

NRR-PMDAPEm Resource

From: Lingam, Siva
Sent: Friday, August 16, 2013 8:58 AM
To: Shea, Joseph W (jwshea@tva.gov); Schrull, Edward Dustin (edschrull@tva.gov)
Cc: Poole, Justin; Uribe, Juan; Hoang, Dan; Broaddus, Doug; See, Kenneth; Cook, Christopher; Hon, Andrew; McMurtray, Anthony
Subject: RE: WATTS BAR, UNIT 1 – RAI RE: LICENSE AMENDMENT REQUEST TO UPDATED FINAL SAFETY ANALYSIS REPORT CHANGES ASSOCIATED WITH HYDROLOGIC ANALYSIS (TAC NO. ME9130)

Please note that these RAIs are also applicable to Sequoyah hydrology LAR.

From: Hon, Andrew
Sent: Thursday, August 15, 2013 4:35 PM
To: Shea, Joseph W (jwshea@tva.gov); Schrull, Edward Dustin (edschrull@tva.gov)
Cc: Lingam, Siva; Poole, Justin; Uribe, Juan; Hoang, Dan; Broaddus, Doug; See, Kenneth; Cook, Christopher
Subject: WATTS BAR NUCLEAR STATION, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION RELATED TO LICENSE AMENDMENT REQUEST TO UPDATED FINAL SAFETY ANALYSIS REPORT CHANGES ASSOCIATED WITH HYDROLOGIC ANALYSIS (TAC NO. ME9130)

Mr. Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR STATION, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION RELATED TO LICENSE AMENDMENT REQUEST TO UPDATED FINAL SAFETY ANALYSIS REPORT CHANGES ASSOCIATED WITH HYDROLOGIC ANALYSIS (TAC NO. ME9130)

Dear Mr. Shea:

By letter dated July 19, 2012, you submitted an application for license amendment to revise the Updated Final Safety Analysis Report (UFSAR) to adopt a revised hydrologic analysis for Watts Bar Nuclear Plant (WBN) Unit 1. These changes to the WBN Unit 1 UFSAR incorporated updates previously submitted in support of the initial licensing of WBN Unit 2 as well as more recently discovered input information.

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. The proposed questions were discussed by telephone with your staff on August 15, 2013. Your staff confirmed that these questions did not include proprietary or security-related information and agreed to provide a response within 30 days from the date of this request for additional information (RAI).

The NRC staff considers that timely responses to RAIs help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-8480 or via e-mail Andrew.Hon@nrc.gov.

Sincerely,

R/A

Andrew Hon, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure:
Request for Additional Information

REQUEST FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST TO
UPDATED FINAL SAFETY ANALYSIS REPORT CHANGES
ASSOCIATED WITH HYDROLOGIC ANALYSIS
TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT, UNIT 1
DOCKET NO. 50-390

By letter dated July 19, 2012 (Agencywide Documents Access and Management System Accession No. ML122360173), the Tennessee Valley Authority (the licensee or TVA), submitted a license amendment request (LAR) to revise the Watts Bar Nuclear Plant (WBN), Unit 1 Updated Final Safety Analysis Report to reflect the results from new hydrologic analysis. These proposed changes are consistent with the latest approved hydrology calculations. The proposed changes in the updated hydrologic analysis include updated input information, and updates to methodology that include the use of the U.S. Army Corps of Engineers Hydrologic Modeling System and River Analysis System software. In order to complete its review of the above documents, the U.S. Nuclear Regulatory Commission (NRC) staff requests additional information.

Regulatory Basis:

10 CFR Part 100, requires identifying and evaluating hydrologic features of the site.

10 CFR 100.23(d) sets forth the criteria to determine the siting factors for plant design bases with respect to seismically induced floods and water waves at the site.

10 CFR 50, Appendix A, General Design Criteria (GDC) 2, requires consideration of the most severe of the natural phenomena that have been historically reported for the site and surrounding area, with sufficient margin for the limited accuracy, quantity, and period of time in which the historical data have been accumulated.

10 CFR 50, Appendix A, GDC 44, requires providing an ultimate heat sink for normal operating and accident conditions.

Technical Basis:

Based on TVA's presentation at the July 30-31, 2013 public meeting, the NRC staff has re-examined its confirmatory hydrologic model and inputs to determine if updates are needed. The staff has identified three items that need updates to include current characteristics of the river-reservoir system and the system's response during a Probable Maximum Precipitation (PMP) event. These are:

1. Updating Watts Bar West Saddle Dike geometry to account for discharge due to its complete failure during the PMF.
2. Including rim leaks upstream and around Watts Bar and Ft. Loudoun Dams, the largest of which bypasses Watts Bar Dam via Watts Creek.
3. Updating the representation of Dallas Bay rim leak into the Lick Branch upstream of Chickamauga Dam to account for revisions by the TVA in their updated hydrologic analyses.

The following is the list of calculation packages that have been revised by TVA were presented in the July 30-31, 2013 public meeting. In order to incorporate the information in the updated TVA calculation packages into the staff's confirmatory hydrologic analysis model as the documented basis of our safety evaluations, it is

necessary that those calculation packages be docketed. Please indicate the portion(s) of your response, if any, should be withheld from public disclosure under 10 CFR 2.390.

1. "CDQ000020080054_Rev_3.pdf", which includes a discussion of the methods applied to Dallas Bay rim leak for the 21,400 mi² PMP case. This calculation package also includes several attachments, of which the following are also needed:
 - Attachment "CDQ000020080054_APPENDIX_H.pdf", which includes discussion, discharge plots, and a Chickamauga-Dallas Bay rating curve.
 - Attachment "CDQ000020080054_Appendix H - H.pdf"
 - Attachment: "21400_Seg1_WBNSQN_Elevation and Discharge Plots_CurrentLockConfig_Rev3.xlsx"
 - Worksheet: "Elevation and Discharge Data"
 - Attachment: "21400_Seg2_WBNSQN_Elevation and Discharge Plots_CurrentLockConfig_Rev3.xlsx"
 - Worksheet: "Dallas Bay 2.86 Plot"
 - Worksheet: "Looped Rating Curve Data"
 - Attachment: "21400_Seg2_WBNSQN_Maximum Profile Plots_CurrentLockConfig_Rev3.xlsx"
 - Worksheet: "Tennessee River Max Elevation"
 - Worksheet: "Tennessee River Max Discharge"
 - Worksheet: "North Chickamauga Max Elevation"
 - Worksheet: "North Chickamauga Max Discharge"
 - Worksheet: "Lick Branch Max Elevation"
 - Worksheet: "Lick Branch Max Discharge"
2. "CDQ000020080054_APPENDIX G.pdf", which includes a discussion of the methods applied to Dallas Bay rim leak for June 7980 mi² PMP case. This calculation package also includes the following attachment which is needed:
 - Attachment: "CDQ000020080054_Appendix G-G.pdf"
 - "7980_BGJUN_WBNSQN_Seg2_Elevation and Discharge Plots20110808.xlsx"
 - Worksheet: "Elevation and Discharge Data"
3. "CDQ000020080054_APPENDIX_M.pdf", which includes a discussion of the methods applied to Dallas Bay rim leak for March 7980 mi² PMP case. This calculation package also includes the following attachment which is needed:
 - Attachment: "CDQ000020080054_Appendix M-M.pdf"
 - "7980BGMAR_SQN_WBN_Current_Seg1_Elevation and Discharge Plots.xlsx"
 - Worksheet: "Elevation and Discharge Data"
 - "7980BGMAR_SQN_WBN_Current_Seg2_Elevation and Discharge Plots.xlsx"
 - Worksheet: "Elevation and Discharge Data"
4. "Calc_CDQ000020080020 Rev4.pdf", which includes a discussion of the methods applied to Watts Bar West Saddle Dike. This calculation package also includes the following attachments that are needed:
 - Attachment 21: "Watts Bar Area Topo.pdf"
 - Attachment 20: "Watts Bar Rating Curves Rev4.xlsm"
 - Worksheet: "W. Saddle Dam"

5. "Calc_CDQ000020080020 Rev4.pdf", which includes a discussion of the methods applied to account for rim leaks around Watts Bar Dam. This calculation package also includes the following attachments that are needed:
 - Attachment 21: "Watts Bar Area Topo.pdf"
 - Attachment 20: "Watts Bar Rating Curves Rev4.xlsm"
 - Worksheet: "Weir 7 Crit Discharge"
 - Worksheet: "Weir 7 Rating Curve"
 - Worksheet: "Additional Weirs"

6. "CDQ000020080009.PDF"
(["Calc_CDQ000020080009_Dam_Rating_Curve_Fort_Loudoun_Rev_3_15Jun12.pdf"](#)), which includes a discussion of the methods applied to account for rim leak around Fort Loudoun Dam. This calculation package also includes the following attachments that are needed:
 - Attachment: 16 – "Fort Loudoun DRC_Rev3.xls"
 - Worksheet: "Additional Weir Flow"
 - 17 – "Fort Loudoun Area Topo.pdf"

Hearing Identifier: NRR_PMDA
Email Number: 806

Mail Envelope Properties (Siva.Lingam@nrc.gov20130816085700)

Subject: RE: WATTS BAR, UNIT 1 – RAI RE: LICENSE AMENDMENT REQUEST TO
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Sent Date: 8/16/2013 8:57:36 AM

Received Date: 8/16/2013 8:57:00 AM

From: Lingam, Siva

Created By: Siva.Lingam@nrc.gov

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Tracking Status: None

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Tracking Status: None

Post Office:

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MESSAGE	9564	8/16/2013 8:57:00 AM

Options

Priority: Standard

Return Notification: No

Reply Requested: No

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