, 22, 23 and WWSP function purely as evaporation ponds and there is no outlet structures. There are no pipes 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.]

Pond 21, Pond 22, Pond 23, & WWSP only receive direct rainfall and there are no other flows into the pond area, other than plant process water, all other water is diverted away from the pond by natural drainage channels. The downstream slopes are inundated by the Make-Up Water pond for plant operations. There is no mechanism or outlet structure that could suddenly drawdown the Make-Up Water pond to impact the CCR surface impoundments.