

Office Memorandum

Date:	October 1, 2021
То:	Cynthia Vodopivec
cc:	Charles Koudelka
From:	Vic Modeer
Subject:	Illinois Power Generating Company Newton Power Station

BACKGROUND

The October 2016 certified "CCR Certification Report: Initial Structural Stability Assessment, Initial Safety Factor Assessment, and Initial Inflow Design Flood Control System Plan, Ash Pond at Newton Power Station" (CCR Certification Report)" prepared by AECOM describes the outlets at the Primary Ash Pond. There are two interconnected hydraulic structures that pass through the dike of the Primary Ash Pond. The Primary Ash Pond contains two concrete, stop-log weir box structures that discharge to the Secondary Pond. Weir box 1-A is located at the bottom of the embankment and is connected to the lower 30-inch diameter (dia.) cured-in-place pipe (CIPP). Weir Box 1-B is located approximately halfway up the embankment is connected to the upper 30-inch dia. CIPP. Both discharge pipes were originally 30-inch dia. corrugated metal pipe (CMP) and were lined in 2008 (see section § 257.73(c)(1)(xii) below for further information). The lower discharge pipe from weir box 1A passes through the embankment between the Primary Ash Pond and Secondary Pond. The upper discharge pipe from weir box 1B connects to the lower discharge pipe within the embankment. No other hydraulic structures pass through the dike of or underlie the base of the Primary Ash Pond.

Pipe Inspections and Structural Stability Statements. AECOM's 2016 report was certified that the pipe system met the requirements of §257.73(d)(1)(vi). The inspected pipes were free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris.

"Both sliplined CMP pipes were inspected on October 30, 2015, using CCTV inspection equipment. The inspection found that the outlet structures are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris accumulation that may negatively affect the hydraulic operation of the structure. Based on these evaluations, the Primary Ash Pond meets the requirements in §257.73(d)(1)(vi).."

EVALUATION

2021 Pipe Inspection.

The August 5, 2021 inspection was performed by Vic Modeer when the upper the lower 30-inch diameter (dia.) cured-in-place pipe (CIPP) was not discharging, and the lower 30-inch dia. cured-in-place pipe (CIPP) was flowing full. The visual inspection of the upper the lower 30-inch dia. pipe did not show any deficiencies in the concrete riser drop inlet structure, outlet conduit or the pipe. The lower concrete riser drop inlet structure did not visually show any structural deficiency. The weekly monitoring of the flow into the lower 30-inch diameter pipe and into the secondary pond has been consistent with the plant operation, i.e., the inflow volume is approximately equivalent to the outflow during periods of no rain. The inflow into the pipe and outflow did not visually reveal any flow related issues.

The possibility of a structural failure was further evaluated by visually monitoring the ground surface above and around the pipe centerline for a loss of soil or sinkhole. This type of loss of ground is described in the following: (*Kumar, G., Cecchin, I., Thomé, A. and Reddy, K.R., "Failure of Coal Ash Containment Facilities: Causes, Impacts, Remediation, and Lessons Learned;" 5th International Conference on Forensic Geotechnical Engineering, ISSMGE, 2016*). There was no loss of ground or sinkhole indicating a loss of ground due to a pipe failure. In addition, the likelihood of a seepage failure though piping of water and soil from around the pipe was visually inspected. The soil type around the pipe is a medium to high plastic clay (CCR Certification Report) that are "much less likely" to be susceptible to piping in an engineered embankment less than 30 feet in height. (*Foster, M., Fell, R. and Spannagle, M., 2000. A method for assessing the relative likelihood of failure of embankment dams by piping. Canadian Geotechnical Journal, 37(5), pp.1025-1061*).

Based on these evaluations, the Primary Ash Pond meets the requirements in \$257.73(d)(1)(vi). Please let me know if you have any questions.

Sincerely,

Vic Modeer, PE, D.GE (IL, MO, IN, KY, OH, LA) Consulting Engineer

