## PMBelCOL PEmails

**From:** Joseph Sebrosky
**Sent:** Monday, December 15, 2008 4:15 PM
**To:** PMBelCOL PEmails
**Cc:** Christopher Cook
**Subject:** Summary of July 14, and July 17, 2008, discussion with TVA regarding hydrology review for the Bellefonte Combined License Application

MEMORANDUM TO: File (Docket No. 52-014 and 52-015, Bellefonte Units 3 and 4 COL Applications

FROM: Joseph Sebrosky, Senior Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: Summary of July 14, and July 17, 2008, discussion with TVA regarding hydrology review for the Bellefonte Combined License Application

On July 14, 2008, and July 17, 2008, there was a discussion with TVA staff regarding the hydrology review for the Bellefonte Combined License application. The purpose of the phone calls were to discuss a draft request for additional information regarding TVA calculations to conservatively estimate the design basis flood height at the Bellefonte site. The participants on the July 14, and 17, 2008, phone calls included Mark Thaggard, Chris Cook, and Joe Sebrosky of the NRC. Andrea Sterdis of TVA was the main participant on the call for TVA.

Background

During the Environmental Site Audit, TVA staff approached NRC regarding a discussion on bounding and conservative techniques in order to highlight the conservatisms employed in the SOCH model. A brief discussion was subsequently held on April 3, 2008, during the Environmental Site Audit, on the techniques used by NRC staff during the Early Site Permitting (ESP) reviews to conservatively estimate the design basis flood height using simplified techniques (i.e., techniques other than the SOCH model). The April 3, 2008, discussion is summarized in a December 12, 2008, email (see ADAMS accession NRC ML083470265). The staff understood at the end of the April 3 meeting that TVA and their contractors were going to pursue similar techniques to conservatively estimate the design basis flood height at the Bellefonte Site. These techniques were also going to investigate potentially raising the site grade by up to 10 ft above the COLA grade elevation. During the Hydrology Safety Site Audit on May 13, 2008, staff enquired about these calculations and their results. TVA contractors reported that calculation using simplified techniques only produced results above the site grade.

As a result of the above interactions the staff developed a draft RAI regarding the TVA calculations. The draft RAI was included in the set of hydrology RAIs that were sent to TVA on 6/18/2008 (see ADAMS accession ML081700446). Specifically, draft ERAI 398 1st question stated the following:

*"Provide a description of any bounding calculations performed without the Simulated Open Channel Hydraulics (SOCH) code to estimate the Probable Maximum Flood (PMF) elevation at the Bellefonte site."*

In a series of phone calls with NRC management TVA indicated that this question was problematic and did not believe that the question had a regulatory basis since the calculations that TVA performed were exploratory in nature and did not support the application.

Summary of July 14, and 17, 2008 phone call

The above lead to the July 14, 2008, and July 17, 2008, phone calls were the NRC staff indicated that it would revise the question as follows:

*"Based on Rev 0 of the FSAR, the design basis flood elevation is 4.6 ft below the site grade and 1.1 ft below the lower ITAAC elevation band. Given the relatively small margin between the design flood elevation and the site grade/ITAAC requirements, the conservatisms incorporated into the SOCH model are being examined in detail. During the Environmental Site Audit, TVA staff approached NRC regarding a discussion on bounding and conservative techniques in order to highlight the conservatisms employed in the SOCH model. A brief discussion was subsequently held on April 3, 2008, during the Environmental Site Audit, on the techniques used by NRC staff during the Early Site Permitting (ESP) reviews to conservatively estimate the design basis flood height using simplified techniques (i.e., techniques other than the SOCH model). NRC staff understood at the end of the April 3 meeting that TVA and their contractors were going to pursue similar techniques to conservatively estimate the design basis flood height at the Bellefonte Site. These techniques were also going to investigate potentially raising the site grade by up to 10 ft above the COLA grade elevation. During the Hydrology Safety Site Audit on May 13, 2008, staff enquired about these calculations and their results. TVA contractors reported that calculation using simplified techniques only produced results above the site grade.*

*Staff requests that TVA provide a description of these calculations, which estimate the design basis flood elevation using simplified techniques. The description of the calculations should indicate the range of the design basis flood height using techniques other than the SOCH model. Although the design basis flood elevation produced by these simplistic techniques extends above the site grade, the magnitude of the excursion is important to document since it indicates the conservatisms incorporated into the SOCH model."*

During the July 14, 2008, and July 17, 2008, phone call the staff indicated that it believed the RAI response had a regulatory basis and the response would be used by the staff as an aid in guiding its review and what confirmatory calculations the staff would perform. TVA indicated that because the calculations were exploratory in nature they were not retained as part of TVA's quality assurance program (i.e., 10 CFR Appendix B) and TVA was not sure that it could retrieve the calculations. TVA also indicated that although it looked at raising the Bellefonte site and explored the use of calculations that did not involve SOCH, it ultimately decided that its design basis flood calculation for the Bellefonte site would remain SOCH and it did not intend to elevate the site. Because the non-SOCH calculations did not support TVA's design basis, and because TVA indicated that it would most likely not provide a response to the question that would aid the staff in its review, the staff deleted the question from the final hydrology RAIs that were ultimately sent to TVA.

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**Created By:** Joseph.Sebrosky@nrc.gov

**Recipients:**
"Christopher Cook" <Christopher.Cook@nrc.gov>
Tracking Status: None
"PMBelCOL PEmails" <PMBelCOL.PEmails@nrc.gov>
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