

STRUCTURAL STABILITY ASSESSMENT

CFR 257.73(d)

Pond 6

Oklahoma Power Station
Vernon, Texas

October, 2016

Prepared for: Public Service Company of Oklahoma

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza

Columbus, OH 43215



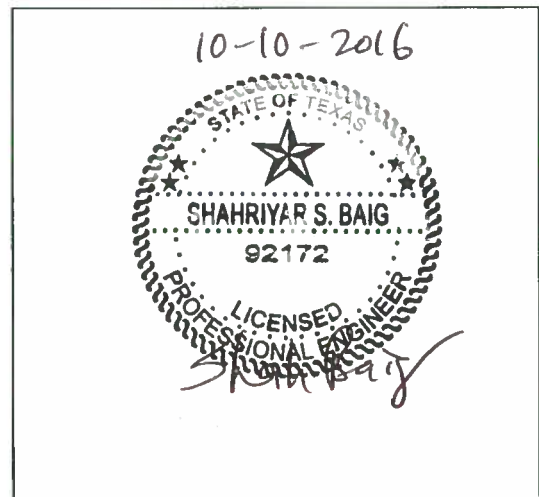
GERS-16-126

STRUCTURAL STABILITY ASSESSMENT
CFR 257.73(D)
OKLAUNION POWER STATION
POND 6

PREPARED BY M. Leifah Saadi DATE 10-4-2016
M. Leifah Saadi, E.I.T.

REVIEWED BY Shahriyar S. Baig DATE 10-4-2016
Shahriyar S. Baig, P.E.

APPROVED BY Gary F. Zych DATE 10/7/2016
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)	5
5.0 EMBANKMENT CONSTRUCTION 257.73 (d)(1)(III)	5
6.0 VEGETATION CONTROL 257.73 (d)(1)(IV)	5
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)	6

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). Pond #6 is one of five surface impoundment used for disposal of CCR. Pond #6 is located at the south- central edge of the main evaporation pond complex of the generating station. It is a side hill embankment is approximately 20 feet in height and encompasses 68 acres. The pond was constructed as a continuous upground earthen embankment with 3H:1V inboard and outboard slopes and crest width of 20 feet. Pond #6 does not have any outlet structures or spillways and relies on evaporation to remove water from the impoundment. The impoundment retains the wastes until it is sufficiently dry.

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. In 2015, Pond 6 dams were raised from elevation of 1,208 ft-msl to 1,215ft-msl to provide additional storage capacity. The revised section of the clay embankment was keyed approximately 1 foot into the existing embankment and pond material.

Based on recent subsurface investigations entitled Geotechnical Engineering Report prepared by Terracon, dated August 2015, the foundation materials of Pond 6 consist of new 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 the 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 Pond 6 is 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 6 was constructed as a continuous above-ground earthen embankment 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. The outboard slopes are grassed slopes and are mowed regularly. 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 6 has 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. Pond 6 functions purely as an evaporation pond and only receives direct rainfall as there are no water other flows into the pond area; therefore there are no outlet structures. Top of crest elevation is 1215ft-msl and the normal pool level is 1213ft-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 6 functions purely as an evaporation pond there are no other flows into the pond area. There is no outlet structure for the pond as it only receives direct rainfall and water is diverted away from the pond by natural drainage channels. Beneath the eastern embankment lies an Outfall & Make-Up Water Supply from Lake Diversion. This pipe travels north directly beneath the east embankment and turns

north/west to distribute outfall into the Make-Up Water Pond. The condition of this pipe is functional, per the design. There is no report of mis-operation of this pipe.

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 6 only receives 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 slope of Pond 6 is not expected to be inundated from any adjacent water bodies.