



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

May 1, 2018

Mr. Robert S. Bement
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 – REGULATORY AUDIT SUMMARY RE: LICENSE AMENDMENT REQUESTS TO ADOPT TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER TSTF-505-A, RISK-INFORMED EXTENDED COMPLETION TIMES INITIATIVE 4b, AND 10 CFR 50.69, “RISK-INFORMED CATEGORIZATION AND TREATMENT OF STRUCTURES, SYSTEMS, AND COMPONENTS FOR NUCLEAR POWER REACTORS” (CAC NOS. MF6576, MF6577, AND MF6578, MF9971, MF9972, AND MF9973; EPID L-2015-LLA-0001, AND L-2017-LLA-0276)

Dear Mr. Bement:

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 (the licensee) submitted a license amendment request (LAR) to modify Technical Specification (TS) requirements to permit the use of risk-informed completion times in accordance with Technical Specifications Task Force (TSTF) Traveler TSTF-505-A, Revision 1, “Provide Risk-Informed Extended Completion Times – RITSTF [Risk-Informed TSTF] Initiative 4b,” for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3.

In addition, by letter dated July 19, 2017 (ADAMS Accession No. ML17200D162), the licensee submitted another LAR to adopt Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.69, “Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors.”

The U.S. Nuclear Regulatory Commission (NRC) staff and contractors from the Pacific Northwest National Laboratories (PNNL) conducted a risk-informed regulatory audit at the licensee’s site facility in Tonopah, Arizona, from February 20-23, 2018, to review technical information needed to support the staff’s licensing decision, and to develop requests for additional information (RAIs) related to these LARs for PVNGS, Units 1, 2, and 3.

The information submitted in support of the PVNGS LARs are under final review, and additional information needed to document the results of the audit has been formally requested by the NRC staff using the RAI process in accordance with the Office of Nuclear Reactor Regulation (NRR)

Office Instruction LIC-101, "License Amendment Review Procedures." Technical discussions at the audit focused on the following review areas: (1) the Facts and Observation closure process performed by the licensee, (2) Probabilistic Risk Assessment (PRA) model and peer review history, (3) 10 CFR 50.69 pilot process and draft procedures, (4) Site PRA configuration and control process, (5) Risk-Managed TSs, and (6) TS Requirements for risk-informed completion times.

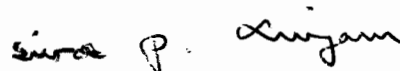
The NRC audit team consisted of NRC staff from NRR, Division of Risk Assessment, Division of Safety Systems, and Division of Engineering; NRC staff from the Office of New Reactors, Division of Safety Systems, Risk Assessment, and Advanced Reactors; and staff from PNNL. Due to two review areas, a staggered approach was used to conduct the audit, which resulted in focusing on 10 CFR 50.69 on February 20-21, 2018; TSTF-505 on February 21-22, 2018; and then seismic PRA on February 22-23, 2018. Enclosure 1 provides the list of audit attendees from NRC, PNNL, the licensee, and observers.

The regulatory audit began on February 20, 2018, with an entrance meeting between the NRC audit team and the licensee's staff and contractors. During the audit, NRC audit team members participated in technical discussions according to the audit plan (ADAMS Accession No. ML18037A953). Technical discussions focused on technical adequacy of the internal events PRA and fire PRA, the 50.69 categorization process, and a review of the audit questions. The NRC audit team also discussed lessons learned from previous 10 CFR 50.69 audits.

On February 23, 2018, at the conclusion of the audit, the NRC audit team participated in an exit meeting with the licensee's staff. The NRC audit team provided a brief conclusion of the audit objectives and presented details on the path forward. There were no open items in the discussion and no deviation from the audit plan. Enclosure 2 contains a list of documents reviewed by the team during the audit.

If you have any questions, please contact me at 301-415-1564 or via e-mail at 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

Enclosures:

1. List of Participants
2. List of Documents Reviewed

cc: Listserv

List of Participants

U.S. Nuclear Regulatory Commission (NRC) Audit Team

Jay Robinson	NRC/Acting Branch Chief/ Probabilistic Risk Assessment (PRA)
Victor Cusumano	NRC/Branch Chief/ Technical Specifications Task Force
Tania Martinez-Navedo	NRC/Branch Chief/Electrical Engineering (EE)
Leslie Fields	NRC/Audit Lead
Adrienne Driver	NRC/PRA 50.69
Todd Hilsmeier	NRC/PRA 50.69
Brandon Hartle	NRC/PRA 4b
Jonathan Evans	NRC/PRA 4b
Sara Lyons	NRC/Seismic PRA
Malcolm Patterson	NRC/Seismic PRA
George Thomas	NRC/Structural Engineering
Kaihwa (Robert) Hsu	NRC/Mechanical Engineering
Khoi Nguyen	NRC/Electrical Engineering
Margaret Chernoff	NRC/Technical Specification
Khadijah West	NRC/Instrumentation & Control
Ming Li	NRC/Instrumentation & Control
Steve Short	PNNL/Seismic PRA/4b
Garill Coles	PNNL/Seismic PRA/50.69
Nathan Barrett	PNNL/Seismic PRA/Fragilities

Palo Verde Nuclear Generating Station (PVNGS) Audit Team

Frank Kusluch	PVNGS/Risk Informed
Bryan Thiele	PVNGS/Risk Informed
Chris Schrecker	PVNGS/System Engineering
Katie Clifton	PVNGS/System Engineering
William Palo	Design Engineering
Maria Ledsma	Ops Computer Systems
Sean McCormack	NRA
James Decker	OPS
Sam Gill	OPS
Kevin Foster	Fire
Heather Szews	Duke Energy Engineer
Carl Stephenson	NRA-Licensing
Chris Wandell	Civil Design
Adriana Harris	Civil Design
Paul Hopkins	Operations
Tom Weber	NRA
Mike Dilorenzo	NRA
Maria Lacal	SVP Regulatory & Oversight
Brad Berles	Nuclear Fuels Management
Chuck Kharrl	VP Site Operations/Plant Mgr
Matt Kura	NRA
Joe Harnden	PRA
Jonathan Lucero	PRA
Mark Hulet	PRA
Andrea Maioli	Westinghouse
Hunter Young	Jensen Hughes
Thomas Hook	PRA
Sarah Kane	PRA
Michael Wittas	PRA
Michael Cynber	Enercom
Everett Depue	PRA
Patrick Bozym	PRA
Matthew Cox	NRA

List of Documents Reviewed During the Audit

The following documents were reviewed by the NRC audit team during the audit. The documents generally included procedures that implement the licensee's 10 CFR 50.69 program; draft categorization reports for radiation monitoring, chemical and volume control, and main steam systems; supporting probabilistic risk assessment (PRA) documents; draft procedures for determining PRA functionality, calculating risk-informed completion times and risk management action times, and establishing risk management actions; Nuclear Energy Institute (NEI) Appendix X Facts and Observations (F&O) closure report; and, seismic fragility analysis reports.

- 01DP-ORS07, 10 CFR 50.69 Program Description;
- 01DP-ORS08, 10 CFR 50.69 Risk Informed Categorization for Structures Systems and Components;
- 01DP-ORS09, 10 CFR 50.69 Active Component Risk Hazards Assessment ;
- 01DP-ORS10, 10 CFR 50.69 Passive Component Categorization;
- 01DP-ORS11, 10 CFR 50.69 Alternative Treatment Requirements;
- 01DP-ORS12, 10 CFR 50.69 Requirements for Immediate Reviews, Periodic Reviews, and Performance Monitoring;
- 01DP-ORS013, 10 CFR 50.69 Integrated Decision Panel Training and Qualification Requirements;
- Draft Risk Informed Categorization Results for Radiation Monitoring;
- Draft Risk Informed Categorization Results for Chemical and Volume Control;
- Draft Risk Informed Categorization Results for Main Steam;
- 70DP-0RA03, Probabilistic Risk Assessment Model Control;
- ENG WO, Document the resolution of findings and observations from the Fire PRA reviews conducted in October 2012 and December 2014;
- 13-NS-F012, Fire PRA – Units 1, 2, and 3 Delta Assessment;
- NN345-A00106, PVNGS Unit 1 S-PRA Results Applicability Verification for Unit 2 and 3;
- Draft Procedure 40DP-9RS03, Risk Management Actions (RMAs);
- Draft Procedure 40DP-9RS04, PRA Functionality Determination;
- Draft Procedure 40DP-9RS05, Risk Management Action Times (RMATs) and Risk-informed Completion Times (RICTs);
- NEI Appendix X F&O closure report;
- 11c4043-CAL-028, Revision 1, Seismic Fragility Parameters for Selected Relays;
- 11c4043-CAL-030, Revision 0, Seismic Fragility Analysis of Turbine Building;
- 11c4043-LSC-029, PVNGS S-PRA – Peer Review Resolution Information;
- 11c4043-RPT-002, Fragility Analysis Plan;
- 11c4043-RPT-003, Seismic Fragility Analysis Report; and
- 11c4043-RPT-004, regarding how the fragility analysis for Unit 1 was applied to Units 2 and 3;

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RidsNrrPMPaloVerde Resource	MChernoff, NRR/DSS/STSB
RidsRgn4MailCenter Resource	JRobinson, NRR/DRA/APLB

ADAMS Accession No. ML18116A098

*by memorandum

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA	NRR/DE/APLA/BC*
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DATE	5/1/18	5/1/18	

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