

## **NRR-PMDAPem Resource**

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**From:** Schaaf, Robert  
**Sent:** Wednesday, November 30, 2016 2:13 PM  
**To:** Wells, Russell Douglas  
**Cc:** Gordon Arent; Johnston (Dion), Jeanne  
**Subject:** Watts Bar Units 1 and 2 DG Completion Time Extension LAR - Follow-up Questions Related to October 13, 2016, RAI response (MF7147 and MF7148)  
**Attachments:** WBN EDG LAR - Follow-up Questions to October 13 2016 RAI response.pdf

Russ,

By letter dated March 11, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16071A456), as supplemented by letter dated October 13, 2016 (Accession No. ML16287A656), the Tennessee Valley Authority (TVA) submitted an application for a proposed amendment for Watts Bar Nuclear Plant (WBN), Units 1 and 2.

The Nuclear Regulatory Commission (NRC) staff has reviewed TVA's responses to staff requests for additional information in TVA's letter dated October 13, 2016, and has identified several supplemental requests for additional information (RAIs) to support completion of its review. The specific information requested is attached to this e-mail. The proposed questions were provided to you on November 25, 2016, for clarification if needed. You indicated by phone on November 30, 2016, that no clarification was needed and agreed to provide a response to this request by December 30, 2016.

Please confirm receipt of these final RAIs. Please contact me if you have any further questions regarding this request.

Regards,

*Robert G. Schaaf*

Robert G. Schaaf  
Senior Project Manager, Watts Bar/Bellefonte

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**Created By:** Robert.Schaaf@nrc.gov

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**WATTS BAR NUCLEAR PLANT UNITS 1 AND 2**  
**SUPPLEMENTAL REQUEST FOR ADDITIONAL INFORMATION**  
**LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS**  
**TO EXTEND INOPERABLE DIESEL GENERATOR COMPLETION TIME**  
**TECHNICAL SPECIFICATION 3.8.1, AC SOURCES – OPERATING**  
**(TAC NOS. MF7147 AND MF7148)**

The Tennessee Valley Authority (TVA) submitted a license amendment request (LAR) for Watts Bar Nuclear Plant (WBN) Units 1 and 2, by letter dated March 11, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16071A456). The LAR proposed revision to Technical Specification (TS) 3.8.1, “AC Sources – Operating,” to extend the Completion Time (CT) for one inoperable Diesel Generator (DG) from 72 hours to 14 days based upon the availability of a supplemental alternating current (ac) power source (i.e., a 6.9 kilovolt (kV) FLEX DG). TVA stated that the changes are requested to provide operational and maintenance flexibility. TVA stated that the proposed CT will allow sufficient time to perform planned maintenance activities that cannot be performed within a 72-hour CT.

By letter dated October 13, 2016 (ADAMS Accession No. ML16287A656), TVA provided responses to staff requests for additional information (RAIs) dated August 3, 2016. The staff has reviewed TVA’s responses to the staff’s RAIs and has identified supplemental requests for additional information as identified in the follow-up RAIs provided below.

1. TVA response to RAI No. 6 states (Reference Page E1-13): “The timeline, based on plant procedures, for connecting the proposed 6.9 kV FLEX DG to the associated safety-related busses is shown on Figure 2, approximately 2 hours.”

The staff requests additional information on the timeline to restore power to a 6.9 kV shutdown board from the FLEX DG, similar to the level of detail provided verbally to the staff during an October 14, 2016, teleconference to support TVA’s request for a Notice of Enforcement Discretion (NOED). The NOED request was subsequently documented in TVA’s letter dated October 18, 2016 (ADAMS Accession No. ML16292A827).

2. The following pages of TVA’s October 13, 2016, RAI response state that the FLEX DG will be connected within 4 hours [Prior to 4 hours], thus creating an inconsistency with the 2 hour timeline discussed in the follow-up Question 1 above. For example:
  - Page E1-8: “Prior to 4 hours, the 6.9 kV FLEX DG would be aligned to the Unit 1 6.9 kV SDB...”
  - Page E1-8: “Prior to 4 hours, one or more 6.9 KV FLEX diesel(s) would be aligned to the Unit 2 6.9 kV SDB...”

- Page E1-12: “Prior to 4 hours, the FLEX DG would be aligned to the unpowered A train SDB.”
- Page E1-12: “Prior to 4 hours, the FLEX DG would be aligned to the unpowered 2B-B train SDB.”

Please correct or clarify this inconsistency and confirm that the FLEX DG will be aligned to the appropriate shutdown bus within the 2 hour period discussed above and in previous communications.

3. Page E1-6 of the RAI responses states, “This FSI implements FLEX strategies to place a 480V FLEX DG in operation or to extend DC battery lifetime to 8 hours. Extending battery lifetime is accomplished by performing a DC load shed within the first 90 minutes of the event if neither 480V FLEX DGs can be initially placed in operation. If no 480V FLEX DG is available when the 6.9 kV FLEX DG(s) are available, guidance is provided to power the 6.9 kV SDB(s) with the available 6.9 kV FLEX DG which would allow the 480V SDB(s) to be energized from the 6.9 kV SDB.”

The proposed TS 3.8.1 mark-up pages do not identify the 480 V FLEX DG as a required source for the proposed LAR. Please confirm that the 480V FLEX DGs are procedurally required to be connected to the station busses but are not credited for the purposes of this LAR, as alternate plans to load shed the DC system or connect the 6.9 kV DGs in a timely manner may be implemented in case of failure of the 480V FLEX DGs.

4. The staff also reviewed the information provided on page E1-9 of and Table 3-1, “6.9 kV FLEX Diesel Generator Loads” of the RAI responses. Please provide the timeline of FLEX DG loads separately for each of the following scenarios, up to the time both units will be in cold shutdown. (Note: In the following scenarios, the staff assumes that a FLEX DG is connected to a 6.9 kV shutdown board/bus so that at least one train has a safety-related DG and a FLEX DG to provide cold shutdown of both units).
  - i. LOOP (both Units), when Unit 1 DG 1A-A (or 1B-B) is under maintenance, the redundant DG 1B-B (or 1A-A) fails to start (SBO Unit 1), and a Unit 2 DG 2A-A has a single failure.
  - ii. LOOP (both Units), SBO Unit 1, and a Unit 2 DG 2B-B has a single failure.
  - iii. LOOP (both Units), SBO Unit 2, and a Unit 1 DG 1A-A has a single failure.
  - iv. LOOP (both Units), SBO Unit 2, and a Unit 1 DG 1B-B has a single failure.
  - v. In addition to the major loads, provide details of any miscellaneous loads which are likely to be fed from the FLEX DG.