

Report on

Visual Inspection of the Ameren Missouri Labadie Power Plant Fly Ash and Bottom Ash Impoundment Dam

On February 22, 2012, Robert Clay and Paul Simon of the Missouri Dam and Reservoir Safety Program staff inspected the embankments that impound fly ash and bottom ash at the Labadie Power Plant. The plant is owned and operated by Ameren Missouri Corporation. We were accompanied by Mr. Tom Siegel of the St. Louis regional office of the Department of Natural Resources and several representatives of Ameren, including Mr. Matt Frerking of Ameren's dam safety program.

The purpose of the inspection was to identify observable defects or maintenance deficiencies on the embankment structures and appurtenant works. The dam consists of an earthfill embankment extending from the northeast corner of the plant site and ending near the southwest corner of the coal stockpile area. There is an interior dike which splits the impoundment into two cells, one which contains fly ash and the other bottom ash. The maximum height of the dam crest above the surrounding floodplain is 29 feet. The fly ash cell is equipped with a plastic liner. The ash is transported to the ponds in slurry form. Excess water from the fly ash pond is pumped into the bottom ash pond through two- 8-inch diameter pipes. The pumps are activated automatically when the water level reaches a pre-set elevation. Excess water from the bottom ash pond exits the structure through a 36-inch diameter pipe via gravity flow. Flow through this pipe can be controlled by operation of two butterfly valves located near the pipe outlet.

The embankment was inspected by driving the crest and toe of the embankment in all terrain utility vehicles, with stops at several areas of interest, including both outlet structures and several wet areas along the toe of the embankment. The embankment appeared to be well maintained, with frequent mowing and removal of brushy vegetation, as needed. According to Mr. Frerking, the embankment is being mowed three times yearly. This frequency of mowing is adequate for an impoundment embankment. Several wet zones were observed along the toe of the embankment. Some of these areas appear to be permanently wet as indicated by the presence of water tolerant vegetation such as cattails and Horsetail reed. Most of the wet areas had no flow and were characterized by standing water or damp soil. The exception was an area along the west side of the bottom ash cell, where flowing seepage has historically been observed. Ameren has recently constructed a slurry cutoff wall along this side of the embankment. The cutoff has been successful in reducing the observed flow considerably. On

the day of the inspection, the cumulative flow is negligible. Standard protocol on impoundment dams is to observe wet areas on a regular schedule for increases in flow, changes in clarity or color, and changes in the areal extent of the wetness. If such changes are noted, an investigation of the cause should be made by qualified engineers who are experienced in dam construction and operation.

The embankment appeared to be stable, with no scarps, bulges, cracks, depressions or other indications of land sliding, erosion or settlement. The west embankment had minor surface irregularities which may have been caused by recent clearing of trees and brush from the area. A few groundhog burrows were also observed in this area. The embankment is extremely wide at this point and the burrows are not a threat to the integrity of the dam, but the groundhogs should be trapped and removed and the burrows repaired. Small burrows were noted elsewhere, but these appeared to be moles and small rodents and pose no threat to the embankment.

Both outlet structures were observed. They appear to be in good condition and operating properly. Both structures are controlled spillways, which are operated automatically, meaning there is no human operator. This embankment is under 35 feet high and therefore not regulated under state dam safety statute. Regulated dams are required to have uncontrolled spillways that are adequate to protect the embankment from overtopping during extreme floods. The embankments at the Labadie fly ash ponds do not have nor are required to have an uncontrolled spillway.

In summary, it is our opinion that the Labadie ash pond dam is in good condition and is performing adequately. Ameren has a full time dam safety program and conducts regular inspections of the dam. In addition, the plant is staffed 24 hours per day, and plant personnel perform weekly inspections of the embankments and appurtenant structures. We believe that there are no deficiencies that currently threaten the integrity of the dam. However, we would recommend that Ameren consider constructing an uncontrolled spillway to allow for the safe discharge of flood waters should the controlled spillways fail to operate.