NRR-DMPSPEm Resource

From: Lingam, Siva
Sent: Thursday, May 3, 2018 4:04 PM
To: Michael.Dilorenzo@aps.com; Matthew.Cox@aps.com
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Subject: Palo Verde 1, 2, and 3 - Official EEOB RAIs for TSTF-505 (4b) LAR (CAC Nos. MF6576, MF6577, and MF6578; EPID L-2015-LLA-0001)
Attachments: Palo Verde 4b RAIs - EEOB - May 3-2018.docx

We transmitted the draft requests for additional information (RAIs) from the Electrical Engineering Operating Reactor Branch (EEOB) for the subject license amendment request (LAR) on April; 24, 2018, and at your request, held a clarification call on May 3, 2018. Attached please find the **official** RAIs from the U.S. Nuclear Regulatory Commission (NRC) staff for the subject LAR, and provide your responses within 30 days from the date of this e-mail, as mutually agreed during the clarification call. Your timely responses will allow the NRC staff to complete its review on schedule.

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U.S. Nuclear Regulatory Commission
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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO ADOPT TSTF-505-A, REVISON 1 (4b)

RISK-INFORMED COMPLETION TIMES

ARIZONA PUBLIC SERVICE COMPANY

PALO VERDE NUCLEAR GENERATING STATION UNITS 1, 2, AND 3

DOCKET NOS. 50-528, 50-529, AND 50-530

By letter dated July 31, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15218A300), as supplemented by letters dated April 11, 2016 and November 3, 2017 (ADAMS Accession Nos. ML16102A463 and ML17307A188, respectively), Arizona Public Service Company (APS, the licensee) submitted a license amendment request (LAR) to modify the Palo Verde Nuclear Generating Station (PVNGS) Technical Specification (TS) requirements to permit the use of Risk Informed Completion Times (RICT) in accordance with the Technical Specifications Task Force (TSTF) Traveler TSTF-505-A, Revision 1, "Provide Risk-Informed Extended Completion Times – RITSTF (Risk Informed Technical Specification Task Force) Initiative 4b." To complete its review, the U.S. Nuclear Regulatory Commission (NRC) staff from Electrical Engineering Operating Reactor Branch (EEOB) requires additional information.

Title 10 of the *Code of Federal Regulations* Part 50, Appendix A of Part 50, General Design Criterion 17, "Electric Power Systems," states, in part, that an onsite electric power system and an offsite electric power system be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. The onsite electric power supplies shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

The Commission's Policy on Probabilistic Risk Assessment (PRA) ("Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities," dated August 16, 1995) identifies the following five key safety principles required for risk-informed decision-making applied to changes to TSs as delineated in Regulatory Guides 1.177 and 1.174.

- The proposed change meets current regulations;
- The proposed change is consistent with the defense-in-depth philosophy;
- The proposed change maintains sufficient safety margins;
- Increases in risk resulting from the proposed change are small and consistent with the Commission's Safety Goal Policy Statement; and
- The impact of the proposed change is monitored with performance measurement strategies.

The EEOB has reviewed the information provided by the licensee in the LAR. The following additional information is needed to complete our review of the LAR.

RAI 1 EEOB

Attachment 5, Table A5-2, "Unit 1/2/3 In Scope TS/LCO [limiting condition for operation] Conditions RICT Estimate," of the LAR dated November 3, 2017, identifies TS 3.8.1, "AC Sources - Operating," Condition E – Two DGs [Diesel Generators] inoperable as a Loss of Function TS condition. Note No. 2 of Table A5-2 states, in part, that the use of a RICT is permitted for emergent conditions which represent a loss of a specified safety function or inoperability of all required trains of a system required to be OPERABLE if one or more of the trains are considered "PRA functional" as defined in Section 2.3.1 of NEI [Nuclear Energy Institute] 06-09-A.

Please describe the following:

a) The process of identifying "PRA functional" equipment.
b) How the design success criteria met from the onset of the completion time to the time when one of the inoperable equipment is identified as PRA functional?

RAI 2 EEOB

For TS 3.8.4 Condition A, please describe how the battery's capacity during discharge is monitored when the battery charger is inoperable during the proposed completion time.

RAI 3 EEOB

Palo Verde's TS 3.8.9 Bases state that the AC [alternate current), DC [direct current], and AC vital instrument bus electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF [Engineered Safety Feature] systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. When TS 3.8.9 Condition A, B, or C is entered, the associated subsystems are vulnerable to single failures that will reduce protection against the exceedance of the design limits.

TS Condition	Description
3.8.9 A	One AC electrical power distribution subsystem inoperable.
3.8.9 B	One AC vital instrument bus electrical power distribution subsystem inoperable.
3.8.9 C	One DC electrical power distribution subsystem inoperable

Please provide the following information:

a. A description of the scenario/plant configuration for each TS 3.8.9 condition.

b. For each scenario in Item (a) above, please provide a discussion of the most catastrophic failure including whether any actions would be taken as the result.

c. A description of during the scenario described in Item (a) above, how each subsystem would retain the ability to defend against vulnerabilities (i.e., examples of compensatory

measures to assure a reasonable balance of defense-in-depth is maintained for each TS condition).