

July 27, 2006

Mr. James M. Levine
Executive Vice President, Generation
Arizona Public Service Company
P. O. Box 52034
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 -
ISSUANCE OF AMENDMENTS RE: STEAM GENERATOR TUBE INTEGRITY
(TAC NOS. MC7182, MC7183, AND MC7184)

Dear Mr. Levine:

The Commission has issued the enclosed Amendment No. 161 to Facility Operating License No. NPF-41, Amendment No. 161 to Facility Operating License No. NPF-51, and Amendment No. 161 to Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station, Units 1, 2, and 3, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated May 26, 2005, as supplemented by letters dated May 23 and June 20, 2006.

These amendments revise TS 1.1, "Definitions," TS 3.4.14, "RCS [reactor coolant system] Operational Leakage," TS 5.5.9, "Steam Generator (SG) Program," and TS 5.6.8, "Steam Generator Tube Inspection Report," and adds a new specification, TS 3.4.18, "Steam Generator (SG) Tube Integrity." The changes implement the guidance for the industry initiative on Nuclear Energy Institute 97-06, "Steam Generator Program Guidelines." The changes are also consistent with TS Task Force (TSTF) Change TSTF-449, Revision 4, "Steam Generator Tube Integrity."

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Mel B. Fields, Senior 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

Enclosures: 1. Amendment No. 161 to NPF-41
2. Amendment No. 161 to NPF-51
3. Amendment No. 161 to NPF-74
4. Safety Evaluation

cc w/encls: See next page

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These amendments revise TS 1.1, "Definitions," TS 3.4.14, "RCS [reactor coolant system] Operational Leakage," TS 5.5.9, "Steam Generator (SG) Program," and TS 5.6.8, "Steam Generator Tube Inspection Report," and adds a new specification, TS 3.4.18, "Steam Generator (SG) Tube Integrity." The changes implement the guidance for the industry initiative on Nuclear Energy Institute 97-06, "Steam Generator Program Guidelines." The changes are also consistent with TS Task Force (TSTF) Change TSTF-449, Revision 4, "Steam Generator Tube Integrity."

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ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-528

PALO VERDE NUCLEAR GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161
License No. NPF-41

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority dated May 26, 2005, as supplemented by letters dated May 23, 2006, and June 20, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-41.

3. This license amendment is effective as of the date of issuance and shall be implemented within 150 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Operating
License and Technical
Specifications

Date of Issuance: July 27, 2006

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-529

PALO VERDE NUCLEAR GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161
License No. NPF-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority dated May 26, 2005, as supplemented by letters dated May 23, 2006, and June 20, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-51.

3. This license amendment is effective as of the date of issuance and shall be implemented within 150 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Operating
License and Technical
Specifications

Date of Issuance: July 27, 2006

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-530

PALO VERDE NUCLEAR GENERATING STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161
License No. NPF-74

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Arizona Public Service Company (APS or the licensee) on behalf of itself and the Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority dated May 26, 2005, as supplemented by letters dated May 23, 2006, and June 20, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-74.

3. This license amendment is effective as of the date of issuance and shall be implemented within 150 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Operating
License and Technical
Specifications

Date of Issuance: July 27, 2006

ATTACHMENT TO LICENSE AMENDMENT NOS. 161, 161, AND 161

FACILITY OPERATING LICENSE NOS. NPF-41, NPF-51, AND NPF-74

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

Replace Page 5 of Facility Operating License No. NPF-41 with the attached Page 5.

Replace Page 6 of Facility Operating License No. NPF-51 with the attached Page 6.

Replace Page 4 of Facility Operating License No. NPF-74 with the attached Page 4.

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

ii
1.1-4
1.1-5
3.4.14-1
3.4.14-2

5.5-6
5.5-7
5.5-8
5.5-9
5.5-10
5.5-11
5.5-12
5.5-13
5.5-14
5.5-15
5.5-16
5.6-6

INSERT

ii
1.1-4
1.1-5
3.4.14-1
3.4.14-2
3.4.18-1
3.4.18-2
5.5-6
5.5-7
5.5-8
5.5-9
5.5-10
5.5-11
5.5-12
5.5-13
5.5-14
5.5-15
5.5-16
5.6-6

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 161 TO FACILITY OPERATING LICENSE NO. NPF-41,
AMENDMENT NO. 161 TO FACILITY OPERATING LICENSE NO. NPF-51,
AND AMENDMENT NO. 161 TO FACILITY OPERATING LICENSE NO. NPF-74
ARIZONA PUBLIC SERVICE COMPANY, ET AL.
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3
DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

1.0 INTRODUCTION

By application dated May 26, 2005 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML051520413), Arizona Public Service Company (the licensee), requested changes to the Technical Specifications (TSs) for Palo Verde Nuclear Generating Station (Palo Verde), Units 1, 2, and 3. The licensee provided additional information in letters dated May 23, 2006 (ML061570210), and June 20, 2006 (ML061780448).

These amendments revise TS 1.1, "Definitions," TS 3.4.14, "RCS [reactor coolant system] Operational Leakage," TS 5.5.9, "Steam Generator (SG) Program," and TS 5.6.8, "Steam Generator Tube Inspection Report," and adds a new specification, TS 3.4.18, "Steam Generator (SG) Tube Integrity."

The requested changes would revise the existing SG tube surveillance program to be consistent with the Nuclear Regulatory Commission's (NRC) approved TS Task Force (TSTF) Change TSTF-449, "Steam Generator Tube Integrity," Revision 4, and the model safety evaluation (SE) prepared by the NRC and published in the *Federal Register* on March 2, 2005 (70 FR 10298). In this regard, the scope of the application includes changes to the definition of leakage, changes to the primary-to-secondary leakage requirements, changes to the SG tube surveillance program (SG tube integrity), changes to the SG reporting requirements, and associated changes to the TS Bases.

The May 23, 2006, and June 20, 2006, letters provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on July 5, 2005 (70 FR 38714).

2.0 REGULATORY EVALUATION

The background, description, and applicability of the proposed changes associated with the SG tube integrity issue and the applicable regulatory requirements were included in the NRC staff's model SE published in the *Federal Register* on March 2, 2005 (70 FR 10298). The

"Notice of Availability of Model Application Concerning Technical Specification; Improvement To Modify Requirements Regarding Steam Generator Tube Integrity; Using the Consolidated Line Item Improvement Process" was published in the *Federal Register* on May 6, 2005 (70 FR 24126), which made the model SE available to licensees for use.

3.0 TECHNICAL EVALUATION

In its May 26, 2005, application, as supplemented by the letters referenced above, the licensee proposed changes to the TSs that are modeled after TSTF-449. Most of the differences between TSTF-449 and the licensee's application were minor. These included differences associated with the facility having a different licensing basis (than that discussed in TSTF-449) and differences in TS numbering and wording since the licensee has a different TS format (than that assumed in TSTF-449). Since these differences were administrative in nature or they were consistent with the plant's licensing basis, the NRC staff determined they were acceptable.

The remainder of the application was generally consistent with or more conservative than TSTF-449. As a result, the staff determined that the generic SE is applicable to this review and finds the proposed changes acceptable.

The May 26, 2005, application included a proposal to limit the inspections in the tubesheet (C* or C-star) for SGs with Alloy 600 tubes. Palo Verde Unit 3 is the only remaining unit at the site with SGs containing Alloy 600 tubes. This proposal satisfied the licensee's commitment to modify its TS to have them reflect its tube inspection practices. This commitment was made in a letter dated October 28, 2004 (ML043090485), in response to Generic Letter (GL) 2004-01, "Requirements for Steam Generator Tube Inspections."

During the course of the NRC review of this proposal, the licensee performed the last scheduled inspection of the mill-annealed Alloy 600 tubes in the Unit 3 SGs, which are scheduled for replacement during the fall 2007 refueling outage. Since the replacement SGs will have thermally treated Alloy 690 tubes, the licensee determined there was no longer a need to specify the C* inspection requirements in its TS and, as part of the June 20, 2006, letter, subsequently withdrew that part of the amendment request. In the letters referenced above, the licensee provided the technical basis for the inspection of tubes within the tubesheet region for Unit 3. The NRC staff identified no technical concerns with respect to the licensee's approach to inspecting the tubesheet region in Unit 3.

Conclusion

The proposed TS changes establish a programmatic, largely performance-based regulatory framework for ensuring SG tube integrity is maintained. The NRC staff finds that it addresses key shortcomings of the current framework by ensuring that SG programs are focused on accomplishing the overall objective of maintaining tube integrity. It incorporates performance criteria for evaluating tube integrity that the NRC staff finds consistent with the structural margins and the degree of leak tightness assumed in the current plant licensing basis. The NRC staff finds that maintaining these performance criteria provides reasonable assurance that the SGs can be operated safely without increase in risk.

The revised TSs will contain limited specific details concerning how the SG Tube Surveillance Program is to achieve the required objective of maintaining tube integrity, the intent being that the licensee will have the flexibility to determine the specific strategy for meeting this objective.

However, the NRC staff finds that the revised TSs include sufficient regulatory constraints on the establishment and implementation of the SG Tube Surveillance Program such as to provide reasonable assurance that tube integrity will be maintained.

Failure to meet the performance criteria will be reportable pursuant to the requirements in 10 CFR 50.72 and 50.73. The NRC reactor oversight process provides a process by which the NRC staff can verify that the licensee has identified any SG Tube Surveillance Program deficiencies that may have contributed to such an occurrence and that appropriate corrective actions have been implemented.

In conclusion, the NRC staff finds that the TS changes proposed by the licensee in its May 26, 2005, application, as supplemented, conform to the requirements of 10 CFR 50.36 and establish a TS framework that will provide reasonable assurance that SG tube integrity is maintained without undue risk to public health and safety.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arizona State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published July 5, 2005 (70 FR 38714). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

A complete list of references used to complete this review can be found in the NRC's model SE published in the *Federal Register* on March 2, 2005 (70 FR 10298).

Principal Contributor: G. Makar

Date: July 27, 2006

Palo Verde Generating Station,
Units 1, 2, and 3

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March 2006

Palo Verde Generating Station,
Units 1, 2, and 3

- 2 -

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March 2006