



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 26, 2010

LICENSEE: Tennessee Valley Authority (TVA)

FACILITY: Sequoyah Nuclear Plant, Units 1 and 2; Browns Ferry Nuclear Plant, Units 1, 2, and 3; Watts Bar Nuclear Plant, Unit 1 (TVA Operating Nuclear Plants)

SUBJECT: SUMMARY OF JULY 7, 2010, PUBLIC MEETING WITH TVA REGARDING STATUS OF HYDROLOGY ISSUES INCLUDING THE FLOODING EFFECTS ON THE TVA OPERATING NUCLEAR PLANTS

On July 7, 2010, a Category 1 public meeting was held between Nuclear Regulatory Commission (NRC) staff and representatives of TVA (the licensee). The purpose of the meeting was for the licensee to present the history, ongoing actions, and planned actions associated with the flooding effects on the TVA operating nuclear plants. The flooding effects are based on the calculation of probable maximum flood (PMF) elevation levels. Enclosure 1 contains a list of attendees. The licensee's presentation slides may be accessed from the NRC Agencywide Documents Access and Management System, Accession No. ML101930166.

#### Background

As part of the review of Bellefonte Units 3 and 4 combined license application, the NRC inspection team identified deficiencies in quality assurance processes and procedures that were implemented for TVA's simulated open channel hydraulics (SOCH) computer model that was used to calculate the PMF levels at Bellefonte Units 3 and 4. Since the SOCH computer model was utilized for PMF calculations predictions at TVA's operating nuclear plants, TVA revisited the existing design basis flood calculations for the operating nuclear plants. TVA found the calculations did not reflect the current river configuration and some assumptions used in the calculations were not correct. TVA's preliminary hydrology re-analyses indicated that the current licensing basis did not bound the re-analyses results. As a result, TVA put interim compensatory measurements in place at Sequoyah Nuclear Plant to meet the short term operability requirements, and made temporary modifications on some of the dams to ensure that adequate flood protection is maintained.

TVA stated that they need to perform the rigorous hydrology analyses to calculate the accurate PMF levels. After completion of the rigorous analyses, TVA will then determine the needed permanent modifications. At this time, TVA was not able to provide the time table for completion of the permanent modifications. While TVA is performing rigorous analyses to meet the long term design basis requirements and finite element analyses to demonstrate dam stability, the NRC staff asked TVA for this public meeting to discuss the complete status of the TVA hydrology issues.

Highlights from the Meeting

- TVA provided an overview of the hydrology status for the operating plants.
- The NRC staff expressed concerns regarding the TVA schedule to complete structural finite element analyses of Cherokee and Douglas dams. TVA stated that the analyses would be completed in 18 months, but these analyses may impact the PMF.
- The NRC staff questioned TVA regarding the alternate plans to maintain the safety of operating plants during any flooding event in case the finite element analyses results are unfavorable.
- The NRC staff asked TVA the overall schedule for completing the PMF analyses, making any needed modifications to the affected plants, and updating the plant Updated Final Safety Analysis Reports.
- The NRC staff questioned the effect of a delay in operator actions in the case of delayed notifications from river operations. This question arose from the NRC's last review of the PMF analyses.
- NRC staff asked the licensee whether any licensing actions are required to meet the design basis flooding requirements. The licensee stated that they will not know until Title 10, *Code of Federal Regulations*, Section 50.59 screening has been finalized. NRC staff is interested to know the schedule for this to happen.
- The NRC staff asked TVA whether any additional compensatory measures were needed during transition periods, such as when the permanent modifications are made to the dams.
- The NRC staff asked the licensee when the corrective actions would be completed, and when the Final Safety Analysis Report would be updated to support licensing of Watts Bar Nuclear Plant, Unit 2.
- The NRC staff asked for an integral schedule for both operating and new plants. The NRC staff requested this information to determine how to review TVA's analyses most efficiently.

R. Krich

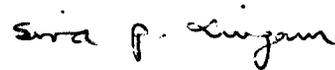
- 3 -

Enclosure 2 lists the action items resulting from the meeting.

No commitments or regulatory decisions were made by the NRC staff during the meeting.

Members of the public were not in attendance. Public Meeting Feedback forms were not received.

Please direct any inquiries to me at 301-415-1564, or by email to [siva.lingam@nrc.gov](mailto:siva.lingam@nrc.gov).



Siva P. Lingam, Project Manager  
Plant Licensing Branch 2-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-327, 50-328, 50-259,  
50-260, 50-296, and  
50-390

Enclosures:

1. List of Attendees
2. Action Items

cc w/encl: Distribution via Listserv

LIST OF ATTENDEES

U. S. NUCLEAR REGULATORY COMMISSION (NRC)

PUBLIC MEETING WITH TENNESSEE VALLEY AUTHORITY (TVA),

REGARDING THE STATUS OF TVA HYDROLOGY ISSUES

INCLUDING FLOODING EFFECTS ON THE TVA OPERATING NUCLEAR PLANTS

July 7, 2010

NRC

Allen Howe  
Doug Broaddus  
Eugene Guthrie  
Kamal Manoly  
Neil Coleman  
Juan Uribe  
Fernando Ferrante  
Stewart Bailey  
Keith Tetter  
Ken See  
Jill Caverly  
Siva P. Lingam  
Cale Young (By Phone)  
Marie Pohida (By Phone)

TVA

Rod Krich  
Rod cook  
Mark Ray  
Penny Selman  
Perry Maddux  
Gordon Arent  
Donald Sutton (By Phone)

ACTION ITEMS

U. S. NUCLEAR REGULATORY COMMISSION (NRC)

PUBLIC MEETING WITH TENNESSEE VALLEY AUTHORITY (TVA),

REGARDING THE STATUS OF TVA HYDROLOGY ISSUES

INCLUDING FLOODING EFFECTS ON THE TVA OPERATING NUCLEAR PLANTS

JULY 7, 2010

Responses to the following items will be provided by the licensee in a letter to the NRC on multiple dockets.

1. Provide information regarding the ability of the temporary dam modifications to withstand debris and impact loading.
2. Determine if the Finite Element Analysis (FEA) schedule of 18 months can be improved.
3. Provide the schedule for completing the analyses and modifications at the operating nuclear plants, and also include Bellefonte Nuclear Plant.
4. Provide the fall back plans if the FEA produces unfavorable results such as higher probable maximum flood elevation.
5. What is the impact on the operating plants during final dam embankment modifications (i.e., for the period when the temporary modifications are being replaced by permanent modifications)?
6. What is the effect of any reasonable delay in River Operations' notifications to the sites on the margins for actions at the plant sites? This also includes Watts Bar Nuclear Plant, Unit 2.
7. What is the schedule for returning the operating plants to conformance with their respective Updated Final Safety Analyses reports? This includes any effects from changes to the Chickamauga locks.
8. Check the Sequoyah Nuclear Plant, Units 1 and 2 (SQN) license event report (LER) to confirm that a supplement was committed to; submit an updated SQN LER as appropriate.

R. Krich

- 3 -

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*/RA/*

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NRC-001

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