STRUCTURAL STABILITY ASSESSMENT
INITIAL ASSESSMENT

CFR 257.74(d)

East Bottom Ash Pond

Rockport Plant

Rockport, Indiana

October, 2023

Prepared for: Indiana Michigan Power Company – Rockport Plant

2791 North US 231

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AMERICAN ELECTRIC POWER

BOUNDLESS ENERGY

Structural Stability Assessment
Initial Assessment
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ROCKPORT PLANT
EAST BOTTOM ASH POND

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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 257.74(d)

Table of CONTENTS

1.0 OBJECTIVE 257.74(d)

This report was prepared by Worley for AEP to fulfill requirements of CFR 257.74(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 of the Rockport east bottom ash pond following the completion of a retrofit, as per the Rule.

2.0 NAME AND DESCRIPTION OF CCR SURFACE IMPOUNDMENT

The Rockport plant is located near the City of Rockport, Spencer County, Indiana.
It is owned by Indian Michigan Power Co. (I&M), a unit of American Electric Power. Historically, bottom ash was managed at the Rockport Plant, in two contiguous ponds, referred to the East and West BA Ponds. The West Bottom Ash Pond will commence closure when the retrofitted East Bottom Ash Pond goes into service and will then become a stormwater pond after closure.

The retrofitted east bottom ash pond is lined with a textured 40-mil LLDPE geomembrane overtop a geosynthetic clay liner (GCL) overtop a 10 oz/sy non-woven geotextile and discharges to the east waste water pond.

There are six main ponds within the bottom ash pond complex as listed below.

List of Main Ponds within the Bottom Ash Complex
West Bottom Ash Pond (To commence closure October, 2023)
East Bottom Ash Pond
West Waste Water Pond
East Waste Water Pond
Reclaim Pond
Clear Water Pond

The east bottom ash pond is incised on the northern and eastern sides of the pond and contains an east-to-west forebay dike at elevation 394. A north-to-south trending splitter dike separates the east bottom ash pond from the west bottom ash pond. An east-to-west trending splitter dike separates the east bottom ash pond from the east waste water pond.

The north-to-south trending splitter dike between the east bottom ash pond and the west bottom ash pond is approximately 2,000 feet long. The maximum design height of the splitter dike is 18 feet (el 399 to 381). The dike is constructed out of compacted soil. Both interior and exterior slopes are designed to be 2 horizontal to 1 veritical. Native soil is estimated to be around elevation 390, based on original design drawings.

The east-to-west trending splitter dike between the east bottom ash pond and the east waste water pond is approximately 650 feet long. The maximum design height is 20.5 feet measured from the top of dike to the bottom of the east waste water pond (el 399 to 378.5). The dike is constructed out of compacted soil. Both interior and exterior slopes are designed to be 2 horizontal to 1 vertical. Native soil is estimated to be around elevation 390, based on original design drawings.

The east-to-west forebay dike within the east bottom ash pond is approximately 650 feet long. The maximum design height is 15.5 feet measured from the top of the dike to the toe of the slope at the forebay (el 394 to 378.5). The dike is constructed out of compacted cohesive soils. Both interior and exterior slopes are designed to be 2 horizontal to 1 vertical.

3.0 STABLE FOUNDATION AND ABUTMENTS 257.74(d)(1)(i)

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

Cohesive soils from an on-site borrow area were tested and used for the east bottom ash pond subgrade and foundations and compacted to a minimum of 95% of the maximum density as determined by ASTM D698. Acceptable moisture was +/- 3% of the optimum moisture content. These compacted soils in conjunction with previous 2015 subsurface investigations indicate the foundation materials are adequate for this CCR unit.

4.0 SLOPE PROTECTION 257.74(d)(1)(ii)

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

The slopes in the east bottom ash pond are protected with an exposed textured 40-mil LLDPE geomembrane liner for the main pond area and with 3" thick (USM) concrete revetment for the pond forebay area, including the forebay dike. The geomembrane liner or concrete revetment will provide adequate protection from wave action within the east bottom ash pond.

The exterior slopes of the north-to-south trending splitter dike (west bottom ash pond side) and east-to-west splitter dike (east waste water pond side) are protected with 18-inch thick Type 1 rip rap. The current condition of the rip rap layer is adequate to provide protection from wave action.

No erosion is expected, but if any should occur it will be repaired within a timely period.

5.0 EMBANKMENT CONSTRUCTION 257.74 (d)(1)(iii)

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

Based on past design report and drawings, the original earthen embankment is a compacted soil fill with an interior clay lined layer across the base and interior side slopes of the pond. As part of the recent pond lining construction for the east bottom ash pond, cohesive soils were collected from an on-site borrow area and used to construct the pond base and side slopes and compacted to a minimum of 95% of the maximum density as determined by ASTM D698. Acceptable moisture range was +/- 3% of the optimum moisture content. Borings performed in 2015 through the embankment indicate that the existing underlying material is stiff and representative of compacted earthen materials.

6.0 VEGETATION CONTROL 257.74 (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 257.74(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 concrete weir box and a 48-inch diameter HDPE pipe which discharges to the east waste water pond. The CCR unit has a Low Hazard rating and is designed to safely pass the required 100-year storm event which reflects 7.23 inches of precipitation in a 24-hour period.

8.0 BURIED HYDRAULIC STRUCTURES 257.74 (d)(1)(vi)

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

The 48-inch diameter HDPE pipe for the concrete weir box is buried in the east-to-west trending splitter dike and discharges into the east waste water pond. Since the pipe material is HDPE it is not subjected to deterioration through corrosion. The pipe has been equipped with a watertight seal at the connection to the concrete weir box. There are no signs of settlement or sinkholes around the structure or pipe and no indications that the pipe is not functioning as intended.

9.0 SUDDEN DRAWDOWN 257.74 (d)(1)(vii)

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

The exterior slope of the north-to-south trending splitter dike is susceptible to inundation by sudden drawdown of the adjacent west bottom ash pond. A final drawdown of the west bottom ash pond will occur in 2024, as part of the scheduled cleanout and closure of the west bottom ash pond. The east bottom ash pond will be in operation at this point. This rapid drawdown scenario has been evaluated and has an adequate factor of safety.

No rapid drawdowns are expected for the east-to-west trending splitter dike between the east bottom ash pond and east waste water pond since both ponds will be continuously in normal operations and no pond cleanouts are expected for the projected life of the ponds (2028). However, this scenario has been evaluated and an adequate factor of safety exists.