Comments on Draft Dam Assessment Report – Northeastern 3&4 Plant

- June 7, 2011 -

AEP has reviewed the draft report provided by Dewberry & Davis (D&D) as part of their assessment of the ash impoundment facilities at the Northeastern 3&4 Plant and would like to offer the following comments. AEP's comments are denoted in italic print after each excerpt from the D&D draft report.

INTRODUCTION, SUMMARY CONCLUSIONS AND RECOMMENDATIONS

In summary, the Northeastern Station Bottom Ash Basin is rated **POOR** for continued safe and reliable operation. These ratings are based only on the lack of critical studies and investigations available to the assessors to determine structural stability and the inundation potential of the dams and potential for dam safety deficiencies. For the pond the following recent and current information, studies and analysis are needed: rapid drawdown, factors of safety for seismic conditions, breach analysis, and hydraulic and hydrological studies. Upon receipt of data showing adequate hydraulic and structural soundness, the rating can be changed to satisfactory.

The only ash impoundment at the Northeastern 3&4 Plant is the Bottom Ash Pond. In general, AEP believes that the information and comments noted in the main text of this assessment report do not substantiate a Poor rating for this facility inspected by the consultant.

The POOR rating is based on lack of "critical" studies as noted above. However, Sections 6 through 9 of the draft report do not identify any "critical" studies that would warrant a Poor rating. AEP agrees that an analysis should be performed to verify the storage and hydraulic capacity of the Bottom Ash Pond, as noted in Section 6, and has recently completed this analysis. We will be making this report available shortly. AEP selected the design flood event applicable to a small, significant hazard dam as per the State of Oklahoma regulations for this evaluation (40% PMF). The assumption that the dam's hazard classification is significant is conservative since it may be found to be a low-hazard dam during a breach analysis scheduled to be completed by August 2011. The hydraulic and hydrological analyses determined that the Bottom Ash Pond is hydraulically adequate for the 40% PMF event with flood routing started at the spillway crest elevation (El. 625 ft.). However, the Northeastern 3&4 plant operations policy calls for the normal pool of the reservoir to be maintained at El. 623 ft. which provides a minimum freeboard of 5.5 ft.

The dam breach analysis and corresponding flood inundation map do not seem warranted to make an assessment of the structural integrity or hydraulic capacity of this facility. ***It is requested that the consultant re-evaluate the need for a dam breach analysis as it relates to the intent of these inspections.***

The rapid drawdown analysis does not seem warranted since the pond does not contain a lake drain and there is no feasible means to rapidly draw down the reservoir level. ***It is requested that the consultant re-evaluate the need for a rapid drawdown analysis as it relates to the intent of these inspections.***

Table 2.1: Summary of Dam Dimensions and Size	
	Northeastern Station Bottom Ash Basin
Dam Height (ft)	20 feet
Crest Width (ft)	29 to 59 feet
Length (ft)	3670 feet
Side Slopes (upstream) H:V	2.5 : 1
Side Slopes (downstream) H:V	2.5 : 1

The dam height in Table 2.1 of the consultant's report is inaccurate. The base of the dam at the lowest point on the downstream toe is at El. 604 ft. and the top of dam varies from approximately El. 634 ft. to El. 628.5 ft. The section through the lowest point on the downstream toe ranges from approximately El. 633.5 ft to El. 604 ft. resulting in the dam height of 29.5 ft. A nominal top of dam at El. 630 ft. is sometimes used which results in a dam height of 26 ft.

2.2.3 Boiler Slag

No information was provided concerning boiler slag.

This plant does not produce boiler slag.

3.1 SUMMARY OF LOCAL, STATE, AND FEDERAL ENVIRONMENTAL PERMITS

While the State of Oklahoma has a Dam Safety Program that is the responsibility of the Oklahoma Water Resources Board (OWRB), this embankment is not permitted by the OWRB.

The language "this embankment is not permitted by the OWRB" gives the impression that the dam is an unauthorized structure. AEP suggests the use of alternate language such as "...this embankment is not currently required to be registered as a dam by the OWRB."

4.1.1 Original Construction

The Northeastern 3 & 4 Station Bottom Ash Basin was constructed in 1979. The original overflow structure crest elevation was 629.00. (See Appendix A – Doc 04).

The spillway crest elevation is 625.0 ft.

5.2 EAST EMBANKMENT

The embankment at this facility has typically been divided into a north embankment, a west embankment, and a south embankment. The east side of the bottom ash pond is incised.

Appendix A/B

We note that D&D has chosen to include a copy of all documents provided to them by AEP as appendices to the report. While we have not raised a claim of business confidentiality for these documents, we do not believe it is necessary to include the several hundred pages of supporting documents that we provided for D&D's review. In reviewing the final reports posted by EPA on their website for other facilities, most reports from the earlier rounds of site assessments contain none of these types of documents and question why it is now being done.

We strongly recommended that these documents be deleted and as an alternative that a list of the documents that were provided be given as a bibliography in an appendix, similar to what was done by Paul C. Rizzo Associates, Inc. for Duke Energy's Dan River Steam Station, (see Appendix E):

http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/surveys2/dan-river-final.pdf

NOTE

Subject: EPA Comments on AEP OK Public Service Co - Northeastern 3 & 4 Plant, Oologah, OK
Round 9 Draft Assessment Report

To: File

Date: September 1, 2011

1. On p. ii, under INTRODUCTION, SUMMARY CONCLUSIONS AND RECOMMENDATIONS, third paragraph, fourth line, replace "dams" with "dam."

2. Page vii: Document numbering order is inconsistent from Appendix A to B – Appendix A has Doc 01 to Doc 16, Appendix B begins with Doc 20.

3. On p. 2-1, section 2.1 "Location and General Description," it may be advantageous to insert the referred project site map, which is provided in Appendix A as Doc. 02, near the written description of the plant for ease of reference. The same applies to future references to photographs of the plant or aerial site plans.

4. On p. 2-4, section 2.5.1, spell out acronyms CL, SC and GC.

5. On p. 2-4, section 2.5.1, the source of the composition of the embankment (i.e., earthen filled with sandy clay with trace gravel) should be noted. It appears from later in the section that it may be specified in original construction specifications, but should be explicitly noted.
6. On p. 2-4, section 2.5.2, if known, the capacity of the outlet structures should be noted. If unknown, or dependent upon completion of hydraulic/hydrologic analyses, should be noted.

7. On p. 2-4, section 2.6, remove the "m" at the end of the first paragraph

8. On p. 3-1, section 3.0, second bullet: complete sentence – report prepared by whom?

9. On p. 4-1, section 4.1.1, if the original embankment construction materials are known, they should be noted.

10. On p. 4-2, section 4.2.3 "Current Operational Procedures," if known, it should be noted the frequency with which Ash is mined. Additionally, definition of "mined" may be

advantageous. If the material is dredged from the Bottom Ash Pond, that description may be more useful for comprehension.

11. On p. 9-1, section 9.0 “adequacy of Surveillance and Monitoring Program,” any records or checklists that are kept as a result of quarterly inspections or water level measurements should be noted. Additionally, if there is any high water alarm in the event of a storm event, the existence or non-existence of such equipment should be noted.

12. Please label documents prior to insertion into Appendix A.

M E M O R A N D U M

TO: Jana Englander

FROM: Jerry Strauss

cc:

Date: December 22, 2011

SUBJECT: AEP Northeastern 3&4 Plant

Major Change- AEP provided a Hydrologic Analysis which was missing in the Draft Report. Note major re-writes in 1.1.2; 1.2.2; and Section 6.

EPA Comments:

- Changed technical documentation characterization to insufficient (p. ii, para 2)
- Mostly editorial and requests for clarification. Have moved the map to section 2.1 and labeled Appendix A

UTILITY COMMENTS:

- AEP does not agree with the POOR rating, but admits they did not do a seismic analysis nor an H&H study. AEP subsequently performed an H&H study that demonstrates the pond meets 40% PMF with about 2 ft of freeboard. Therefore the pond is safe based on hydrologic criteria; however they still have failed to perform a seismic analysis.
- Remainder of comments are corrections to technical data, such as elevation height and reference to the West embankment as East embankment.
- AEP has asked that Appendix A be reduced in size.