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

CNL-14-004

January 17, 2014

10 CFR 50.4

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

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

Subject: **Response to an NRC Verbal Request for Additional Information Related to the License Amendment Request to Updated Final Safety Analysis Report Changes Associated with the Hydrologic Analysis (TAC ME9130)**

Reference: 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 (ADAMS Accession No. ML122360173)

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 (UFSAR) to reflect the results from a new hydrologic analysis. The LAR included a discussion of a compensatory measure related to the Intake Pumping Station, wherein sandbags would be staged to construct a berm to prevent water intrusion.

On January 3, 2014, Mr. Andrew Hon, NRC Project Manager for WBN, Unit 1, verbally requested additional information regarding the in-process permanent modification to replace the staged sandbags. Enclosure 1 to this letter provides TVA's response to the verbal request.

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.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosure:
cc: See page 2

Enclosure:

Response to the NRC Verbal Request for Additional Information related to the Permanent Modification at the WBN, Unit 1, Intake Pumping Station

cc: (Enclosure):

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

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT, UNIT 1
Response to the NRC Verbal Request for Additional Information related to the Permanent Modification at the WBN, Unit 1, Intake Pumping Station

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 (ADAMS Accession No. ML122360173).
2. Letter from TVA to NRC, "Commitments Related to Updated Hydrologic Analysis Results for Sequoyah Nuclear Plant, Units 1 and 2, and Watts Bar Nuclear Plant, Unit 1," dated June 13, 2012 (ADAMS Accession No. ML12165A186).
3. Letter from NRC to TVA, "Confirmatory Action Letter - Watts Bar Nuclear Plant, Unit 1, and Sequoyah Nuclear Plant, Units 1 and 2, Commitments to Address External Flooding Concerns (TAC Nos. ME8805, ME8806, and ME8807)," dated June 25, 2012 (ADAMS Accession No. ML12165A527).

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 (UFSAR) to reflect the results from a new hydrologic analysis. The Evaluation of Proposed Changes that was Enclosure 1 to that LAR included the following discussion related to the WBN, Unit 1, Intake Pumping Station:

> "The Intake Pumping Station (IPS) is designed to have the Essential Raw Cooling Water (ERCW) System and the High Pressure Fire Protection (HPFP) System remain fully function for the DBF. The revised DBF elevation for the critical face of the IPS results in the possibility of flooding of the IPS impacting ERCW equipment required for flood mode operation located on elevation 722 ft. The IPS structure contains various equipment required to support the ERCW and HPFP systems. The IPS contains the ERCW and HPFP pumps, travelling water screens and support equipment including screen wash pumps, ERCW strainers and support equipment including backwash valves and pressure indicators, and HPFP strainers and support equipment including backwash valves and pressure indicators. During a DBF event, surge is accounted for by considering the sum of the wind wave and runup on the critical face of the IPS combined with the PMF stillwater elevation, which conservatively results in an internal flood elevation of 741.7 ft for the IPS. While this does not wet any flood-sensitive equipment on elevation 741.0 ft, the ERCW strainers and support equipment are located on elevation 722.0 ft of the IPS, connected to elevation 741.0 ft via stairwells and doors W001 and W002 at elevation 741.0 ft. The critical elevation of flood-sensitive equipment located on elevation 722.0 ft is approximately 18 inches above the floor elevation. Doors W001 and W002 both have 0.5 ft concrete berms at the opening to elevation 741.0 ft, which raises the critical elevation for floodwaters to be capable of wetting elevation 722.0 ft to elevation 741.5 ft. As a result of this increase, a compensatory measure of staged sandbags to be constructed into a berm at any time prior to or during the event of a Stage I flood warning has been implemented. These sandbags will be constructed into a berm at least 12 inches in height to prevent water intrusion to elevation 722.0 ft. Additionally, two non-safety related sump pumps in each of the ERCW Train A and B strainer rooms, connected to safety-related power sources, are available to expel water leakage to this elevation outside the structure. TVA's established corrective action program requirements are being implemented to address the need for additional

compensatory measures necessary to provide flood protection for the IPS internal systems and components, including the need for permanent plant modifications."

In order to remove the compensatory measure of a constructed berm using staged sandbags, TVA is installing permanent flood barriers at the W001 and W002 doors in the IPS. During a site visit, NRC Staff noticed ongoing work at the IPS, which led to the NRC verbal request for additional information.

The compensatory measure using sandbags staged at the IPS was first described in the TVA to NRC letter dated June 13, 2012 (Reference 2), wherein TVA informed the NRC that sandbags had been staged at the base of the common WBN IPS and the need for any additional flood protection measures for the IPS would be addressed through the corrective action program.

By letter dated June 25, 2012, the NRC issued Confirmatory Action Letter No. NRR-12-001 (Reference 3) acknowledging the June 13, 2012, TVA commitment letter and included the following requirement:

"Compensatory measures, as described in your letter, shall remain in place until final approval by the NRC of the licensing basis for external flooding at WBN, Unit 1 and SQN, Units 1 and 2, or until permanent modifications for flood protection are implemented by TVA."

In accordance with the corrective action program described in the June 13, 2012 letter, an action to implement a permanent flood protection barrier modification to the IPS and change any required implementing procedures was initiated. A permanent modification to install a flood barrier for the IPS was initiated through TVA's design change process and approved in design change notice (DCN) 54018B.

DCN 54018B installs temporary flood barriers at the IPS to prevent floodwater intrusion through the 741 ft elevation stairwell door W001 and the 741 ft elevation stairwell door W002. These barriers, when installed, will protect the electrical equipment associated with the ERCW and Fire Protection pumps and motors in the event of a Probable Maximum Flood (PMF) event. A flood barrier door frame will be mounted to the inside of stairwell 1L (1R) at the jambs for door W001 (W002) for installation of an adjustable barrier. A storage frame for each adjustable barrier will be mounted to the wall inside the respective stairwell. The temporary flood barriers will be installed only during a stage 1 flood warning. Otherwise, the barriers will be installed in the permanent storage racks.

The flood barriers are designed to maintain the structural integrity consistent with the design requirements of the IPS. Likewise, the storage frames for the barriers are designed to ensure the flood barrier maintains the ability to perform its water tight function once removed from the rack and placed in the flood retention position.

The required compensatory action for the IPS flood barrier is currently controlled through abnormal operating and maintenance instruction and will continue to be required until the permanent modification is implemented as required by the June 25, 2012 confirmatory action letter (Reference 3).

The progress to this date of the permanent flood protection implementation is that the flood barriers have passed factory inspection testing and are on-site; installation completion is expected by June 2014.