



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

August 28, 2013

10 CFR 50.4
10 CFR 2.390(d)(1)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 1
Facility Operating License No. NPF-90
NRC Docket No. 50-390

Sequoyah Nuclear Plant, Units 1 and 2
Facility Operating License Nos. DPR-77 and DPR-79
NRC Docket Nos. 50-327 and 50-328

Subject: Response to NRC Request for Additional Information Related to the Application to Revise the Updated Final Safety Analysis Report Regarding Changes to the Hydrologic Analysis for Watts Bar Nuclear Plant, Unit 1, and Sequoyah Nuclear Plants, Units 1 and 2

- References:**
1. Letter from TVA to NRC, "Application to Revise Watts Bar Nuclear Plant Unit 1 Updated Final Safety Analysis Report Regarding Changes to Hydrologic Analysis, TAC No. ME8200 (WBN-UFSAR-12-01)," dated July 19, 2012 (ML122360173)
 2. Electronic Mail from A. Hon (NRC) to J. W. Shea (TVA), "Watts Bar Nuclear Station, Unit 1 - Request for Additional Information Related to License Amendment Request to Updated Final Safety Analysis Report Changes Associated with Hydrological Analysis (TAC No. ME9130)," dated August 15, 2013 (ML13231A082)
 3. Letter from TVA to NRC, "Application to Revise Sequoyah Nuclear Plant Units 1 and 2 Updated Final Safety Analysis Report Regarding Changes to Hydrologic Analysis, (SQN-TS-12-02)," dated August 10, 2012 (ML12226A561)
 4. Electronic Mail from S. Lingam (NRC) to E. D. Schrull (TVA), "Watts Bar Nuclear Station, Unit 1 - Request for Additional Information Related to License Amendment Request to Updated Final Safety Analysis Report Changes Associated with Hydrological Analysis (TAC No. ME9130)," dated August 16, 2013 (ML13231A082)

By letter dated July 19, 2012 (Reference 1), Tennessee Valley Authority (TVA) submitted an application to revise the Watts Bar Nuclear Plant (WBN), Unit 1 Updated Final Safety

~~Security-Related Information Withhold Under 10 CFR 2.390-~~
~~This letter is decontrolled when separated from Attachment OSM-1.~~

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Analysis Report to reflect the results from a new hydrologic analysis. By letter dated August 10, 2012 (Reference 3), TVA submitted a LAR to revise the Sequoyah Nuclear Plant (SQN), Units 1 and 2 Updated Final Safety Analysis Report to reflect the results from the same hydrologic analysis. The proposed changes include updated input information, and updates to the methodology that include the use of U. S. Army Corps of Engineers Hydrologic Modeling System and River Analysis System software.

On August 15, 2013, the NRC transmitted a request for additional information (RAI) by electronic mail (email) for WBN, Unit 1 (Reference 2). The staff identified three items in the NRC's confirmatory hydrologic analysis model that require the updated information contained in TVA's new hydrologic analysis addressed in the Reference 1 submittal. The RAI requested that TVA submit for docketing, six specific calculation packages contained in the new TVA hydrologic analysis. The response to the RAI is due by September 13, 2013. The enclosure to this letter provides TVA's response.

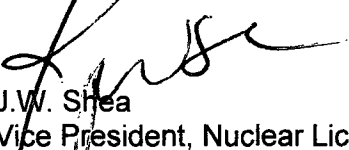
On August 16, 2013, the NRC clarified by email (Reference 4) the applicability of the subject RAI to SQN, Units 1 and 2. As a result, the enclosed TVA response is also applicable to SQN, Units 1 and 2.

The requested information is contained in the attached Optical Storage Media (OSM) (Attachment OSM-1). The OSM contains security-related information identified by the designation "Security-Related Information - Withhold Under 10 CFR 2.390." TVA requests this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390.

There are no new regulatory commitments included in this submittal. Please address any questions regarding this submittal to Edward D. Schrull at (423) 751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 28th day of August 2013.

Respectfully,


J.W. Shea
Vice President, Nuclear Licensing

Enclosure:

Response to NRC Request for Additional Information Related to License Amendment
Request to Updated Final Safety Analysis Report Changes Associated with Hydrologic
Analysis for Watts Bar Nuclear Plant, Unit 1

Attachment:

OSM-1 "Security-Related Information Withhold Under 10 CFR 2.390"

cc: See Page 3

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~~This letter is decontrolled when separated from Attachment OSM-1.~~

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Enclosure
cc (Enclosure w/o attachment):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Sequoyah Nuclear Plant
NRC Senior Resident Inspector - Watts Bar Nuclear Plant, Unit 1
PNNL

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT, UNIT 1
SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

Subject: **Response to NRC Request for Additional Information Related to the Application to Revise the Updated Final Safety Analysis Report Regarding Changes to the Hydrologic Analysis for Watts Bar Nuclear Plant, Unit 1, and Sequoyah Nuclear Plants, Units 1 and 2**

NRC RAI

By letter dated July 19, 2012 (Reference 1), Tennessee Valley Authority (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. On August 15, 2013, the NRC transmitted a request for additional information (RAI) by electronic mail (email) (Reference 2). The RAI requests that TVA submit for docketing, six specific calculation packages contained in the new TVA hydrologic analysis. The RAI requests and TVA response are presented below:

- 1.0 "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"

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- 2.0 "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"
- 3.0 "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"
- 4.0 "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"
- 5.0 "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"
- 6.0 "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"
 - Attachment 17 – "Fort Loudoun Area Topo.pdf"

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TVA Response

TVA is providing the requested updated calculation packages in electronic format via the enclosed OSM (Attachment OSM-1). Each file is password protected, please contact Edward D. Schrull at (423) 751-3850 for the password. The contents of the OSM follow:

	File Name	File Size
1	1_CDQ000020080054 R3 Body Only.pdf	11,305 KB
2	2_CDQ000020080054 R3 Appendix H 21,400 Sq-Mi.pdf	7,161 KB
3	3 thru 5_CDQ000020080054 R3 Appendix H-H documents.pdf (with attached Excel files)	2,125 KB
	- 3_CDQ000020080054 R3 Appendix H-H 21400 Segment 1 Elevation and Discharge Data.xlsx	189 KB
	- 4_CDQ000020080054 R3 Appendix H-H 21400 Segment 2 Elevation and Discharge Plots Requested.xlsx	5,241 KB
	- 5_CDQ000020080054 R3 Appendix H-H 21400 Segment 2 Maximum Profile Plots Requested.xlsx	70 KB
4	6_CDQ000020080054 R3 Appendix G 7,980 Sq-Mi, Bulls Gap June.pdf	4,935 KB
5	7_CDQ000020080054 R3 Appendix G-G documents.pdf (with attached Excel file)	155 KB
	- 7_CDQ000020080054 R3 Appendix G-G 7980_BGJUN_Segment 2_Elevation and Discharge Data.xlsx	146 KB
6	8_CDQ000020080054 R3 Appendix M 7,980 Sq-Mi Bulls Gap March.pdf	6,929 KB
7	9 and 10_CDQ000020080054 R3 Appendix M-M documents.pdf (with attached Excel files)	311 KB
	- 9_CDQ000020080054 R3 Appendix M-M 7980BGMAR_Segment 1_Elevations and Discharge Data.xlsx	189 KB
	- 10_CDQ000020080054 R3 Appendix M-M 7980BGMAR_Segment 2_Elevations and Discharge Data.xlsx	139 KB
8	11_CDQ000020080020 R4 Body Only.pdf	8,783 KB
9	12_CDQ000020080020 R4 Attachment 21 Watts Bar Area Topo.pdf	9,444 KB
10	13_CDQ000020080020 R4 Attachment 20.pdf (with attached Excel file)	189 KB
	- 13_CDQ000020080020 R4 Attachment 20 Watts Bar Rating Curves Requested.xlsm	181 KB
11	14_CDQ000020080009 R3 Body Only.pdf	4,791 KB
12	15_CDQ000020080009 R3 Attachment 16.pdf (with attached Excel file)	34 KB
	- 15_CDQ000020080009 R3 Attachment 16 Fort Loudon DRC Additional Weir Flow.xls	99KB
13	16_CDQ000020080009 R3 Attachment 17 Fort Loudon Area Topo.pdf	1,352 KB
14	Attachment OSM-1 Index.pdf	19 KB