

January 29, 2002

Mr. Gregg R. Overbeck  
Senior Vice President, Nuclear  
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: BORON DILUTION ALARM SYSTEM AND  
REFUELING OPERATIONS-NUCLEAR INSTRUMENTATION (TAC NOS.  
MB1671, MB1672 AND MB1673)

Dear Mr. Overbeck:

The Commission has issued the enclosed Amendment No. 138 to Facility Operating License No. NPF-41, Amendment No. 138 to Facility Operating License No. NPF-51, and Amendment No. 138 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 April 4, 2001.

The amendments revise TSs 3.3.12 and 3.9.2 and associated bases pages to (1) clarify operability requirements for the boron dilution alarm system (BDAS) by adding MODE 6 applicability to TS 3.3.12, (2) ensure appropriate operator action when the BDAS is declared inoperable by adding a note to TS 3.9.2, and (3) delete Action 3.9.2.B.2.

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/**

L. Raynard Wharton, Project Manager, Section 2  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

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

Enclosures: 1. Amendment No. 138 to NPF-41  
2. Amendment No. 138 to NPF-51  
3. Amendment No. 138 to NPF-74  
4. Safety Evaluation

cc w/encls: See next page

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4. Safety Evaluation

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RidsNrrPMRWharton

RidsNrrLAMMcAllister

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cc w/encls: See next page

RidsAcrsAcnwMailCenter

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LHurley/DBujol)

**PKG: ML020300117**

**TS: ML0203000311**

**ACCESSION NO: ML013450298 NRR-058**

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OFFICE	PDIV-2/PM	PDIV-1/LA	SRXB/BC	OGC NLO	PDIV-2/SC
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DATE	1/8/02	1/8/02	1/9/02	1/22/02	1/25/2002

OFFICIAL RECORD COPY

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

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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. 138  
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 April 4, 2001, 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 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 138, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 45 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Stephen Dembek, Chief, Section 2  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: January 29, 2002

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. 138  
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 April 4, 2001, 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 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 138, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 45 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Stephen Dembek, Chief, Section 2  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: January 29, 2002

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.138  
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 April 4, 2001, 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 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 138, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of the date of issuance and shall be implemented within 45 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Stephen Dembek, Chief, Section 2  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: January 29, 2002

ATTACHMENT TO LICENSE AMENDMENT NOS. 138, 138, AND 138

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

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

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

3.3.12-1  
3.9.2-1

INSERT

3.3.12-1  
3.9.2-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 138 TO FACILITY OPERATING LICENSE NO. NPF-41,  
AMENDMENT NO. 138 TO FACILITY OPERATING LICENSE NO. NPF-51,  
AND AMENDMENT NO. 138 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 April 4, 2001, Arizona Public Service Company (APS or the licensee) requested changes to the Technical Specifications (TSs) for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. APS submitted this request on behalf of itself, the Salt River Project Agricultural Improvement and Power District, Southern California Edison Company, El Paso Electric Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority. The proposed changes would amend TS 3.3.12 and TS 3.9.2 to provide consistency in the boron concentration monitoring intervals specified in the TS and the Core Operating Limits Report (COLR) in the event that the Boron Dilution Alarm System (BDAS) is inoperable during MODE 6 operation.

2.0 BACKGROUND

The BDAS alerts operators of the initiation of an inadvertent boron dilution event while in hot standby (MODE 3), hot shutdown (MODE 4), cold shutdown (MODE 5), and refueling (MODE 6) modes of operation so that the operators have adequate time to take corrective action. The BDAS is part of the excore nuclear instrumentation system which receives neutron flux signals from the startup range monitors (SRMs). If neutron flux count rate indications increase to equal to or greater than the boron dilution alarm limit setpoint, the alarm signals are initiated to the plant annunciator system to alert the operators of a possible inadvertent boron dilution event. In the case where the BDAS is inoperable, a periodic monitoring surveillance of the boron concentration would be required as a backup to provide operator awareness of an inadvertent boron dilution occurrence. The required boron concentration and backup boron concentration monitoring intervals, which are dependent on the MODES of operation and number of operating charging pumps, are specified in the COLR. The TS amendment would ensure that the backup boron concentration monitoring intervals are consistent with those specified in the COLR.

The Nuclear Regulatory Commission (NRC) staff evaluation of this TS amendment request is addressed in the following section.

### 3.0 EVALUATION

Current PVNGS TS 3.3.12 specifies that two channels of BDAS shall be operable during MODES 3, 4, and 5 operation. TS 3.9.2 specifies that two SRMs shall be operable during MODE 6 operation, and Required Action B.2 requires that, in the Condition of the two SRMs inoperable, the boron concentration surveillance requirement 3.9.1.1 be performed within 4 hours and once per 12 hours thereafter. The proposed TS changes would extend the TS 3.3.12 applicability to include MODE 6, and modify TS 3.9.2 to ensure consistency in the boron concentration monitoring requirement in the event that the BDAS is inoperable.

Specifically, the proposed TS amendment consists of the following:

- addition of MODE 6 Applicability to TS 3.3.12 Limiting Condition of Operation (LCO)
- addition to TS 3.9.2 Required Action of a NOTE, which requires entering applicable Conditions and Required Actions of LCO 3.3.12 for BDAS made inoperable by inoperable SRMs.
- deletion of TS 3.9.2 Required Action B.2.

The addition of MODE 6 to LCO 3.3.12 Applicability would extend the existing LCO applicability modes from MODES 3, 4, and 5 to MODES 3 through 6, which by itself, is more restrictive. Also, since the BDAS relies on the SRMs for neutron flux indication, the combination of current TS 3.3.12 and TS 3.9.2 essentially requires that the BDAS be operable during MODES 3 through 6 operation. Therefore, the addition of MODE 6 to LCO 3.3.12 Applicability is acceptable.

The addition of a NOTE to TS 3.9.2 Actions and deletion of Required Action B.2 from TS 3.9.2 are intended to correct the inconsistency in the boron concentration monitoring intervals specified for Action B.2 and in the COLR. For Condition B with two SRMs inoperable, TS 3.9.2 Action B.2 requires performance of SR 3.9.1.1, which requires verification of boron concentration within the limit specified in the COLR, within 4 hours and once per 12 hours thereafter. However, the required monitoring frequencies of boron concentration specified in the COLR as a backup for inoperable BDAS are dependent on the MODES of operation and the number of operating charging pumps. These operating parameters were established based on the analysis of the time to criticality in an inadvertent boron dilution event. For MODE 6 operation, the required monitoring frequencies for backup boron dilution detection specified in the COLR range from 24 hours to 2 hours depending on the number of operating charging pumps. Therefore, the boron concentration monitoring intervals in the event of inoperable SRMs specified in TS 3.9.2 Action B.2 are inconsistent with those specified in the COLR.

LCO 3.3.12, states that if Condition B exists - two required BDAS channels inoperable, complete Required Action B.1- determine the reactor coolant system boron concentration immediately and monitor it at the frequency specified in the COLR. Deleting TS 3.9.2 Action B.2, and adding a NOTE to direct operators to enter Conditions and Required Actions of LCO 3.3.12, removes redundancy and eliminates any conflicts between TS 3.9.2 and TS 3.3.12. Additionally, these changes clarify BDAS operability in MODE 6 and provide backup boron concentration monitoring frequencies consistent with those specified in COLR, without

affecting other required actions specified in A.1, A.2 and B.1 of LCO 3.9.2. The NRC staff concludes that these TS changes are acceptable.

The NRC staff has reviewed the licensee's request to amend TS 3.3.12 and TS 3.9.2 by (1) adding MODE 6 to LCO 3.3.12 Applicability, (2) adding a NOTE to LCO 3.9.2 Required Action, which requires entering applicable Conditions and Required Actions of LCO 3.3.12, and (3) deleting TS 3.9.2 Required Action B.2. Based on the evaluation described above the NRC staff concludes the requested TS changes acceptable.

#### 4.0 STATE CONSULTATION

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

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve 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 NRC has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (66 FR 22024, dated May 2, 2001). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

#### 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.

Principal Contributor: Y. Hsii

Date: January 29, 2002