



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 7, 2016

Mr. Randall K. Edington  
Executive Vice President Nuclear/  
Chief Nuclear Officer  
Mail Station 7602  
Arizona Public Service Company  
P.O. Box 52034  
Phoenix, AZ 85072-2034

**SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 –  
REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE  
AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS TO  
IMPLEMENT TSTF-505 (CAC NOS. MF6576, MF6577, AND MF6578)**

Dear Mr. Edington:

By letter dated July 31, 2015 (Agencywide Documents Access and Management System Accession No. ML15218A300), Arizona Public Service Company (the licensee) submitted a license amendment request (LAR) regarding Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The proposed amendment would revise Technical Specifications (TS) to Implement TS Task Force (TSTF)-505, Revision 1, "Provide Risk-Informed Extended Completion Times – RITSTF [Risk-informed TSTF] Initiative 4b."

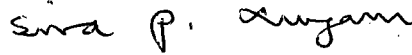
The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's LAR and has determined that additional information is needed to support its review. Enclosed is the NRC staff's request for additional information (RAI). The RAI was discussed with your staff in a clarification call on March 4, 2016, and it was agreed that your response would be provided by April 11, 2016.

R. Edington

- 2 -

If you have any questions, please contact me at (301) 415-1564 or via e-mail at [Siva.Lingam@nrc.gov](mailto:Siva.Lingam@nrc.gov).

Sincerely,



Siva P. Lingam, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529,  
and STN 50-530

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

RELATED TO LICENSE AMENDMENT REQUEST TO ADOPT TSTF-505

ARIZONA PUBLIC SERVICE COMPANY

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

DOCKET NOS. STN 50-538, STN 50-529, AND STN 50-530

By letter dated July 31, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15218A300), Arizona Public Service Company submitted a license amendment request (LAR) regarding Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The proposed amendment would revise Technical Specifications (TSs) to Implement TS Task Force (TSTF)-505, Revision 1, "Provide Risk-Informed Extended Completion Times – RITSTF [Risk-informed TSTF] Initiative 4b."

Based on the U.S. Nuclear Regulatory Commission (NRC) staff's review of the licensee's LAR, the staff has determined the following additional information is necessary to support completion of its technical review:

**EICB-RAI-1**

The NRC staff seeks clarification on how probabilistic risk assessment (PRA) Functionality will be determined in the risk-informed completion time (RICT) program as implemented. The LAR does not describe conditions where Actuation Logic channels are INOPERABLE but PRA Functional.

- (a) Please provide several example conditions that would allow one or more Actuation Logic channels (see TS 3.3.6, "Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip," Action E insert for TS page 3.3.6-2) to be considered both INOPERABLE and PRA Functional.
- (b) For each example in part (a), please include an evaluation against the criteria in Nuclear Energy Institute (NEI) 06-09, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS)," November 2006 (ADAMS Accession No. ML12286A322), Section 2.3.1, "Configuration Risk Management Process & Application of Technical Specifications," Item Nos. 10 and 11.
- (c) The NRC staff understands that by meeting the criteria in Items Nos. 10 and 11 in NEI 06-09, Section 2.3.1, all design basis events would be protected against. Please describe any associated design basis events that are NOT protected against in each example condition in part (a).

Enclosure

## EICB-RAI-2

Enclosure 1, "List of Revised Required Actions to Corresponding PRA Functions," to the model application for licensee adoption of TSTF-505 dated January 31, 2012 (ADAMS Accession No. ML12032A065) states:

This enclosure [Enclosure 1] should provide a description of PRA functionality for each associated specified safety function that corresponds to each proposed Required Action that is applicable when all trains of equipment are inoperable as discussed in Section 2.3.1.10 of NEI 06-09. For example, the number and identity of instrumentation and control channels (or functions) required to be PRA functional is highly dependent on the specific plant and associated equipment design.

Enclosure 1 guidance is included as part of the model application because the NRC staff seeks clarity on how PRA Functional will be used during full power operation following "loss of a specified safety function or inoperability of all required trains or divisions of a system."

In the LAR, Attachment 5, "List of Revised Required Actions to Corresponding Probabilistic Risk Assessment Functions," the "PRA Success Criteria" is indicated as being the same as the "Design Success Criteria" (i.e., the same minimum number of channels actuate for some instrumentation and controls (I&C) functions). (Regarding: TS 3.3.4, "Reactor Protective System (RPS) Logic and Trip Initiation," and TS 3.3.6.)

- (a) Please confirm that the PRA Success Criteria ensures all associated design basis events are protected against in the condition where two Actuation Logic channels are INOPERABLE and PRA Functional or justify how adequate protection is maintained, if not.
- (b) Attachment 5 of the LAR identifies some I&C structures, systems, and components that are partially modeled (or not modeled) in the PRA. Item No. 11 in NEI 06-09, Section 2.3.1 includes criteria for determining PRA Functionality of components, and these criteria were developed based on the assumption that the function would be modeled in the PRA.
  - (i) Please describe how PRA Functionality of these partial models (or un-modeled items) will be determined (i.e., how the criteria of Item No. 11 will be applied).
  - (ii) Please describe how PRA Functionality of bounding evaluations will be determined (i.e., how the criteria of Item No. 11 will be applied).

**EICB-RAI-3**

NEI 06-09, Revision 0-A, states that a RICT cannot be used in a condition where there is a total loss of TS specified safety function; however, it does not describe how to determine when a total loss of safety function has occurred.

- (a) For two Actuation Logic channels inoperable, please describe the process of how it will be determined if there is a total loss of TS specified safety function.

R. Edington

- 2 -

If you have any questions, please contact me at (301) 415-1564 or via e-mail at [Siva.Lingam@nrc.gov](mailto:Siva.Lingam@nrc.gov).

Sincerely,

**/RA/**

Siva P. Lingam, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529,  
and STN 50-530

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via Listserv

**DISTRIBUTION:**

PUBLIC  
LPL4-1 r/f  
RidsACRS\_MailCTR Resource  
RidsNrrDeEicb Resource

RidsNrrDorlLpl4-1 Resource  
RidsNrrLAJBurkhardt Resource  
RidsNrrPMPaloVerde Resource  
RidsRgn4MailCenter Resource

NCarte, NRR/DE/EICB  
RBeacom, NRR/DE/EICB

**ADAMS Accession No. ML16064A497**

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DE/EICB/BC	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM
NAME	SLingam	JBurkhardt	MWaters	RPascarelli (BSingal for)	SLingam
DATE	03/07/16	03/07/16	03/07/16	03/07/16	03/07/16

**OFFICIAL RECORD COPY**