



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

February 27, 2017

Mr. Robert S. Bement
Executive Vice President
Chief Nuclear Officer
Arizona Public Service Company
P.O. Box 52034, Mail Station 7602
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 –
SECOND REGULATORY AUDIT PLAN FOR MARCH 8, 2017, AUDIT AT EXCEL
FACILITY IN ROCKVILLE, MARYLAND, IN SUPPORT OF NEXT GENERATION
FUEL LICENSE AMENDMENT REQUEST AND EXEMPTION
(CAC NOS. MF8076, MF8077, MF8078, MF8079, MF8080, AND MF8081)

Dear Mr. Bement:

By letter dated July 1, 2016 (Agencywide Documents Access and Management System Accession No. ML16188A336), Arizona Public Service Company (APS) requested changes to the Technical Specifications (TSs) to support the implementation of next generation fuel (NGF) for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The proposed changes would revise TS 4.2.1, "Reactor Core, Fuel Assemblies," and TS 5.6.5.b, "Core Operating Limits Report (COLR)," and allow the use of Combustion Engineering 16x16 NGF clad with the Optimized ZIRLO™ material in PVNGS, Units 1, 2, and 3. To support the fuel transition, APS also requested an exemption from certain requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 10 CFR 50.46 and 10 CFR 50 Appendix K to allow the use of Optimized ZIRLO™ as a cladding material in PVNGS, Units 1, 2, and 3.

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a regulatory audit on November 2-3, 2016, to focus the staff's requests for additional information and enhance technical understanding of the submitted documentation. During this audit, it was determined that further time would be needed to examine materials related to the statistical methodology proposed for analyzing the fuel assembly misload event and the use of SKBOR code in the boric acid precipitation analysis that were provided during the audit, but not originally available as part of the submittal. Additionally, the NRC staff requested justification for the proposed penalty to address the lack of treatment of thermal conductivity degradation in the FATES-3B code.

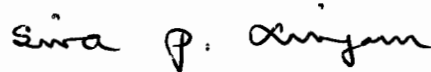
As a result, the NRC staff will conduct another audit at the EXCEL facility in Rockville, Maryland, on March 8, 2017. The Enclosure to this letter provides an audit plan in support of this audit.

R. Bement

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

Sincerely,

A handwritten signature in black ink, appearing to read "Siva P. Lingam".

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

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

Enclosure:
Regulatory Audit Plan

cc w/encl: Distribution via Listserv

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 –
 SECOND REGULATORY AUDIT PLAN FOR MARCH 8, 2017, AUDIT AT EXCEL
 FACILITY IN ROCKVILLE, MARYLAND, IN SUPPORT OF NEXT GENERATION
 FUEL LICENSE AMENDMENT REQUEST AND EXEMPTION
 (CAC NOS. MF8076, MF8077, MF8078, MF8079, MF8080, AND MF8081) DATED
 FEBRUARY 27, 2017

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ADAMS Accession No.: ML17054C464

*by memorandum

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA*	NRR/DSS/SNPB/BC*
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DATE	02/23/17	02/23/17	02/21/17
OFFICE	NRR/DORL/LPL4/BC	NRR/DORL/LPL4/PM	
NAME	RPascarelli	SLingam	
DATE	02/27/17	02/27/17	

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REGULATORY AUDIT PLAN FOR MARCH 8, 2017, AUDIT AT EXCEL FACILITY IN
ROCKVILLE, MARYLAND, TO SUPPORT REVIEW OF
NEXT GENERATION FUEL LICENSE AMENDMENT REQUEST AND EXEMPTION
ARIZONA PUBLIC SERVICE COMPANY
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3
DOCKET NOS. 50-528, 50-529, AND 50-530

1.0 BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC) staff is currently engaged in a review of a license amendment request for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. By letter dated July 1, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16188A336), Arizona Public Service Company (APS, the licensee) requested changes to the Technical Specifications (TSs) to support the implementation of next generation fuel (NGF) for PVNGS, Units 1, 2, and 3. The proposed changes would revise TS 4.2.1, "Reactor Core, Fuel Assemblies," and TS 5.6.5.b, "Core Operating Limits Report (COLR)," and will allow the use of Combustion Engineering (CE) 16x16 NGF clad with the Optimized ZIRLO™ material in PVNGS, Units 1, 2, and 3. To support the fuel transition, APS also requested an exemption from certain requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.46, "Acceptance criteria for emergency core cooling systems [ECCS] for light-water nuclear power reactors," and 10 CFR Part 50, Appendix K, "ECCS Evaluation Models," to allow the use of Optimized ZIRLO™ as a cladding material in PVNGS, Units 1, 2, and 3.

The NRC staff conducted a regulatory audit on November 2-3, 2016, to focus the staff's requests for additional information (RAIs) and enhance technical understanding of the submitted documentation. During this audit, it was determined that further time would be needed to examine materials related to the statistical methodology proposed for analyzing the fuel assembly misload event and the use of SKBOR code in the boric acid precipitation analysis that were provided during the audit, but not originally available as part of the submittal. Additionally, the NRC staff requested justification for the proposed penalty to address the lack of treatment of thermal conductivity degradation (TCD) in the FATES-3B code.

Therefore, the NRC staff has proposed to conduct a second regulatory audit at this point in the review process in an effort to resolve or focus the questions that arose from further consideration of the outstanding issues, and to observe the justification for the proposed TCD penalty. This audit will help the NRC staff better understand the supporting documentation and analysis results through interaction with APS's technical experts and will help to focus the staff's RAIs on those questions where docketed information is needed to complete the review. The proposed audit will be held in accordance with the Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits," dated December 16, 2008 (ADAMS Accession No. ML082900195).

2.0 REGULATORY AUDIT SCOPE

The NRC staff would like APS to make available appropriate staff with detailed knowledge of the PVNGS licensing basis and the related topical reports, the statistical methods used in the fuel assembly misload methodology, and SKBOR boric acid precipitation analysis method. Additionally, APS staff should be prepared to present and answer questions about the justification for the proposed TCD penalty.

Discussion at the audit is expected to pertain to a limited scope of the submittal, specifically including the following subjects and related points of discussion:

- Boric acid precipitation analysis methodology (SKBOR).
- Statistical treatment of the inadvertent fuel assembly misload event.
- Justification for the proposed penalty to FATES-3B to account for the lack of TCD treatment.

3.0 TEAM AND REVIEW ASSIGNMENTS

Area of Review	Assigned Auditor
Branch Chief	Robert Lukes (NRC)
Technical Reviewer	Daniel Beacon (NRC)
Technical Reviewer	John Lehning (NRC)
Project Manager	Siva P. Lingam (NRC)

4.0 LOGISTICS

The audit will be conducted at the EXCEL facility in Rockville, Maryland, on March 8, 2017. Entrance and exit briefings will be held at the beginning and end of this audit, respectively.

The licensee is requested to provide a conference room with a white board for discussions, as well as printed copies of the following reports:

- Detailed description of the SKBOR boric acid precipitation methodology and relevant calculation notes.
- Detailed description of the statistical misload methodology and relevant calculation notes.
- Justification for the adequacy of the proposed TCD penalty on FATES-3B and relevant calculation notes.

APS should also provide any other documentation that may aid discussion on the specific topics of interest.

The audit will start at 8:00 a.m. on Wednesday, March 8, 2017, and conclude on the same day at approximately at 3:30 p.m. (eastern standard time).

5.0 DELIVERABLES

At the conclusion of the audit, the NRC staff will provide a summary of audit results for each of the topics defined in the audit scope. The NRC Regulatory Audit Report will be issued within 90 days of the completion of the audit.