Mitman, Jeffrey

From: Galloway, Melanie NRR
Sent: Thursday, December 03, 2009 7:29 AM
To: Mitman, Jeffrey
Cc: James, Lois; Ferrante, Fernando
Subject: RE: Oconee External Flood Analyses and Associated Corrective Action Plan

Jeff,

This is an extremely insightful high-level overview. Thank you. I have highlighted a very significant bullet below--it will not be possible for the NRC to endorse Duke's information without that information.

What do you suggest as next steps?

Melanie

From: Mitman, Jeffrey NRR
Sent: Wednesday, December 02, 2009 11:56 PM
To: Galloway, Melanie
Cc: James, Lois; Ferrante, Fernando
Subject: RE: Oconee External Flood Analyses and Associated Corrective Action Plan

Melanie, here are my initial observations on the "corrective action plan."

- Our letter of April 30, 2009 states in part, "As discussed in our November 5, 2008, meeting, the NRC staff expects that the analyses discussed above which would establish an adequate licensing basis for external flooding and the technical basis for proposed closure, to be completed by November 2009. Should Duke find that additional modifications are necessary that schedule should also be provided by November 2009." Attachment 3 indicates that Duke will not know what modifications it will make nor what the implementation schedule is until 11/15/2010. Duke has not complied with the required November 2009 due date.

- Attachment 2 describes the sensitivity analysis that Duke performed. In some cases they varied important parameters from their base value to other values in the non-conservative direction only.

  For example when they varied the overtopping trigger for the Keowee Dam they started with their best estimate of 817 ft. above Mean Sea Level (MSL) and incremented it down to 815.5 ft. MSL. The top of the Keowee Dam is at 815 ft. MSL. They did not perform sensitivity cases above 817 ft. MSL. A higher trigger would hold up water behind the Keowee Dam for a longer period of time and potentially increase the inundation level at the SSF.

  The requirement to perform sensitivity analysis was intended to explore the responsiveness of the inundation depth to the individual parameters such as trigger elevation. This goal was not always accomplished.

- Two parameters that Duke acknowledges are important are the water volume impounded by the two dams, Jocassee and Keowee. The water volume impounded is controlled by the reservoir level at the time of failure. All of the analysis were conducted with the Keowee Reservoir at 800 ft. MSL. All but one of the cases were conducted with Jocassee Reservoir at a level of 1110 ft. MSL. (One case was performed with level at 1108 ft. MSL for comparison to the original 1992 analysis.) These are the full pond elevations and therefore, volumes. No sensitivity analysis was performed around these parameters. Of most interest would be cases with reservoir levels above 800 and 1110.

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- The most important sensitivity analysis deficiency is that no results of the sensitivity analysis were supplied. In addition, no evaluation of the results were supplied. Thus the NRC does not know which parameters impacted the result of interest (i.e., SSF inundation depth) the most nor by how much. It is not clear that Duke has evaluated the sensitivity analysis results.

- Attachment 1 to the letter address which parameter values were chosen for the Duke suggested case. An attempt to justify these parameter values was made. No mention of adequate protection was made nor any justification of why the chosen parameters meet the adequate protection requirement. No mention of worst case and/or most severe case was made nor any attempt to justify that the parameter values chosen are worst case and/or most severe. No mention that a reasonable assurance of adequate protection is the appropriate standard for regulatory action was made as Duke had claimed in previous presentations or why this fulfills the adequate protection requirement.

- Some Attachment 1 critical parameters (e.g. Jocassee Dam breach width and time to fail, and Keowee Dam time to fail) appear to me to be optimistic. This should really be reviewed by an experienced hydrologist.

In summary this is not a corrective action plan. This analysis documents inundation parameter values that Duke believes are appropriate and attempts to justify use of these suggested values. It describes sensitivity analysis that Duke performed on these parameter values but does not supply any insights or conclusions from this sensitivity analysis. Finally, it does not describe what corrective actions Duke intends to take nor give any indication when the actions will be completed. For a hazard which the NRC believes to have a core damage frequency at least an order of magnitude greater than all other hazards combined this proposed analysis appears inadequate.

A more detailed analysis will take longer.

Jeff

From: Mitman, Jeffrey
Sent: Wednesday, December 02, 2009 2:29 PM
To: Galloway, Melanie
Subject: RE: Oconee External Flood Analyses and Associated Corrective Action Plan

Not yet. But I'll get you a summary by COB.

From: Galloway, Melanie
Sent: Wednesday, December 02, 2009 2:27 PM
To: Mitman, Jeffrey
Subject: RE: Oconee External Flood Analyses and Associated Corrective Action Plan

Have you looked at? Can you summarize, even the high points?

From: Mitman, Jeffrey
Sent: Wednesday, December 02, 2009 1:24 PM
To: James, Lois; Galloway, Melanie; Ferrante, Fernando
Cc: See, Kenneth
Subject: FW: Oconee External Flood Analyses and Associated Corrective Action Plan

Here is the Duke Corrective Action Plan for ONS and the flooding issue.

Jeff

From: Khanna, Meena
Sent: Wednesday, December 02, 2009 10:26 AM

To: Mitman, Jeffrey
Subject: FW: Oconee External Flood Analyses and Associated Corrective Action Plan

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From: Khanna, Meena NRR
Sent: Tuesday, December 01, 2009 5:52 PM
To: Wilson, George
Subject: FW: Oconee External Flood Analyses and Associated Corrective Action Plan

George, if appropriate, could you pls send this to Dan Mahoney and other FERC folks as appropriate? thanks!

meena

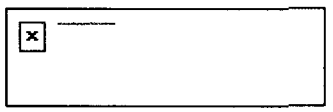
From: Khanna, Meena
Sent: Tuesday, December 01, 2009 1:31 PM
To: Raione, Richard; James, Lois
Cc: Wilson, George
Subject: Oconee External Flood Analyses and Associated Corrective Action Plan

Attached is the corrective action plan that Duke submitted to us yesterday, in response to the 50.54(f) letter.

From: Gambrell, Reene' V [mailto:Reene'.Gambrell@duke-energy.com] DUKE
Sent: Monday, November 30, 2009 5:32 PM
To: Stang, John; jamjz@comcast.net; Khanna, Meena
Cc: Alter, Kent R
Subject: Oconee External Flood Analyses and Associated Corrective Action Plan

John,

Attached is the response for the Oconee External Flood Analyses and associated corrective actions.

Thanks,

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