



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

August 26, 2009

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 -
ISSUANCE OF AMENDMENTS RE: REVISION TO TECHNICAL
SPECIFICATION 5.6.5.b, CORE OPERATING LIMITS REPORT (TAC NOS.
MD9556, MD9557, AND MD9558)

Dear Mr. Edington:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 174 to Facility Operating License No. NPF-41, Amendment No. 174 to Facility Operating License No. NPF-51, and Amendment No. 174 to Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated August 29, 2008, as supplemented by letters dated March 5 and August 7, 2009.

The amendments modify TS 5.6.5, "Core Operating Limits Report (COLR)," by updating the list of references in TS 5.6.5.b to reflect the current analytical methods used to determine the core operating limits for PVNGS, Units 1, 2, and 3.

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,

A handwritten signature in black ink that reads "James R. Hall".

James R. Hall, 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. 174 to NPF-41
2. Amendment No. 174 to NPF-51
3. Amendment No. 174 to NPF-74
4. Safety Evaluation

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

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. 174
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 August 29, 2008, as supplemented by letters dated March 5 and August 7, 2009, 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.

Enclosure 1

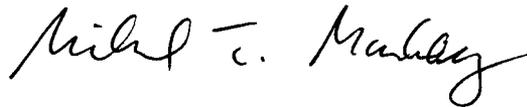
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C(2) of Facility Operating License No. NPF-41 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 174, 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 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Facility Operating
License No. NPF-41 and
Technical Specifications

Date of Issuance: August 26, 2009



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

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. 174
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 August 29, 2008, as supplemented by letters dated March 5 and August 7, 2009, 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. 174, 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 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Facility Operating
License No. NPF-51 and
Technical Specifications

Date of Issuance: August 26, 2009



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

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. 174
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 August 29, 2008, as supplemented by letters dated March 5 and August 7, 2009, 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.

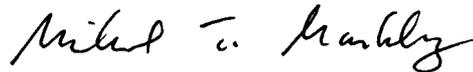
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C(2) of Facility Operating License No. NPF-74 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 174, 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 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Facility Operating
License No. NPF-74 and
Technical Specifications

Date of Issuance: August 26, 2009

ATTACHMENT TO LICENSE AMENDMENT NOS. 174, 174, AND 174

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 Facility Operating Licenses Nos. NPF-41, NPF-51, and NPF-74, and 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.

Operating Licenses

REMOVE

INSERT

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.

Technical Specifications

REMOVE

INSERT

5.6-5

5.6-5

5.6-6

5.6-6

5.6-7

5.6-8

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 174, 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) Antitrust Conditions

This license is subject to the antitrust conditions delineated in Appendix C to this license.

(4) Operating Staff Experience Requirements

Deleted

(5) Post-Fuel-Loading Initial Test Program (Section 14, SER and SSER 2)*

Deleted

(6) Environmental Qualification

Deleted

(7) Fire Protection Program

APS shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11, subject to the following provision:

APS may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(8) Emergency Preparedness

Deleted

*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 174, 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) Antitrust Conditions

This license is subject to the antitrust conditions delineated in Appendix C to this license.

(4) Operating Staff Experience Requirements (Section 13.1.2, SSER 9)*

Deleted

(5) Initial Test Program (Section 14, SER and SSER 2)

Deleted

(6) Fire Protection Program

APS shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11, subject to the following provision:

APS may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(7) Inservice Inspection Program (Sections 5.2.4 and 6.6, SER and SSER 9)

Deleted

(8) Supplement No. 1 to NUREG-0737 Requirements

Deleted

*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

(1) Maximum Power Level

Arizona Public Service Company (APS) is authorized to operate the facility at reactor core power levels not in excess of 3876 megawatts thermal (100% power) through operating cycle 13, and 3990 megawatts thermal (100% power) after operating cycle 13, in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 174, 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) Antitrust Conditions

This license is subject to the antitrust conditions delineated in Appendix C to this license.

(4) Initial Test Program (Section 14, SER and SSER 2)

Deleted

(5) Additional Conditions

The Additional Conditions contained in Appendix D, as revised through Amendment No. 171, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Additional Conditions.

(6) Mitigation Strategy License Condition

APS shall develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

(a) Fire fighting response strategy with the following elements:

1. Pre-defined coordinated fire response strategy and guidance.
2. Assessment of mutual aid fire fighting assets.
3. Designated staging areas for equipment and materials.
4. Command and control.
5. Training of response personnel.

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

7. Letter: O.D. Parr (NRC) to F. M. Stern (CE), dated June 13, 1975 (NRC Staff Review of the Combustion Engineering ECCS Evaluation Model). NRC approval for: 5.6.5.b.6.
8. Letter: K. Kniel (NRC) to A. E. Scherer (CE), dated September 27, 1977 (Evaluation of Topical Reports CENPD-133, Supplement 3-P and CENPD-137, Supplement 1-P). NRC approval for 5.6.5.b.6.
9. "Fuel Rod Maximum Allowable Pressure," CEN-372-P-A, (Methodology for Specification 3.2.1, Linear Heat Rate).
10. Letter: A. C. Thadani (NRC) to A. E. Scherer (CE), dated April 10, 1990, ("Acceptance for Reference CE Topical Report CEN-372-P"). NRC approval for 5.6.5.b.9.
11. "Arizona Public Service Company PWR Reactor Physics Methodology Using CASMO-4/SIMULATE-3," [Methodology for Specifications 3.1.1, Shutdown Margin - Reactor Trip Breakers Open; 3.1.2, Shutdown Margin - Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.1.7, Regulating CEA Insertion Limits and 3.9.1, Boron Concentration (Mode 6)].
12. "Technical Manual for the CENTS Code," CE-NPD 282-P-A, Volumes 1-3, [Methodology for Specifications 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.1.5, CEA Alignment; 3.1.7, Regulating CEA Insertion Limits; 3.1.8, Part Length or Part Strength CEA Insertion Limits and 3.2.3, Azimuthal Power Tilt- T_q].
13. CENPD-404-P-A, "Implementation of ZIRLO™ Cladding Material in CE Nuclear Power Fuel Assembly Designs.
14. CENPD-188-A, "HERMITE, A Multi-Dimensional Space-Time Kinetics Code for PWR Transients." [Methodology for Specifications 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]
15. CENPD-161-P-A, "TORC Code, A Computer Code for Determining the Thermal Margin of a Reactor Core." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

16. CEN-160(S)-P, "CETOP-D Code Structures and Modeling Methods for San Onofre Nuclear Generating Station Units 2 and 3." NRC approval in "Safety Evaluation related to Palo Verde Nuclear Generating Station, Unit 2 (PVNGS-2) Issuance of Amendment on Replacement of Steam Generators and Up-rated Power Operation, (September 29, 2003)." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]
17. "Safety Evaluation related to Palo Verde Nuclear Generating Station, Unit 2 (PVNGS-2) Issuance of Amendment on Replacement of Steam Generators and Up-rated Power Operation, (September 29, 2003) and "Safety Evaluation related to Palo Verde Nuclear Generating Station, Units 1, 2, and 3 - Issuance of Amendments Re: Replacement of Steam Generators and Up-rated Power Operations and Associated Administrative Changes, (November 16, 2005)." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.1.5, CEA Alignment; 3.1.7, Regulating CEA Insertion Limits; 3.1.8, Part Length or Part Strength CEA Insertion Limits; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index; 3.3.12, Boron Dilution Alarm System (BDAS); and 3.9.1, Boron Concentration (Mode 6).]
18. CEN-310-P-A, "CPC Methodology Changes for the CPC Improvement Program." [Methodology for Specifications 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]
19. CENPD-183-A, "Loss of Flow, C-E Methods for Loss of Flow Analysis." [Methodology for Specifications 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

20. CENPD-382-P-A, "Methodology for Core Designs Containing Erbium Burnable Absorbers." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; and 3.1.4, Moderator Temperature Coefficient.]
 21. CEN-386-P-A, "Verification of the Acceptability of a 1-Pin Burnup Limit of 60 MWD/kgU for Combustion Engineering 16 x 16 PWR Fuel." [Methodology for Specifications 3.1.1, Shutdown Margin-Reactor Trip Breakers Open; 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; and 3.1.4, Moderator Temperature Coefficient.]
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
 - d. The COLR, including any mid cycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

(continued)

5.6 Reporting Requirements

5.6.6 PAM Report

When a report is required by Condition B or F of LCO 3.3.10, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.7 Tendon Surveillance Report

Any abnormal degradation of the containment structure detected during the tests required by the Pre-Stressed Concrete Containment Tendon Surveillance Program shall be reported to the NRC within 30 days. The report shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedures, the tolerances on cracking, and the corrective action taken.

5.6.8 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9, Steam Generator (SG) Program. The report shall include:

- a. The scope of inspections performed on each SG.
 - b. Active degradation mechanisms found.
 - c. Nondestructive examination techniques utilized for each degradation mechanism.
 - d. Location, orientation (if linear), and measured sizes (if available) of service induced indications.
 - e. Number of tubes plugged during the inspection outage for each active degradation mechanism.
 - f. Total number and percentage of tubes plugged to date.
 - g. The results of condition monitoring, including the results of tube pulls and in-situ testing.
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 174 TO FACILITY OPERATING LICENSE NO. NPF-41,
AMENDMENT NO. 174 TO FACILITY OPERATING LICENSE NO. NPF-51, AND
AMENDMENT NO. 174 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 August 29, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082560177), as supplemented by letters dated March 5 and August 7, 2009 (ADAMS Accession Nos. ML090760827 and ML092370294, respectively), Arizona Public Service Company (the licensee) requested changes to the Technical Specifications (TSs) for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The proposed changes would revise TS 5.6.5, "Core Operating Limits Report (COLR)," by updating the references listed in TS 5.6.5.b to reflect the current analytical methods used to determine the core operating limits for PVNGS, Units 1, 2, and 3.

The supplemental letters dated March 5 and August 7, 2009, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on November 4, 2008 (73 FR 65688).

Specifically, the proposed amendment would revise TS 5.6.5.b to add the following references, numbered 14 through 21, to analytical methodologies approved by NRC for use at PVNGS, Units 1, 2, and 3:

14. CENPD-188-A, "HERMITE, A Multi-Dimensional Space-Time Kinetics Code for PWR Transients." [Methodology for Specifications 3.1.2, Shutdown Margin-Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]

15. CENPD-161-P-A, "TORC Code, A Computer Code for Determining the Thermal Margin of a Reactor Core." [Methodology for Specifications 3.1.1, Shutdown Margin–Reactor Trip Breakers Open; 3.1.2, Shutdown Margin–Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]
16. CEN-160(S)-P, "CETOP-D Code Structures and Modeling Methods for San Onofre Nuclear Generating Station Units 2 and 3." NRC approval in "Safety Evaluation related to Palo Verde Nuclear Generating Station, Unit 2 (PVNGS-2) Issuance of Amendment on Replacement of Steam Generators and Up-rated Power Operation, (September 29, 2003)." [Methodology for Specifications 3.1.1, Shutdown Margin–Reactor Trip Breakers Open; 3.1.2, Shutdown Margin–Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]
17. "Safety Evaluation related to Palo Verde Nuclear Generating Station, Unit 2 (PVNGS-2) Issuance of Amendment on Replacement of Steam Generators and Up-rated Power Operation, (September 29, 2003)" and "Safety Evaluation related to Palo Verde Nuclear Generating Station, Units 1, 2, and 3 - Issuance of Amendments Re: Replacement of Steam Generators and Up-rated Power Operations and Associated Administrative Changes, (November 16, 2005)." [Methodology for Specifications 3.1.1, Shutdown Margin–Reactor Trip Breakers Open; 3.1.2, Shutdown Margin–Reactor Trip Breakers Closed; 3.1.4, Moderator Temperature Coefficient; 3.1.5, CEA Alignment; 3.1.7, Regulating CEA Insertion Limits; 3.1.8, Part Length or Part Strength CEA Insertion Limits; 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; 3.2.5, Axial Shape Index; 3.3.12, Boron Dilution Alarm System (BDAS); and 3.9.1, Boron Concentration (Mode 6).]
18. CEN-310-P-A, "CPC Methodology Changes for the CPC Improvement Program." [Methodology for Specifications 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]
19. CENPD-183-A, "Loss of Flow, C-E Methods for Loss of Flow Analysis." [Methodology for Specifications 3.2.1, Linear Heat Rate; 3.2.3, Azimuthal Power Tilt; 3.2.4, DNBR; and 3.2.5, Axial Shape Index.]
20. CENPD-382-P-A, "Methodology for Core Designs Containing Erbium Burnable Absorbers." [Methodology for Specifications 3.1.1, Shutdown Margin–Reactor Trip Breakers Open; 3.1.2, Shutdown Margin–Reactor Trip Breakers Closed; and 3.1.4, Moderator Temperature Coefficient.]
21. CEN-386-P-A, "Verification of the Acceptability of a 1-Pin Burnup Limit of 60 MWD/kgU for Combustion Engineering 16 x16 PWR Fuel." [Methodology for Specifications 3.1.1, Shutdown Margin – Reactor Trip

Breakers Open; 3.1.2, Shutdown Margin – Reactor Trip Breakers Closed; and 3.1.4, Moderator Temperature Coefficient.]

In its application letter dated August 29, 2008, as supplemented, the licensee stated that all of these methods have been previously reviewed and approved by the NRC staff.

2.0 REGULATORY EVALUATION

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The NRC's regulatory requirements related to the content of the TSs are contained in Title 10 of the *Code of Federal Regulations*, Section 50.36 (10 CFR 50.36), which requires that the TSs include items in the following specific categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting conditions for operation (LCO); (3) surveillance requirements; (4) design features; and (5) administrative controls. In accordance with 10 CFR 50.36(c)(5), administrative controls are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner.

The NRC staff reviewed the proposed changes for compliance with 10 CFR 50.36 and agreement with the precedent as established in NUREG-1432, "Standard Technical Specifications - Combustion Engineering Plants." In general, licensees cannot justify TS changes solely on the basis of adopting the Standard Technical Specification (STS) model. Licensees may revise the TSs to adopt the improved STS format and content, provided that a plant-specific review supports a finding of continued adequate safety because: (1) the change is editorial, administrative, or provides clarification (i.e., no requirements are materially altered); (2) the change is more restrictive than the licensee's current requirement; or (3) the change is less restrictive than the licensee's current requirement, but nonetheless still affords adequate assurance of safety when judged against current regulatory standards.

3.0 TECHNICAL EVALUATION

Core operating limits and parameters are established prior to each reload cycle, or prior to any remaining portion of a reload, and are documented in the core operating limits report (COLR). To establish these limits and parameters, the methodologies referenced in TS 5.6.5.b are used. The references to the methodologies being added to TS 5.6.5.b under this amendment are in addition to those currently included in the TSs and have been previously approved for use by the NRC for PVNGS, Units 1, 2, and 3.

The additional references to the approved methodologies (Topical Reports) in TS 5.6.5.b provide only the Topical Report (TR) number and title and do not include further reference to revision numbers, date of issuance, and supplements. This will allow the licensee to use the current TRs (referenced in TS 5.6.5.b) to determine a core operating limit in the COLR without having to obtain a license amendment to use a revised NRC-approved TR, provided that the revised approved methodology is applicable to PVNGS Units 1, 2, and 3. Because TS 5.6.5.b requires that the methodology must be previously reviewed and approved by the NRC staff, the licensee would not be able to use a revised TR unless the NRC has approved its use. Also, as

currently specified in TS 5.6.5.b, the COLR will identify the report number, title, revision date, and any supplements for any Technical Specification referenced TR used to prepare the COLR. The proposed changes are consistent with the intent of NUREG-1432 and are acceptable to the NRC staff.

The results of the NRC staff's evaluation verifying the applicability of the numbered references to be added to TS 5.6.5.b are detailed below:

14. CENPD-188-A, "HERMITE, A Multi-Dimensional Space-Time Kinetics Code for PWR Transients," July 1976.
15. CENPD-161-P-A, "TORC Code, A Computer Code for Determining the Thermal Margin of a Reactor Core," April 1986.
16. CEN-160(S)-P, "CETOP-D Code Structures and Modeling Methods for San Onofre Nuclear Generating Station Units 2 and 3," September 1981.

These three methodologies (14, 15, and 16 above) were approved by the NRC in the safety evaluation (SE) dated September 29, 2003 (ADAMS Accession No. ML032720538), associated with Amendment No. 149 for replacement of steam generators and uprated power operation for PVNGS, Unit 2. Later, the use of these methodologies was approved by NRC in the SE dated November 16, 2005 (ADAMS Accession No. ML053130275), associated with Amendment Nos. 157 for replacement of steam generators and uprated power operation for PVNGS, Units 1 and 3. Therefore, these are NRC-approved methodologies for PVNGS, Units 1, 2, and 3.

17. "Safety Evaluation related to Palo Verde Nuclear Generating Station, Unit 2 - Issuance of Amendment on Replacement of Steam Generators and Uprated Power Operation, (September 29, 2003)" and "Safety Evaluation related to Palo Verde Nuclear Generating Station, Units 1, 2, and 3 - Issuance of Amendments Re: Replacement of Steam Generators and Uprated Power Operations and Associated Administrative Changes (November 16, 2005)."

Various methodologies were approved by the NRC in the SE dated September 29, 2003 (ADAMS Accession No. ML032720538), associated with Amendment No. 149 for replacement of steam generators and uprated power operation for PVNGS, Unit 2. These methodologies are documented in the SE and in the letters supporting the license amendment request dated December 21, 2001; March 12, August 27, August 29, September 4, September 6, October 11, November 21, December 10, and December 23, 2002; and March 11, June 10, July 25, and August 22, 2003. Subsequently, in the SE dated November 16, 2005 (ADAMS Accession No. ML053130275), associated with Amendment Nos. 157 for replacement of steam generators and uprated power operation for PVNGS, Units 1 and 3, these methodologies were also approved for PVNGS, Units 1 and 3.

18. CEN-310-P-A, "CPC Methodology Changes for the CPC Improvement Program," April 1986.

This Combustion Engineering TR was approved for generic application, as discussed in the associated NRC safety evaluation, dated March 12, 1986 (ADAMS Accession No.

8603180431). Hence, it is an NRC-approved methodology that the licensee may apply to PVNGS, Units 1, 2, and 3, consistent with the methods described in the TR and the NRC safety evaluation.

19. CENPD-183-A, "Loss of Flow, C-E Methods for Loss of Flow Analysis," dated July 1975.

This Combustion Engineering TR was approved for generic application, as discussed in the associated NRC safety evaluation, dated May 12, 1982 (the NRC letter is contained in a letter dated September 19, 1984, from Combustion Engineering Power Systems, ADAMS Accession No. 8409240167). Hence, it is an NRC-approved methodology that the licensee may apply to PVNGS, Units 1, 2, and 3, consistent with the methods described in the TR and the NRC safety evaluation.

20. CENPD-382-P-A, "Methodology for Core Designs Containing Erbium Burnable Absorbers," August 1993.
21. CEN-386-P-A, "Verification of the Acceptability of a 1-Pin Burnup Limit of 60 MWD/kgU for Combustion Engineering 16 x16 PWR Fuel," August 1992.

These two TRs were approved by NRC for use at PVNGS, Units 1, 2, and 3 in the SE associated with Amendment No. 145, dated December 2, 2002, regarding the peak fuel centerline temperature safety limit (ADAMS Accession No. ML023040463).

There is a potential issue with referencing TRs in TSs by only citing the report number and title. NRC SEs that approve TRs may contain conditions on their use that are not explicitly listed in the TR. This concern exists for plant-specific TRs, but not for vendor TRs intended for generic use at multiple facilities. Upon approval, vendor TRs are typically re-issued with the NRC SE incorporated; therefore, the NRC-approved vendor TR will contain any conditions or limitations specified in the NRC staff's SE. However, for plant-specific, NRC-approved TRs, there may be conditions in the NRC SEs that may not be captured in the plant-specific TRs, as these reports are not typically re-issued following approval. The TRs included as additional references in TS 5.6.5.b for PVNGS, Units 1, 2, and 3, are either NRC-approved vendor TRs, or the NRC SE is specifically included in the reference. Therefore, the NRC staff has confirmed that this concern does not apply to this specific license amendment request for PVNGS.

Based on the above discussion, the NRC staff has previously approved the use of the TRs to be added to the references listed in TS 5.6.5.b for PVNGS, Units 1, 2, and 3. Therefore, the NRC concludes that the addition of these methodologies to TS 5.6.5.b for the COLR is acceptable. Additionally, the NRC staff concludes that the omission of specific citations to the revision numbers, dates of issuance, and supplements for the referenced TRs is consistent with the guidance of NUREG-1432, and is acceptable.

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 amendments change a requirement with respect to 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 Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on November 4, 2008 (73 FR 65688). 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 Contributors: B. Singal
F. Orr

Date: August 26, 2009

August 26, 2009

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 -
ISSUANCE OF AMENDMENTS RE: REVISION TO TECHNICAL
SPECIFICATION 5.6.5.b, CORE OPERATING LIMITS REPORT (TAC NOS.
MD9556, MD9557, AND MD9558)

Dear Mr. Edington:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 174 to Facility Operating License No. NPF-41, Amendment No. 174 to Facility Operating License No. NPF-51, and Amendment No. 174 to Facility Operating License No. NPF-74 for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated August 29, 2008, as supplemented by letters dated March 5 and August 7, 2009.

The amendments modify TS 5.6.5, "Core Operating Limits Report (COLR)," by updating the list of references in TS 5.6.5.b to reflect the current analytical methods used to determine the core operating limits for PVNGS, Units 1, 2, and 3.

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/

James R. Hall, 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. 174 to NPF-41
2. Amendment No. 174 to NPF-51
3. Amendment No. 174 to NPF-74
4. Safety Evaluation

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ADAMS Accession No. ML092300239

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	DSS/SRXB/BC	OGC	NRR/LPL4/BC	NRR/LPL4/PM
NAME	JRHall	JBurkhardt	GCranson	BHarris	MMarkley	JRHall
DATE	8/19/09	8/19/09	8/21/09	8/20/09	8/26/09	8/26/09

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