

Burkhardt, Janet

From: Kalyanam, Kaly
Sent: Monday, July 15, 2013 12:59 PM
To: BICE, DAVID B (ANO) (DBICE@entergy.com)
Cc: Burkhardt, Janet; CLARK, ROBERT W (RCLARK@entergy.com)
Subject: RAI regarding the LAR for adoption of TSTF-500, Revision. 2, DC Electrical Rewrite - Update to TSTF-360

(SUNSI Information at the end)

DATE: July 15, 2013

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST FOR ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-500, REVISION. 2, DC ELECTRICAL REWRITE – UPDATE TO TSTF - 360 (TAC NO. MF0596)

By letter dated January 28, 2013 (Agencywide Documents Access and Management System Accession Number ML13029A767), Entergy Operations, Inc. (Entergy, the licensee) submitted a license amendment request (LAR) for Arkansas Nuclear One, Unit 1 (ANO-1) to adopt NRC-approved Technical Specifications Task Force (TSTF)-500, Revision 2, “direct current (DC) Electrical Rewrite – Update to TSTF – 360.” The proposed amendment would revise Technical Specification (TS) 3.8.4, “DC sources – Operating,” TS 3.8.5, “DC Sources – Shutdown,” and TS 3.8.6, “Battery Parameters,” add a new program, “Battery Monitoring and Maintenance Program” to TS Section 5.5, and relocate Surveillance Requirements (SRs) in Table 3.8.6-1 to the new program.

The NRC Staff has reviewed the information provided by the licensee and in order to complete the review, EEEB has attached a request for additional information regarding the adoption of TSTF-500, Revision 2 that should be transmitted to the licensee for a formal written response. Please provide your response to the RAI within 45 from the receipt of this request.

Thanks

Kaly N. Kalyanam

REQUEST FOR ADDITIONAL INFORMATION

ARKANSAS NUCLEAR ONE, UNIT 1

LAR FOR ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-500, REVISION. 2,

DC ELECTRICAL REWRITE – UPDATE TO TSTF – 360

DOCKET NO. 50-313

The NRC staff has determined that the following additional information is needed to complete its review of the license amendment request (LAR) dated January 28, 2013:

1. In Attachment 1, Section 1 of the LAR, the licensee proposed relocating the requirements of Technical Specification (TS) Table 3.8.6-1, "Battery Surveillance Requirements," to the proposed TS 5.5.6, "Battery Monitoring and Maintenance Program."

Confirm that the Table 3.8.6-1 Categories A, B, and C values (electrolyte level, float voltage, specific gravity) that will be relocated to TS 5.5.6, will continue to be controlled at their current levels in the TS Battery Monitoring and Maintenance Program and that actions to restore deficient values will be implemented in accordance with the licensee's corrective action program.
2. In Attachment 1, Section 2.1 of the LAR, the licensee proposed adopting TSTF-500 TS 3.8.5, Condition A, which applies when a required battery charger on one subsystem is inoperable and the required redundant subsystem battery and charger are operable. Condition A is included only when the plant-specific implementation of TS 3.8.5 may require both subsystems of the direct current (DC) electrical power system to be operable. Arkansas Nuclear One, Unit 1 ANO-1 TS LCO 3.8.5 requires "the DC electrical power subsystem to be operable to support the DC electrical power distribution subsystem(s) required by Limiting Condition for Operation (LCO) 3.8.10" in Modes 5 and 6.
 - a) Clarify whether ANO-1 TS requires one or both DC electrical power subsystem(s) to be operable in Modes 5 and 6. If TS 3.8.5 requires one DC electrical power subsystem to be operable, justify the adoption of the second part of Condition A, which states "the required redundant subsystem battery and charger are operable."
 - b) The licensee proposed adopting TSTF-500 TS 3.8.5 Required Action (RA) A.1, which requires restoring the battery terminal voltage to greater than or equal to the minimum established float voltage within 2 hours. Explain how the licensee would ensure that the battery was returned to its fully charged state from any discharge that might have occurred due to the charger inoperability.
3. In Attachment 1, Page 6 of the LAR, the licensee stated that the maintenance of the ANO-2 DC distribution system, given the program modifications committed to via adoption of TSTF-500, meets the intent of the Regulatory Guidance (RG) 1.129, Revision 2, "Maintenance, Testing, and Replacement of Vented Lead-Acid Storage Batteries for Nuclear Power Plant."

Clarify whether the above statement refers to ANO-1 instead of ANO-2 and whether ANO-1 is committed to RG 1.129, Revision 2.

4. In Attachment 1, Section 2.2 of the LAR, the licensee stated that ANO-1 will revise the ANO-1 Safety Analysis Report (SAR) to include how a 2 percent design margin for the batteries corresponds to a 2 amperes (amps) float current value indicating that the battery is 98 percent charged.
 - a) Provide the bases for the 2-amp float current at which ANO-1 batteries are capable of performing its design function.
 - b) Explain how maintaining a “2 percent design” and “98 percent charge” will ensure that the ANO-1 safety-related batteries are fully charged (i.e., capable of performing their design function).
5. In Attachment 1, Section 2.2 of the LAR, the licensee proposed to adopt into the Battery Monitoring and Maintenance Program, the battery connection resistance limit of 50 micro ohms which ensures that the minimum DC voltage is maintained for all required loads.
 - a) Clarify whether 50 micro ohms is the overall connection resistance limit or the resistance limit for each inter-cell connection, each inter-rack connection, each inter-tier connection, and each terminal connection.
 - b) Provide a summary table that includes current baseline resistance values or the battery manufacturer’s recommended resistance limits for each type of battery connections.
 - c) Provide the basis for the proposed connection resistance value.
6. In Attachment 4 of the LAR, the licensee proposed an alternative criterion for new TS Surveillance Requirement (SR) 3.8.4.2 which states, “Verify each battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.” 24 hours is bracketed in TSTF-500.

Explain the basis for 24 hours.

7. In Attachment 4 of the LAR, the licensee proposed new SR 3.8.4.3 as in TSTF-500. SR 3.8.4.3 in TSTF-500 includes a note that states, “This Surveillance shall not be performed in Mode 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR.”

Explain why this note was not adopted in ANO-1 SR 3.8.6.6.

8. In Attachment 4 of the LAR, the licensee proposed TS 3.8.5, Condition A, RA A.1, which requires the restoration of the battery terminal voltage to greater than or equal to the minimum established float voltage within 2 hours when one of the required battery charger on one subsystem is inoperable and the required redundant subsystem battery and charger are operable.
- a) Explain how the licensee will ensure that the battery is returned to its fully charged state from any discharge that might have occurred due to the charger inoperability
 - b) Per TSTF-500, Page 9, the new TS 3.8.5, Condition A is included only when the plant-specific implementation of TS 3.8.5 may require both trains of the DC electrical power system to be operable. Clarify whether ANO-1 TS 3.8.5 requires both DC subsystems to be operable.
 - c) The mark-up version of TS 3.8.5, Condition A states, “the required redundant subsystem battery and charger” while the clean version of TS 3.8.5, Condition A in Attachment 5 states, “the redundant subsystem battery and charger”. Explain this apparent discrepancy.

9. In Attachment 4 of the LAR, the licensee proposed 12 hours Completion Time (CT) for TS 3.8.6, Condition B, Required Action (RA) B.2. This 12-hour CT is bracketed in TSTF-500.

Explain how the 12-hour CT is applicable to ANO-1.

10. In Attachment 4 of the LAR, the licensee proposed adding new Condition D to TS 3.8.6 which would apply to a battery found with a pilot cell electrolyte temperature less than the minimum established design limit. The RA associated with new Condition D would require the licensee to restore the pilot cell electrolyte temperature to greater than or equal to minimum established design limits within 12 hours.
- a) Discuss how the battery room temperature is periodically monitored at ANO-1 and provide the minimum frequency at which the temperature of the battery room is monitored.
 - b) Explain how the licensee would restore battery room temperature if it was outside the temperature limits.
 - c) Provide the method of selection of pilot cells at ANO-1.
11. In Attachment 4 of the LAR, the licensee proposed a battery cell float voltage limit of greater than or equal to 2.07 V which is reflected in TS 3.8.6 RA A.3, SR 3.8.6.2, and SR 3.8.6.5. This 2.07-V is bracketed in TSTF-500.
- a) Explain how this cell float voltage limit is applicable to ANO-1.
 - b) Current TS Table 3.8.6-1, “Battery Cell Surveillance Requirements,” Category C float voltage allowable limits for each connected cell is > 2.07 V. Explain the change from > 2.07 V to ≥ 2.07 V.
12. In Attachment 4 of the LAR, the licensee proposed relocating SR 3.8.4.3 to SR 3.8.6.6 as in TSTF-500. SR 3.8.6.6 in TSTF-500 includes a note that states, “This Surveillance shall not be performed in Mode 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR.”

Explain why this note was not adopted in ANO-1 SR 3.8.6.6.

SUNSI Information:

Plant: Arkansas Nuclear One, Unit 1

Docket No.: 50/313

From: N. Kalyanam

To: D. Bice

Subject: RAI regarding the LAR for adoption of TSTF-500, Revision. 2, DC Electrical Rewrite – Update to TSTF-360

TAC No. 0596

SUNSI Review Done: Yes. Not Publicly Available, Normal Release, Non-sensitive,