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PY-CEI/NRR-3026L

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U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Perry Nuclear Power Plant  
Docket No. 50-440

**Subject: Response to a Request for Additional Information on a License Amendment Request to Revise MODE 4 Residual Heat Removal Shutdown Cooling Requirements (TAC NO. MD2140)**

In a letter dated February 9, 2007, the Nuclear Regulatory Commission (NRC) requested that additional information be provided to complete the review of a license amendment request submitted by letter dated June 1, 2006 (PY-CEI/NRR-2963L). The amendment request revises MODE 4 Residual Heat Removal Shutdown Cooling Requirements to add a default Condition addressing situations when Condition A cannot be met within its Completion Time. The attachment to this letter provides the requested information.

There are no new regulatory commitments contained in this letter or its attachment. If there are any questions or if additional information is required, please contact Mr. Henry L. Hegrat, Supervisor – Fleet Licensing, at (330) 374-3114.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 30, 2007

L. William Pearce

Attachment: Response to NRC Request for Additional Information dated February 9, 2007

cc: NRC Project Manager  
NRC Resident Inspector  
NRC Region III  
State of Ohio

A001

**Response to NRC Request for Additional Information dated February 9, 2007**

In a Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) dated February 9, 2007, the NRC provided the following question, along with a background discussion:

**Question:** Discuss how Perry could comply with the proposed Technical Specifications (TSs) while simultaneously in Condition A and proposed Condition B of TS 3.4.10, if there was no means available to work towards the establishment of an alternate method of decay heat removal.

**Background:** If proposed Condition B of TS 3.4.10, "RHR [Residual Heat Removal] Shutdown Cooling System - Cold Shutdown" is entered, Required Actions of Condition A must still be carried out in accordance with TS 1.3, "Completion Times." TS 1.3 states a required actions condition remains in effect and the required actions apply until the condition no longer exists or the unit is not within the limiting condition for operation (LCO) applicability. Example 1.3-2 in TS 1.3 provides a discussion on simultaneously being in two conditions, A and B, as a result of the completion time for Condition A not being met, and therefore entering Condition B.

TS 3.4.10 Condition A, Required Action A.1 states: "Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem" (a separate condition entry is allowed for each RHR shutdown cooling subsystem). Page 3 of the license amendment request (LAR) states: "In parallel with this LAR for TS 3.4.10, the Perry performance improvement initiative is tracking a plant design change to incorporate a new alternate decay heat removal method for Mode 4. The new method will be capable of maintaining Cold Shutdown Mode 4 conditions early in a forced outage (24 hours or more after attaining Hot Shutdown Mode 3)." Prior to making this "new alternate decay heat removal method" available, TS compliance issues could still occur. This is the result of not being able to take any required actions for Condition A because there is no means to establish an alternate method of decay heat removal for each inoperable subsystem. Per TS 1.3, Required Actions of Condition A must be worked on, even if Required Actions of proposed Condition B are completed.

**RESPONSE:** Addition of the proposed Condition B into Technical Specification (TS) 3.4.10 will allow full compliance with the Technical Specifications by providing Actions that apply when the Required Actions for Condition A cannot be met. The proposed actions are identical to those required by TS 3.9.9, "RHR -- Low Water Level," which served as the model for the proposed change. Use of a default Condition that states "*Required Actions and associated Completion Times of Condition [ ] not met*" is consistent with the majority of the Specifications in the Improved Technical Specifications (ITS).

Default Conditions such as the proposed Condition B are part of the design of the improved TS. The improved TS design utilizes a box/matrix format that replaced excessive logical connectors, such as "otherwise" and "or." Therefore, when a Completion Time is reached and a default Condition is entered, TS compliance is maintained by meeting the Required Actions of the default Condition, the same as when the two requirements are connected with an "otherwise" or an "or." This ITS design feature is the basis for the proposed Perry TS amendment.

The above concept is also consistent with previous NRC interpretation regarding compliance with TS Limiting Conditions for Operation and Action statements, as documented in NRC Enforcement Guidance Memorandum (EGM) 97-013, Issued on July 14, 1997. EGM 97-013 directly addresses this issue using an example identical to Example 1.3-2 in TS Section 1.3, except that EGM 97-013 provides more detail than Example 1.3-2 regarding TS compliance. The following excerpts from EGM 97-013 describe the proper application of the human-factored box/matrix ITS format.

AOT Examples

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3 AND	12 hours
	B.2 Be in MODE 4.	36 hours

Example 1:

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days (the AOT), a violation does not exist (emphasis added). Instead, Condition B is entered and the Completion Time clocks for Required Actions B.1 and B.2 start. A total of 12 hours is allowed for reaching MODE 3 and a total of 36 (not 48 hours) is allowed for reaching MODE 4 from the time that Condition B was entered. ... A violation exists if the pump cannot be restored to OPERABLE status after 7 days and (emphasis added) the unit is not placed in MODE 3 within the next 12 hours, or a violation exists if the pump cannot be restored to OPERABLE status after 7 days and (emphasis added) the unit is not placed in MODE 4 within the next 36 hours.

Again, a violation does not exist unless all actions are not completed within all applicable Completion Times.

Application of the concepts discussed above to the proposed change in Perry TS 3.4.10 results in two potential avenues for TS compliance, explained as follows. When a required RHR shutdown cooling loop becomes inoperable:

- 1) if the Reactor Water Cleanup (RWCU) system is available and can maintain MODE 4, Required Action A.1 can be met within its Completion Time, establishing TS compliance.
- 2) a. if RWCU is unavailable, or incapable of maintaining MODE 4, an alternate method will not be available within 1 hour, and the plant will enter into proposed Condition B. Completion of the Required Actions in Condition B will establish TS compliance.
  - b. if at a later time, RWCU becomes available and capable of maintaining MODE 4, an alternate method will be available to meet Condition A. Because Condition A 'remains in effect and the Required Actions continue to apply', Required Action A.1 is satisfied, establishing TS compliance. The Required Actions for default Condition B may be exited.

The above actions would establish compliance with the Technical Specifications while simultaneously in Condition A and proposed Condition B of TS 3.4.10 even if there were no means available to establish an alternate method of decay heat removal.

It should also be noted that for some TS Required Actions, applying an interpretation that initially-entered Actions must be carried out even if the default Actions are met would direct operators to perform actions that could result in safety system initiations, inappropriate isolations/unavailability of safety systems, and plant scrams, even though the TS provide alternate default Required Actions that instead allow time to effect necessary repairs, perform an orderly shutdown, or take other remedial actions.