



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

January 23, 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: APPLICATION TO REVISE TECHNICAL
SPECIFICATIONS REGARDING CONTROL ROOM HABITABILITY IN
ACCORDANCE WITH TSTF-448, REVISION 3 (TAC NOS. MD7917, MD7918,
AND MD7919)

Dear Mr. Edington:

The Commission has issued the enclosed Amendment No. 171 to Facility Operating License No. NPF-41, Amendment No. 171 to Facility Operating License No. NPF-51, and Amendment No. 171 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 January 17, 2008, as supplemented by letter dated February 29, 2008.

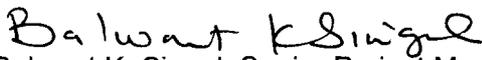
The amendments add a new license condition on the control room envelope (CRE) habitability program, revises the TS requirements related to the CRE habitability in TS 3.7.11, "Control Room Essential Filtration System (CREFS)," and establish a CRE habitability program in TS Section 5.5, "Administrative Controls – Programs and Manuals." These changes are consistent with the NRC-approved Industry/TS Task Force (TSTF) TSTF-448, Revision 3, "Control Room Habitability." The availability of this TS improvement was published in the *Federal Register* on January 17, 2007 (72 FR 2022), as part of the Consolidated Line Item Improvement Process.

R. Edington

- 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,


Balwant K. Singal, 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. 171 to NPF-41
2. Amendment No. 171 to NPF-51
3. Amendment No. 171 to NPF-74
4. Safety Evaluation

cc w/encls: Distribution via Listserv



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. 171
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 January 17, 2008, as supplemented by letter dated February 29, 2008, 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 Paragraphs 2.C(2) and 2.C(14) of Facility Operating License No. NPF-41 are hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

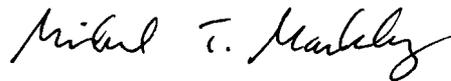
The Technical Specifications contained in Appendix A, as revised through Amendment No. 171, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

(14) 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.

3. This license amendment is effective as of the date of issuance and shall be implemented within 180 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: January 23, 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. 171
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 January 17, 2008, as supplemented by letter dated February 29, 2008, 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 Paragraphs 2.C(2) and 2.C(9) of Facility Operating License No. NPF-51 are hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

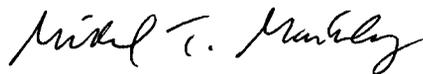
The Technical Specifications contained in Appendix A, as revised through Amendment No. 171, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

- (9) 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.

3. This license amendment is effective as of the date of issuance and shall be implemented within 180 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: January 23, 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. 171
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 January 17, 2008, as supplemented by letter dated February 29, 2008, 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 Paragraphs 2.C(2) and 2.C(5) of Facility Operating License No. NPF-74 are hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

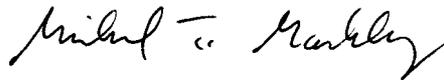
The Technical Specifications contained in Appendix A, as revised through Amendment No. 171, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

(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.

3. This license amendment is effective as of the date of issuance and shall be implemented within 180 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: January 23, 2009

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 171 , 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.

- (9) Results of Piping Vibration Test Program (Section 3.9.2, SER)
Deleted
- (10) Response to Salem ATWS Event (Section 7.2, SSER 7, and Section 1.11, SSER 8)
Deleted
- (11) Supplement No. 1 to NUREG-0737 Requirements
Deleted
- (12) Radiochemistry Laboratory (Section 7.3.1.5(3), Emergency Plan)
Deleted
- (13) RCP Shaft Vibration Monitoring Program (Section 5.4.1, SSER 12)
Deleted
- (14) 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.
- (15) 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.
 - (b) Operations to mitigate fuel damage considering the following:
 - 1. Protection and use of personnel assets.
 - 2. Communications.
 - 3. Minimizing fire spread.
 - 4. Procedures for implementing integrated fire response strategy.
 - 5. Identification of readily-available pre-staged equipment.
 - 6. Training on integrated fire response strategy.
 - 7. Spent fuel pool mitigation measures.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 171 , 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.

(9) 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.

(10) 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.

(b) Operations to mitigate fuel damage considering the following:

1. Protection and use of personnel assets.
2. Communications.
3. Minimizing fire spread.
4. Procedures for implementing integrated fire response strategy.
5. Identification of readily-available pre-staged equipment.
6. Training on integrated fire response strategy.
7. Spent fuel pool mitigation measures.

(c) Actions to minimize release to include consideration of:

1. Water spray scrubbing.
2. Dose to onsite responders.

D. (1) APS has previously been granted an exemption from Paragraph III.D.2(b)(ii) of Appendix J to 10 CFR Part 50. This exemption was previously granted in Facility Operating License NPF-46 pursuant to 10 CFR 50.12.

(2) Deleted

With the granting of these exemptions, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

(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. 171, 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.

3.7 PLANT SYSTEMS

3.7.11 Control Room Essential Filtration System (CREFS)

LCO 3.7.11 Two CREFS trains shall be OPERABLE.

-----NOTE-----
The Control Room Envelope (CRE) boundary may be opened
intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable for reasons other than Condition B.	A.1 Restore CREFS train to OPERABLE status.	7 days
B. One or more CREFS trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions.	Immediately
	<u>AND</u> B.2 Verify mitigating actions ensure CRE occupant exposures will not exceed radiological limits and that CRE occupants are protected from smoke and potential chemical hazards.	24 hours
	<u>AND</u> B.3 Restore CRE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours
D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6.	D.1 Place OPERABLE CREFS train in operation.	Immediately
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	E.1 Place OPERABLE CREFS Train in operation. <u>OR</u> E.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
F. Two CREFS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies. <u>OR</u> One or more CREFS trains inoperable due to inoperable CRE boundary in MODE 5 or 6, or during movement of irradiated fuel assemblies.	F.1 Suspend CORE ALTERATIONS. <u>AND</u> F.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
G. Two CREFS trains inoperable in MODE 1, 2, 3, or 4, for reasons other than Condition B.	G.1 Enter LCO 3.0.3.	Immediately

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CREFS train for ≥ 15 minutes.	31 days
SR 3.7.11.2	Perform required CREFS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.11.3	Verify each CREFS train actuates on an actual or simulated actuation signal.	18 months
SR 3.7.11.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program.

5.5 Programs and Manuals (continued)

5.5.16 Containment Leakage Rate Testing Program (continued)

- b. The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a , is 52.0 psig for Unit 1 through operating cycle 12 and Unit 3 through operating cycle 13, and 58.0 psig for Unit 1 after operating cycle 12, Unit 2, and Unit 3 after operating cycle 13. The containment design pressure is 60 psig.
- c. The maximum allowable containment leakage rate, L_a , at P_a , shall be 0.1 % of containment air weight per day.
- d. Leakage Rate acceptance criteria are:
 - 1. Containment leakage rate acceptance criterion is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance are $< 0.60 L_a$ for the Type B and C tests and $\leq 0.75 L_a$ for Type A tests.
 - 2. Air lock testing acceptance criteria are:
 - a) Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$.
 - b) For each door, leakage rate is $\leq 0.01 L_a$ when pressurized to ≥ 14.5 psig.
- e. The provisions of SR 3.0.2 do not apply to the test frequencies in the Containment Leakage Rate Testing Program.
- f. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

(continued)

5.5 Programs and Manuals (continued)

5.5.17 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE Habitability is maintained such that, with an OPERABLE Control Room Essential Filtration System (CREFS), CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem whole body or its equivalent to any part of the body for the duration of the accident. The program shall include the following elements:

- a. The definition of the CRE and the CRE boundary.
- b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.
- c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary in accordance with the testing methods and the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Determining Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.
- d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation of one train of the CREFS, operating at the flow rate required by the VFTP, at a Frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the periodic assessment of the CRE boundary.
- e. The quantitative limits on unfiltered air inleakage into the CRE shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences.
- f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

APPENDIX D
ADDITIONAL CONDITIONS
FACILITY OPERATING LICENSE NOS. NPF-41, NPF-51, AND NPF-74

The licensee shall comply with the following conditions on the schedules noted below:

<u>Amendment Number</u>	<u>Additional Conditions</u>	<u>Implementation Date</u>
171	<p>Upon implementation of TS Amendment No. 171 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.11.4, in accordance with TS 5.5.17.c.(i), the assessment of CRE habitability as required by Specification 5.5.17.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.17.d, shall be considered met.</p> <p>Following implementation of TS Amendment No. 171 adopting TSTF-448, Revision 3:</p> <p>(a) The first performance of SR 3.7.11.4, in accordance with Specification 5.5.17.c.(i), shall be as follows for each unit:</p> <p>Unit 1: Within the specified Frequency of 6 years plus the 18-month allowance of SR 3.0.2, as measured from August 9, 2005, the date of the most recent successful tracer gas test on Unit 1.</p> <p>Unit 2: Within the first 18 months of implementation, because the time period since the most recent successful tracer gas test on Unit 2 (April 26, 2001) is greater than 6 years.</p> <p>Unit 3: Within the specified Frequency of 6 years plus the 18-month allowance of SR 3.0.2, as measured from August 15, 2005, the date of the most recent successful tracer gas test on Unit 3.</p>	<p>The amendment shall be implemented within 180 days from the date of its issuance</p>

Amendment Number	Additional Conditions	Implementation Date
171 (Cont'd)	<p>(b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.17.c.(ii), shall be as follows for each unit:</p> <p>Unit 1: Within 3 years plus the 9-month allowance of SR 3.0.2, as measured from August 9, 2005, the date of the most recent successful tracer gas test on Unit 1, or within the first 9 months of implementation, whichever is later.</p> <p>Unit 2: Within the first 9 months of implementation, because the time period since the date of the most recent successful tracer gas test on Unit 2 (April 26, 2001) is greater than 3 years.</p> <p>Unit 3: Within 3 years plus the 9-month allowance of SR 3.0.2, as measured from August 15, 2005, the date of the most recent successful tracer gas test on Unit 3, or within the first 9 months of implementation, whichever is later.</p> <p>(c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.17.d, shall be as follows for each unit:</p> <p>Unit 1: Within 18 months plus the 138 days allowed by SR 3.0.2, as measured from May 16, 2007, the date of the most recent successful pressure measurement test on Unit 1, or within the first 138 days of implementation, whichever is later.</p> <p>Unit 2: Within 18 months plus the 138 days allowed by SR 3.0.2, as measured from September 18, 2006, the date of the most recent successful pressure measurement test on Unit 2, or within the first 138 days of implementation, whichever is later.</p> <p>Unit 3: Within 18 months plus the 138 days allowed by SR 3.0.2, as measured from November 23, 2007, the date of the most recent successful pressure measurement test on Unit 3, or within the first 138 days of implementation, whichever is later.</p>	



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 171 TO FACILITY OPERATING LICENSE NO. NPF-41,
AMENDMENT NO. 171 TO FACILITY OPERATING LICENSE NO. NPF-51, AND
AMENDMENT NO. 171 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 January 17, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML080250068), and supplemented by letter dated February 29, 2008 (ADAMS Accession No. ML080660332), Arizona Public Service Company (APS) (the licensee) requested changes to the Technical Specifications (TS) for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The proposed amendments allow PVNGS, Units 1, 2, and 3 to adopt the U.S. Nuclear Regulatory Commission (NRC)-approved Industry TS Task Force (TSTF) Traveler TSTF-448, Revision 3, "Control Room Habitability." The availability of this TS improvement was published in the *Federal Register* on January 17, 2007 (72 FR 2022), as part of the Consolidated Line Item Improvement Process.

The supplemental letter dated February 29, 2008, 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 May 6, 2008 (73 FR 25036).

On August 8, 2006, the commercial nuclear electrical power generation industry owners group Technical Specifications Task Force (TSTF) submitted a proposed change, TSTF-448, Revision 3, to the improved standard technical specifications (STS) (NUREGs 1430-1434) on behalf of the industry (TSTF-448, Revisions 0, 1, and 2 were prior draft iterations). TSTF-448, Revision 3, is a proposal to establish more effective and appropriate action, surveillance, and administrative STS requirements related to ensuring the habitability of the control room envelope (CRE).

In NRC Generic Letter (GL) 2003-01, "Control Room Habitability" (Reference 1), NRC alerted licensees to findings at facilities that existing TS surveillance requirements (SRs) for the Control Room Envelope Emergency Ventilation System (CREEVS) may not be adequate. Specifically, the results of American Society for Testing and Materials (ASTM) E741 (Reference 2) tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that the differential pressure

surveillance is not a reliable method for demonstrating CRE boundary operability. Licensees were requested to address their existing TSs as follows:

Provide confirmation that your technical specifications verify the integrity [i.e., operability] of the CRE [boundary], and the assumed [unfiltered] leakage rates of potentially contaminated air. If you currently have a differential pressure surveillance requirement to demonstrate CRE [boundary] integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your differential pressure surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your technical specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any necessary modifications to your CRE [boundary] so that compliance with your new surveillance requirement can be demonstrated.

If your facility does not currently have a technical specification surveillance requirement for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

To promote standardization and to minimize the resources that would be needed to create and process plant-specific amendment applications in response to the concerns described in the GL, the industry and the NRC proposed revisions to CRE habitability system requirements contained in the STS, using the STS change traveler process. This effort culminated in Revision 3 to traveler TSTF-448, "Control Room Habitability," which the NRC staff approved on January 17, 2007.

Consistent with the traveler as incorporated into NUREG-1432, Vol. 1, Revision 3, "Standard Technical Specifications, Combustion Engineering Plants," the licensee proposed revising actions and SRs in Specification 3.7.11, "Control Room Essential Filtration System (CREFS)," and adding a new administrative controls program, Specification 5.5.17, "Control Room Envelope Habitability Program." The purpose of the changes is to ensure that CRE boundary operability is maintained and verified through effective surveillance and programmatic requirements, and that appropriate remedial actions are taken in the event of an inoperable CRE boundary.

Some editorial and plant-specific changes were incorporated into this safety evaluation resulting in minor deviations from the model safety evaluation text in TSTF-448, Revision 3.

2.0 REGULATORY EVALUATION

2.1 Control Room and Control Room Envelope

NRC Regulatory Guide (RG) 1.196, "Control Room Habitability at Light-water Nuclear Power Reactors," Revision 0, May 2003 (Reference 4), uses the term "control room envelope" in addition to the term "control room" and defines each term as follows:

Control Room: The plant area, defined in the facility licensing basis, in which actions can be taken to operate the plant safely under normal conditions and to maintain the reactor in a safe condition during accident situations. It encompasses the instrumentation and controls necessary for a safe shutdown of the plant and typically includes the critical document reference file, computer room (if used as an integral part of the emergency response plan), shift supervisor's office, operator wash room and kitchen, and other critical areas to which frequent personnel access or continuous occupancy may be necessary in the event of an accident.

Control Room Envelope: The plant area, defined in the facility licensing basis, that in the event of an emergency, can be isolated from the plant areas and the environment external to the CRE. This area is served by an emergency ventilation system, with the intent of maintaining the habitability of the control room. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident.

NRC RG 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003 (Reference 5), also contains these definitions, but uses the term CRE to mean both. This is because the protected environment provided for operators varies with the nuclear power facility. At some facilities, this environment is limited to the control room; at others, it is the CRE. In this safety evaluation, consistent with the proposed changes to the STS, the CRE will be used to designate both environments as defined above. For consistency, facilities should use the term CRE with an appropriate facility-specific definition derived from the above CRE definition.

2.2 Control Room Essential Filtration System (CREFS)

The CREFS (the term used at PVNGS, Units 1, 2, and 3 for the Control Room Envelope Emergency Ventilation System, CREEVS) provides a protected environment from which operators can control the unit, during airborne challenges from radioactivity, hazardous chemicals, and fire byproducts, such as fire suppression agents and smoke, during both normal and accident conditions.

The CREFS is designed to maintain a habitable environment in the CRE for 30 days of continuous occupancy after a design-basis accident (DBA) without exceeding a 5 roentgen equivalent man (rem) whole body dose or its equivalent to any part of the body.

The CREFS consists of two independent, redundant trains each capable of maintaining the habitability of the CRE. Each CREFS train is considered operable when the individual components necessary to limit CRE occupant exposure are operable in both trains. A CREFS train is considered operable when the associated:

- Fan is operable;
- High-efficiency particulate air (HEPA) filters and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions;
- Ductwork, valves, and dampers are operable, and air circulation can be maintained; and
- CRE boundary is operable (the single boundary supports both trains).

The CRE boundary is considered operable when the measured unfiltered air leakage is less than or equal to the leakage value assumed by the licensing basis analyses of DBA consequences to CRE occupants.

2.3 Regulations Applicable to Control Room Habitability

In Section 50.36 of Title 10 of the *Code of Federal Regulations* (10 CFR), "Technical specifications," the NRC established its regulatory requirements related to the content of TS. Pursuant to 10 CFR 50.36, TSs are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. The rule does not specify the particular requirements to be included in a plant's TS. As stated in 10 CFR 50.36(d)(2)(i), the "[l]imiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility." The regulations in 10 CFR 50.36(d)(3) state that "[s]urveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components will be maintained within safety limits, and that the limiting conditions for operation will be met."

In Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," General Design Criteria (GDC) 1, 2, 3, 4, 5, and 19 apply to CRE habitability. A summary of these GDCs follows.

GDC 1, "Quality standards and records," requires that structures, systems, and components (SSCs) important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions performed.

GDC 2, "Design basis for protection against natural phenomena," requires that SSCs important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunamis, and seiches without loss of capability to perform their safety functions.

GDC 3, "Fire protection," requires SSCs important to safety be designed and located to minimize the probability and effect of fires and explosions.

GDC 4, "Environmental and dynamic effects design bases," requires SSCs important to safety to be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents (LOCAs).

GDC 5, "Sharing of structures, systems, and components," requires that SSCs important to safety not be shared among nuclear power units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions, including, in the event of an accident in one unit, the orderly shutdown and cooldown of the remaining units.

GDC 19, "Control room," requires that a control room be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including LOCAs. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident.

Prior to incorporation of TSTF-448, Revision 3, the STS requirements addressing CRE boundary operability resided only in the following CRE ventilation system specification:

- NUREG-1432, TS 3.7.11, "Control Room Emergency Air Cleanup System (CREACS)"

In this specification, the SR associated with demonstrating the operability of the CRE boundary requires verifying that one CREFS train can maintain a positive pressure relative to the areas adjacent to the CRE during the pressurization mode of operation at a makeup flow rate of ≤ 1000 cubic feet per minute (cfm). Facilities that pressurize the CRE during the emergency mode of operation of the CREFS have similar SRs. Regardless, the results of ASTM E741 (Reference 2) tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that the differential pressure surveillance is not a reliable method for demonstrating CRE boundary operability. That is, licensees were able to obtain differential pressure and flow measurements satisfying the SR limits even though unfiltered inleakage was determined to exceed the value assumed in the safety analyses.

In addition to an inadequate SR, the action requirements of this specification were ambiguous regarding CRE boundary operability in the event CRE unfiltered inleakage is found to exceed the analysis assumption. The ambiguity stemmed from the view that the CRE boundary may be considered operable but degraded in this condition, and that it would be deemed inoperable only if calculated radiological exposure limits for CRE occupants exceeded a licensing basis limit (e.g., as stated in GDC 190, even while crediting compensatory measures.

NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety" (AL 98-10), states that "the discovery of an improper or inadequate TS value or required action is considered a degraded or nonconforming condition,"

which is defined in NRC Inspection Manual Chapter 9900; see latest guidance in NRC Regulatory Issue Summary (RIS) 2005-20 (Reference 3). NRC AL-98-10 also states, "Imposing administrative controls in response to an improper or inadequate TS is considered an acceptable short-term corrective action. The [NRC] staff expects that, following the imposition of administrative controls, an amendment to the [inadequate] TS, with appropriate justification and schedule, will be submitted in a timely fashion."

Licensees that have found unfiltered leakage in excess of the limit assumed in the safety analyses and have yet to either reduce the leakage below the limit or establish a higher bounding limit through re-analysis, have implemented compensatory actions to ensure the safety of CRE occupants, pending final resolution of the condition, consistent with RIS 2005-20. However, based on GL 2003-01 and AL 98-10, the NRC staff expects each licensee to propose TS changes that include a surveillance to periodically measure CRE unfiltered leakage in order to satisfy 10 CFR 50.36(c)(3), which requires a facility's TS to include SRs, which it defines as "requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that limiting conditions for operation will be met."

The NRC staff also expects facilities to propose unambiguous remedial actions, consistent with 10 CFR 50.36(c)(2), for the condition of not meeting the limiting condition for operation (LCO) due to an inoperable CRE boundary. The action requirements should specify a reasonable completion time to restore conformance to the LCO before requiring a facility to be shut down. This completion time should be based on the benefits of implementing mitigating actions to ensure CRE occupant safety and sufficient time to resolve most problems anticipated with the CRE boundary, while minimizing the chance that operators in the CRE will need to use mitigating actions during accident conditions.

2.4 Adoption of TSTF-448 Revision 3, by PVNGS

Adoption of TSTF-448, Revision 3, will assure that the facility's TS LCO for the CREFS is met by demonstrating unfiltered leakage into the CRE is within limits (i.e., the operability of the CRE boundary). In support of this surveillance, which specifies a test interval (frequency) described in RG 1.197, TSTF-448 also adds TS administrative controls to assure the habitability of the CRE between performances of the ASTM E741 test. In addition, adoption of TSTF-448 will establish clearly stated and reasonable required actions in the event CRE unfiltered leakage is found to exceed the analysis assumption.

The changes made by TSTF-448 to the STS requirements for the CREFS and the CRE boundary conform to 10 CFR 50.36(c)(2) and 10 CFR 50.36(c)(3). Their adoption will better assure that the PVNGS, Units 1, 2, and 3 CRE will remain habitable during normal operation and DBA conditions. The staff has, therefore, concluded that these changes are acceptable.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the proposed changes against the corresponding changes made to the STS by TSTF-448, Revision 3, which the NRC staff has found to satisfy applicable regulatory requirements, as described above in Section 2.0. The emergency operational mode of the

CREFS at PVNGS, Units 1, 2, and 3 pressurizes the CRE to minimize unfiltered air leakage. The proposed changes are consistent with this design.

Proposed Changes

The proposed amendment would strengthen CRE habitability TS requirements by changing TS 3.7.11, "Control Room Essential Filtration System (CREFS)," and adding a new TS administrative controls program on CRE habitability. Accompanying the proposed TS changes are appropriate conforming technical changes to the TS Bases. The proposed revision to the Bases also includes editorial and administrative changes to reflect applicable changes to the corresponding STS Bases, which were made to improve clarity, conform with the latest information and references, correct factual errors, and achieve more consistency among the STS NUREGs. Except for plant-specific differences, all of these changes are consistent with STS as revised by TSTF-448, Revision 3.

The NRC staff compared the proposed TS changes to the STS and the STS markups and evaluations in TSTF-448. The staff verified that differences from the STS were adequately justified on the basis of plant-specific design or retention of current licensing basis. The NRC staff also reviewed the proposed changes to the TS Bases for consistency with the STS Bases and the plant-specific design and licensing bases. The proposed Bases for TS 3.7.11 refer to specific guidance in Nuclear Energy Institute (NEI) 99-03, "Control Room Habitability Assessment Guidance," Revision 0, dated June 2001 (Reference 6), which the NRC staff has formally endorsed, with exceptions, through RG 1.196 (Reference 4).

3.1 Editorial Changes

The licensee proposed editorial changes to TS 3.7.11, "Control Room Essential Filtration System (CREFS)," to establish standard terminology, such as "control room envelope (CRE)" in place of "control room," except for the plant-specific name for the CREEVS, and "radiological, chemical, and smoke hazards" in place of various phrases to describe the hazards that CRE occupants are protected from by the CREFS. These changes improve the usability and quality of the presentation of the TS, have no adverse impact on safety and, therefore, are acceptable.

3.2 TS 3.7.11, "Control Room Essential Filtration System (CREFS)"

The licensee proposed to establish new action requirements in TS 3.7.11, "Control Room Essential Filtration System (CREFS)," for an inoperable CRE boundary. Currently, if one CREFS train is determined to be inoperable due to an inoperable CRE boundary, existing Action A would apply and require restoring the train (and the CRE boundary) to operable status in 7 days. If two trains are determined to be inoperable due to an inoperable CRE boundary, existing Action F specifies no time to restore the trains (and the CRE boundary) to operable status, but requires immediate entry into the shutdown actions of LCO 3.0.3. These existing Actions are more restrictive than would be appropriate in situations for which implementation of compensatory measures or mitigating actions would temporarily afford adequate CRE occupant protection from postulated airborne hazards. To account for such situations, the licensee proposed to revise the action requirements to add a new Condition B, "One or more CREFS trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4."

New Required Action B.1 requires the licensee to immediately initiate action to implement mitigating actions. New Required Action B.2 requires the licensee to verify, within 24 hours, that mitigating actions ensure CRE occupant exposures will not exceed radiological limits and that CRE occupants are protected from smoke and potential chemical hazards. New Required Action B.3 requires the licensee to restore, within 90 days, the CRE boundary to OPERABLE status.

The 24-hour Completion Time of new Required Action B.2 is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90-day Completion Time of new Required Action B.3 is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA, and is a reasonable time to diagnose, plan and possibly repair, and test most anticipated problems with the CRE boundary. Based on the above, the NRC staff concludes that proposed Actions B.1, B.2, and B.3 are acceptable.

To distinguish new Condition B from the existing condition for one CREFS train inoperable, Condition A is revised to state, "One CREFS train inoperable for reasons other than Condition B." To distinguish new Condition B from the existing condition for two CREFS trains inoperable, Condition F (renumbered as Condition G) is revised to state, "Two CREFS trains inoperable during MODE 1, 2, 3, or 4 for reasons other than Condition B." The changes to existing Conditions A and F are less restrictive because these Conditions will no longer apply in the event one or two CREFS trains are inoperable due to an inoperable CRE boundary during unit operation in Mode 1, 2, 3, or 4. This is acceptable because the new Action B establishes adequate remedial measures in this condition. With the addition of a new Condition B, existing Conditions B, C, D, E, and F are re-designated C, D, E, F, and G, respectively.

The licensee also proposed to modify the CREFS LCO by adding a NOTE allowing the CRE boundary to be opened intermittently under administrative controls. As stated in the LCO Bases, this NOTE "only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated." The allowance of this NOTE is acceptable because the administrative controls will ensure that the opening will be quickly sealed to maintain the validity of the licensing basis analyses of DBA consequences.

The licensee proposed to add a new condition to Action F of TS 3.7.11 that states, "One or more CREFS trains inoperable due to inoperable CRE boundary in MODE 5 or 6, or during movement of irradiated fuel assemblies." The specified Required Action proposed for this condition is to suspend movement of irradiated fuel assemblies, which is encompassed in the required actions (Suspend CORE ALTERATIONS) for existing condition of Action F, which states, "Two CREFS trains inoperable in MODES 5 or 6, or during movement of irradiated fuel assemblies." Accordingly, the new condition is stated with the other condition in Action F using

the logical connector “OR”. The practical result of this presentation in format is the same as specifying two separately numbered Actions, one for each condition. Its advantage is to make the TS Actions table easier to use by avoiding having an additional numbered row in the Actions table. The new condition in Action F is needed because proposed Action B will only apply in Modes 1, 2, 3, and 4. As such, this change will ensure that the Actions table continues to specify a condition for an inoperable CRE boundary during movement of irradiated fuel assemblies. Therefore, this change is administrative and acceptable.

In the pressurization/cleanup mode of operation, the CREFS isolates unfiltered ventilation air supply intakes, filters the emergency ventilation air supply to the CRE, and pressurizes the CRE to minimize unfiltered air inleakage past the CRE boundary. The licensee proposed to delete the CRE pressurization SR. This SR required verifying that one CREFS train, operating in the pressurization/cleanup mode, can maintain a pressure ≥ 0.125 inches water gauge, relative to the adjacent area during the pressurization/cleanup mode of operation at a makeup flow rate ≤ 1000 cfm. The deletion of this SR is proposed because measurements of unfiltered air leakage into the CRE at numerous reactor facilities demonstrated that a basic assumption of this SR, an essentially leak-tight CRE boundary, was incorrect for most facilities. Hence, meeting this SR by achieving the required CRE pressure is not necessarily a conclusive indication of CRE boundary leak tightness, i.e., CRE boundary operability. In its supplemental response to GL 2003-01, dated December 8, 2006 (ADAMS Accession No. ML063530482), the licensee committed to determine the applicability of the NRC-approved TSTF-448 and submit a license amendment request to require periodic measurement of unfiltered CRE inleakage. Based on the adoption of TSTF-448, Revision 3, the licensee's proposal to delete SR 3.7.11.4 is acceptable.

The proposed CRE inleakage measurement SR states, “Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.” The CRE Habitability Program TS, proposed TS 5.5.17, requires that the program include “Requirements for (i) determining the unfiltered air inleakage past the CRE boundary in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of RG 1.197, Revision 0 (Reference 5) and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0”. This guidance references ASTM E741, (Reference 2), as an acceptable method for ascertaining the unfiltered leakage into the CRE. The licensee has proposed to follow this method. Based on the above, the proposed CRE inleakage measurement SR is acceptable.

3.3 TS 5.5.17, “Control Room Envelope Habitability Program”

The proposed administrative controls program TS is consistent with the model program TS in TSTF-448, Revision 3. In combination with SR 3.7.11.4, this program is intended to ensure the operability of the CRE boundary which, as part of an operable CREFS, will ensure that CRE habitability is maintained such that CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under DBA conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident.

A CRE habitability program TS acceptable to the NRC staff requires the program to contain the following elements:

- Definitions of CRE and CRE boundary.

This element is intended to ensure that these definitions accurately describe the plant areas that are within the CRE, and also the interfaces that form the CRE boundary, and are consistent with the general definitions discussed in Section 2.1 of this safety evaluation. Establishing what is meant by the CRE and the CRE boundary will preclude ambiguity in the implementation of the program.

- Configuration control and preventive maintenance of the CRE boundary.

This element is intended to ensure the CRE boundary is maintained in its design condition. Guidance for implementing this element is contained in RG 1.196 (Reference 4), which endorsed, with exceptions, NEI 99-03, Rev. 0 (Reference 6). Maintaining the CRE boundary in its design condition provides assurance that its leak-tightness will not significantly degrade between CRE inleakage determinations.

- Assessment of CRE habitability at the frequencies stated in Sections C.1 and C.2 of RG 1.197, Revision 0 (Reference 5), and measurement of unfiltered air leakage into the CRE in accordance with the testing methods and at the frequencies stated in Sections C.1 and C.2 of RG 1.197.

This element is intended to ensure that the plant assesses CRE habitability consistent with Sections C.1 and C.2 of RG 1.197 and NRC approved exceptions. Assessing CRE habitability at the NRC accepted frequencies provides assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations. Determination of CRE inleakage using test methods acceptable to the NRC staff assures that test results are reliable for ascertaining CRE boundary operability. Determination of CRE inleakage at the NRC accepted frequencies provides assurance that significant degradation of the CRE boundary will not occur between CRE inleakage determinations.

- Measurement, at designated locations, of the CRE pressure relative to all external adjacent to the CRE boundary during the pressurization mode of operation of one train of the CREFS, operating at the flow rate required by the ventilation filter testing program at a frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the periodic assessments of the CRE boundary.

This element is intended to ensure that CRE differential pressure is regularly measured to identify changes in pressure warranting evaluation of the condition of the CRE boundary. Obtaining and trending pressure data provides additional assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations.

- The quantitative limits on unfiltered air leakage into the CRE shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph 5.5.17.c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences.

This element is intended to establish the CRE leakage limit as the CRE unfiltered infiltration rate assumed in the CRE occupant radiological consequence analyses of design basis accidents. Having an unambiguous criterion for the CRE boundary to be considered operable in order to meet LCO 3.7.10 will ensure that associated action requirements will be consistently applied in the event of CRE degradation resulting in leakage exceeding the limit.

- Consistent with TSTF-448, Revision 3, the program states “The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered leakage and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.”

This statement is needed to avoid confusion. SR 3.0.2 is applicable to the surveillance that references the testing in the CRE Habitability Program. However, SR 3.0.2 is not applicable to Administrative Controls unless specifically invoked. Providing this statement in the program eliminates any confusion regarding whether SR 3.0.2 is applicable, and is acceptable. Consistent with TSTF-448, Revision 3, proposed TS 5.5.17 states that (1) a CRE habitability program shall be established and implemented, (2) the program shall include all of the NRC staff required elements, as described above, and (3) the provisions of SR 3.0.2 shall apply to program frequencies. Therefore, TS 5.5.17, which is consistent with the model program TS approved by the NRC staff in TSTF-448, Revision 3, is acceptable.

3.4 License Conditions

In its letter dated January 17, 2008, the licensee agreed to add license conditions related to the initial performance of new surveillance and assessment requirements. Appendix D, “Additional Conditions,” to Facility Operating License Nos. NPF-41, NPF-51, and NPF-74 is hereby amended to add a new license condition, designated as Amendment No. 171, to read as follows:

Upon implementation of TS Amendment No. 171 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air leakage as required by SR 3.7.11.4, in accordance with TS 5.5.17.c.(i), the assessment of CRE habitability as required by Specification 5.5.17.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.17.d, shall be considered met.

Following implementation of TS Amendment No. 171 adopting TSTF-448, Revision 3:

- (a) The first performance of SR 3.7.11.4, in accordance with Specification 5.5.17.c.(i), shall be as follows for each unit:

Unit 1: Within the specified Frequency of 6 years plus the 18 month allowance of SR 3.0.2, as measured from August 9, 2005, the date of the most recent successful tracer gas test on Unit 1.

Unit 2: Within the first 18 months of implementation, because the time period since the most recent successful tracer gas test on Unit 2 (April 26, 2001) is greater than 6 years.

Unit 3: Within the specified Frequency of 6 years plus the 18 month allowance of SR 3.0.2, as measured from August 15, 2005, the date of the most recent successful tracer gas test on Unit 3.

- (b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.17.c.(ii), shall be as follows for each unit:

Unit 1: Within 3 years plus the 9-month allowance of SR 3.0.2, as measured from August 9, 2005, the date of the most recent successful tracer gas test on Unit 1, or within the first 9 months of implementation, whichever is later.

Unit 2: Within the first 9 months of implementation, because the time period since the date of the most recent successful tracer gas test on Unit 2 (April 26, 2001) is greater than 3 years.

Unit 3: Within 3 years plus the 9-month allowance of SR 3.0.2, as measured from August 15, 2005, the date of the most recent successful tracer gas test on Unit 3, or within the first 9 months of implementation, whichever is later.

- (c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.17.d, shall be as follows for each unit:

Unit 1: Within 18 months plus the 138 days allowed by SR 3.0.2, as measured from May 16, 2007, the date of the most recent successful pressure measurement test on Unit 1, or within the first 138 days of implementation, whichever is later.

Unit 2: Within 18 months plus the 138 days allowed by SR 3.0.2, as measured from September 18, 2006, the date of the most recent successful pressure measurement test on Unit 2, or within the first 138 days of implementation, whichever is later.

Unit 3: Within 18 months plus the 138 days allowed by SR 3.0.2, as measured from November 23, 2007, the date of the most recent successful pressure measurement test on Unit 3, or within the first 138 days of implementation, whichever is later.

The license conditions are based on the model license condition issued by the NRC on February 2, 2007 (ADAMS Accession No. ML070330657). Therefore, the proposed license condition is acceptable to the staff.

3.5 Adoption of TSTF-448 Revision 3 by PVNGS, Units 1, 2, and 3

The changes made by TSTF-448 to the STS requirements for the CREFS and the CRE boundary conform to 10 CFR 50.36(c)(2) and 10 CFR 50.36(c)(3). The proposed plant-specific adoption of the changes also conform to regulatory requirements of 10 CFR 50.36(c)(2) and 10 CFR 50.36(c)(3) and will better assure that the PVNGS, Units 1, 2, and 3 CRE will remain habitable during normal operation and DBA conditions. The staff has therefore concluded that these changes are 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 and changes to surveillance requirements. 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 May 6, 2008 (73 FR 25036). 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.

7.0 REFERENCES

1. U.S. Nuclear Regulatory Commission (NRC) Generic Letter 2003-01, "Control Room Habitability," dated June 12, 2003 (ADAMS Accession No. ML031620248).
2. American Society for Testing and Materials (ASTM) E741-00, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution," 2000.
3. U.S. Nuclear Regulatory Commission (NRC) Regulatory Issue Summary 2005-20, Revision 1, "Revision to NRC Inspection Manual Part 9900 Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety," dated April 16, 2008 (ADAMS Accession No. ML073440103).
4. U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," Revision 0, dated May 2003 (ADAMS Accession No. ML063560144).
5. U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, dated May 2003 (ADAMS Accession No. ML031490664).
6. Nuclear Energy Institute (NEI) 99-03, "Control Room Habitability Assessment Guidance," Revision 0, dated June 2001.

Principal Contributors: Matthew Hamm, NRR/ITSB
Abraham Marrero, NRR/ITSB

Date: January 23, 2009

January 23, 2009

R. Edington

- 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/

Balwant K. Singal, 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. 171 to NPF-41
2. Amendment No. 171 to NPF-51
3. Amendment No. 171 to NPF-74
4. Safety Evaluation

cc w/encls: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrDorLpl4 Resource	MHamm, NRR/DIRS/ITSB
LPLIV r/f	RidsNrrPMPaloVerde Resource	AMarrero, NRR/DIRS/ITSB
RidsAcrsAcnw_MailCTR Resource	RidsNrrLAJBurkhardt Resource	
RidsNrrDirsltsb Resource	RidsOgcRp Resource	
RidsNrrDorIDpr Resource	RidsRgn4MailCenter Resource	

ADAMS Accession No. ML090060779

Memo dated 1/5/09

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	DIRS/ITSB/BC	OGC	NRR/LPL4/BC	NRR/LPL4/PM
NAME	BSingal	JBurkhardt	RElliott*	Not Required	MMarkley	BSingal
DATE	1/13/09	1/12/09	1/5/09	--	1/23/09	1/23/09

OFFICIAL AGENCY RECORD