10 CFR 50.90

A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear Generating Station

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102-05801-DCM/GAM
January 17, 2008

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Docket Nos. STN 50-528, 50-529, and 50-530
Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance With TSTF–448, Revision 3, Using the Consolidated Line Item Improvement Process

In accordance with the provisions of 10 CFR 50.90, Arizona Public Service Company (APS) is submitting a request for an amendment to the technical specifications (TS) for PVNGS Units 1, 2, and 3. The proposed amendment would modify TS requirements related to control room envelope habitability in accordance with TSTF-448, Revision 3.

Attachment 1 provides a description of the proposed changes, the requested confirmation of applicability, and plant-specific verifications. Attachment 2 provides the existing TS pages marked up to show the proposed changes. Attachment 3 provides revised (clean) TS pages. Attachment 4 provides existing TS Bases pages marked up to show the proposed changes.

APS requests approval of the proposed license amendment by January 31, 2009, with the amendment to be implemented within 180 days of approval.

In accordance with the PVNGS Quality Assurance Program, the Plant Review Board and the Offsite Safety Review Committee have reviewed and concurred with this proposed amendment. By copy of this letter, this submittal is being forwarded to the Arizona Radiation Regulatory Agency (ARRA) pursuant to 10CFR 50.91(b)(1).

A102

NRR

This submittal satisfies the commitment made in APS letter no. 102-05609, dated December 8, 2006, to submit a TS amendment request to modify the requirements related to control room envelope habitability in accordance with TSTF-448, "Control Room Habitability," with any appropriate, justified site-specific deviations, within one year after the final approved CLIIP for TSTF-448 is published in the Federal Register.

No commitments are being made to the NRC by this letter. However, several license conditions are being proposed in Section 2.3 of Attachment 1 to support implementation of the proposed TS changes.

If there are any questions or if additional information is needed, please contact Glenn A. Michael at (623) 393-5750.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 1/17/08
(Date)

Sincerely,

DCM/SAB/GAM/

Attachments:

1. Description and Assessment
2. Proposed Technical Specification Changes (Mark-Up)
3. Revised (clean) Technical Specification Pages.
4. Proposed Technical Specification Bases Changes (Mark-Up)

cc:	E. E. Collins Jr.	NRC Region IV Regional Administrator
	M. T. Markley	NRC NRR Project Manager
	G. G. Warnick	NRC Senior Resident Inspector for PVNGS
	A. V. Godwin	Arizona Radiation Regulatory Agency (ARRA) agodwin@azrra.gov)
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ATTACHMENT 1

DESCRIPTION AND ASSESSMENT

Subject: Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance With TSTF–448, Revision 3, Using the Consolidated Line Item Improvement Process

1.0 DESCRIPTION

The proposed amendment would modify technical specification (TS) requirements related to control room envelope habitability in TS 3.7.11, "Control Room Essential Filtration System (CREFS)" and TS Section 5.5, "Administrative Controls – Programs and Manuals." The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) STS change TSTF-448, Revision 3. The availability of this TS improvement was published in the Federal Register (72 FR 2022) on January 17, 2007 as part of the consolidated line item improvement process (CLIIP).

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Arizona Public Service Company (APS) has reviewed the safety evaluation dated January 17, 2007 as part of the CLIIP. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF-448. APS has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3 and justify this amendment for the incorporation of the changes to the PVNGS TS.

2.2 Changes and Variations

APS is proposing the following minor variations or deviations from the TS changes described in TSTF-448, Revision 3 or from the NRC staff's model safety evaluation, "Evaluation 2 – for facilities that have not yet adopted the CREFS TS LCO Note and Action B of TSTF-287, Rev. 5," dated January 17, 2007.

Section	Variation or Deviation	Justification
TS 3.7.11 - Required Action B.2, and associated TS Bases.	The requirement to verify mitigating actions to ensure CRE occupant exposures will not exceed smoke and hazardous chemical limits is replaced with the requirement to protect the CRE occupants from smoke and hazardous chemicals.	There are no quantitative limits for smoke or hazardous chemicals. Additionally, per the PVNGS licensing basis, hazardous chemicals are not stored or used onsite in quantities sufficient to necessitate CRE protection, as required by Regulatory Guide 1.78. Nearby industrial, military, and transportation facilities present no hazard to the operation of PVNGS, and there are no site-related design basis events due to accidents at these facilities.

Section	Variation or Deviation	Justification
TS 3.7.11 - Condition D, and associated TS Bases.	Proposed Condition D addresses Mode 5 and Mode 6 only, rather than Mode 5, Mode 6 and "during movement of irradiated fuel assemblies."	The Condition "during movement of irradiated fuel assemblies" is addressed in a separate Condition E in the Palo Verde TS 3.7.11 because the appropriate Required Action for "during movement of irradiated fuel assemblies" is different from the Required Action for Mode 5 or 6.
TS 3.7.11 – Required Action D.1, and associated TS Bases.	The change to the Note on "toxic gas protection mode" in Required Action D.1 of TSTF-448 is not proposed.	The note on "toxic gas protection mode" is not in the PVNGS TS 3.7.11. Toxic Gas Protection is not a mode of CREFS operation at PVNGS.
TS 5.5.17.d	When referring to the trending of CRE pressure relative to adjacent areas, "[18] month assessment" has been replaced with "periodic assessment" to describe the assessment interval.	The assessment is described as a periodic assessment in NEI 99-03, Revision 1. The periodicity is shown in Figure 1 of RG 1.197, May 2003, "Periodic Testing and Assessment Schedule," and in Figure 1 in NEI 99-03, Revision 1, as every 6 years.
TS 5.5.17.e	The last sentence regarding unfiltered air inleakage limits for hazardous chemicals meeting the assumptions of the licensing basis has not been included in TS 5.5.17.e.	There are no quantitative limits for hazardous chemicals. Additionally, per the PVNGS licensing basis, hazardous chemicals are not stored or used onsite in quantities sufficient to necessitate CRE protection, as required by Regulatory Guide 1.78. Nearby industrial, military, and transportation facilities present no hazard to the operation of PVNGS, and there are no site-related design basis events due to accidents at these facilities.
TS Bases B 3.7.11, Background	The description of outside air entering the CRE was revised to clarify that it combines with recirculated air from the CRE prior to being filtered.	This is an editorial enhancement that does not impact the TSTF-448 changes.
TS Bases B 3.7.11, Background	The description of "normally open isolation dampers" has been enhanced to clarify that these dampers are components of the normal Control Room HVAC System.	This is an editorial enhancement that does not impact the TSTF-448 changes.

Section	Variation or Deviation	Justification
TS Bases B 3.7.11, References	A reference to Regulatory Guide (RG) 1.52, Revision 2 is being maintained.	Regulatory Guide 1.52, Revision 2 continues to be referenced in TS Bases for SR 3.7.11.2, which is not affected by TSTF-448, to reflect the current licensing bases. The reference to RG 1.52 is being deleted from the Bases for SR 3.7.11.3, consistent with TSTS-448.

2.3 License Conditions Regarding Initial Performance of New Surveillance and Assessment Requirements

APS proposes the PVNGS Units 1, 2, and 3 license conditions described below to support implementation of the proposed TS changes. It is anticipated that these proposed license conditions would be imposed consistent with Section 4.4 of NRC Office Instruction LIC-101, Revision 3, "License Amendment Review Procedures"; i.e., "along with other legally binding aspects of the amendment (e.g., when the amendment is effective and when the amendment must be implemented) on the amendment page (usually listed as item 3) that is signed by an authorized member of the NRR staff. These conditions are generally not added to the operating license (i.e., Section 2.C)."

Proposed license conditions:

Upon implementation of TS Amendment No. xxx 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.

Following implementation of TS Amendment No. xxx 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, which ever 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, which ever 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, which ever 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, which ever 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, which ever is later.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

APS has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIIP. APS has concluded that the proposed NSHCD presented in the Federal Register notice is applicable to

PVNGS Units 1, 2 and 3 and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

4.0 ENVIRONMENTAL EVALUATION

APS has reviewed the environmental evaluation included in the model safety evaluation dated January 17, 2007 as part of the CLIIP. APS has concluded that the staff's findings presented in that evaluation are applicable to PVNGS Units 1, 2 and 3 and the evaluation is hereby incorporated by reference for this application.

Attachment 2

Proposed Technical Specification Changes (Mark-Up)

Pages:

3.7.11-1
3.7.11-2
3.7.11-3
5.5-16
5.5-17

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 AND	Immediately
	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. AND	24 hours
	B.3 Restore CRE boundary to OPERABLE status.	90 days

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

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. ~~Verify one CREFS train can maintain a positive pressure of ≥ 0.125 inches water gauge, relative to the adjacent area during operation at a ventilation flow rate of ≤ 1000 cfm~~ .	In accordance with the Control Room Envelope Habitability Program. ~~18 months on a STAGGERED TEST BASIS~~

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.

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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, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in 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.

Attachment 2

Revised (clean) Technical Specification Pages

Pages:

3.7.11-1
3.7.11-2
3.7.11-3
5.5-16
5.5-17

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. AND	Immediately
	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. AND	24 hours
	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. AND 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. OR E.2 Suspend movement or irradiated fuel assemblies.	Immediately Immediately
F. Two CREFS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies. OR 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. AND 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.

Attachment 3

Proposed Changes to Technical Specification Bases Pages (Mark-Up)

Pages:

B 3.7.11-1
B 3.7.11-2
B 3.7.11-3
B 3.7.11-4
B 3.7.11-5
B 3.7.11-6
B 3.7.11-7
B.3.7.11-8
B 3.7.11-9
B 3.7.11-10

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Essential Filtration System (CREFS)

BASES

BACKGROUND

The CREFS provides a protected environment from which ~~operators~~ occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.

The CREFS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) ~~air~~ and a CRE boundary that limits the inleakage of unfiltered air. Each CREFS train consists of a prefilter, a High Efficiency Particulate Air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodine), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system. A second bank of HEPA filters follows the adsorber section to collect carbon fines, and provides back-up in case of failure of the main HEPA filter bank.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. 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. The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CREFS is an emergency system. Upon receipt of the actuating signal(s), normal HVAC to the ~~control room~~ CRE is isolated, and the stream of ventilation air is mixed with outside air and recirculated through the filter trains of the system. The prefilters remove any large particles in the air, to prevent excessive loading of the HEPA filters and charcoal adsorbers.

BACKGROUND
(continued)

Actuation of CREFS aligns the system for recirculation of ~~control room air mixed with outside~~ the air within the CRE through the redundant trains of HEPA and charcoal filters. Actuation of ~~I~~the CREFS also initiates pressurization and ~~filtered~~ ventilation of the air supply to the ~~control room~~ CRE.

Outside air is combined and filtered~~, and then added to~~ with the air being recirculated from the ~~control room~~ CRE. Pressurization of the ~~control room~~ CRE ~~prevents~~ minimizes infiltration of unfiltered air from all the surrounding areas adjacent to ~~of the building~~ the CRE boundary.

The air entering the ~~control room~~ CRE is continuously monitored by radiation detectors. One detector output above the setpoint will cause actuation of the CREFS trains.

A single CREFS train operating at a flow rate of ≤ 1000 cfm is designed to pressurize the ~~control room~~ CRE to ≥ 0.125 inches water gauge relative to external areas adjacent to the CRE boundary. The CREFS operation in maintaining the CRE ~~control room~~ habitable is discussed in the UFSAR, Section 6.4 (Ref. 1).

Redundant recirculation trains provide the required filtration. Normally open isolation dampers in the normal Control Room HVAC System are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CREFS is designed in accordance with Seismic Category I requirements.

The CREFS is designed to maintain a habitable environment in the CRE ~~the control room environment~~ for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body to the CRE occupants in the event of a large radioactive release.

APPLICABLE
SAFETY ANALYSES

The CREFS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the ~~control room envelope~~ CRE ensures an adequate supply of filtered air to all areas requiring access.

APPLICABLE SAFETY ANALYSES (continued)

The CREFS provides airborne radiological protection for ~~the control room operators~~ CRE occupants, as demonstrated by the CRE occupant ~~control room accident~~ dose analyses for the most limiting design basis ~~loss of coolant~~ accident fission product release presented in the UFSAR Chapter 15 (Ref. 2).

The CREFS provides protection from smoke and hazardous chemicals to the CRE occupants; ~~toxic gases~~ however, hazardous chemicals are not stored or used onsite in quantities sufficient to necessitate CRE ~~control room~~ protection, as required by Regulatory Guide 1.78 (Ref. 1). In addition, nearby industrial, military, and transportation facilities present no hazard to the operation of PVNGS, and there are no site-related design basis events due to accidents at these facilities (Ref. ~~6~~1 and Ref. 3). The evaluation of a smoke challenge demonstrates that it will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panel (Ref. 4).

The worst case single active failure of a component of the CREFS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function. The CREFS satisfies Criterion 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

Two independent and redundant trains of the CREFS are required to be OPERABLE to ensure that at least one is available~~, assuming~~ if ~~that~~ a single active failure disables the other train. Total system failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in ~~a control room operator receiving~~ exceeding a dose ~~in excess~~ of 5 rem whole body or its equivalent to any part of the body to the CRE occupants in the event of a large radioactive release.

~~The~~ Each CREFS train is considered OPERABLE when the individual components necessary to ~~control operator~~ limit CRE occupant exposure are OPERABLE ~~in both trains~~. A CREFS train is considered OPERABLE when the associated:

a. Fan is OPERABLE;

b. HEPA filters and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions; and

c. Ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

LCO
(continued)

In order for the CREFS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that the CRE occupants are protected from hazardous chemicals and smoke. ~~In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.~~

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. 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 the operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary integrity to the design condition when a need for CRE isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, ~~and~~ 4, and during movement of irradiated fuel assemblies, the CREFS must be OPERABLE to ensure that the CRE will remain habitable ~~limit operator exposure~~ during and following a DBA.

In MODES 5 and 6, the CREFS is required to cope with the release from a rupture of a waste gas tank.

Movement of spent fuel casks containing irradiated fuel assemblies is not within the scope of the Applicability of this technical specification. The movement of dry casks containing irradiated fuel assemblies will be done with a single-failure-proof handling system and with transport equipment that would prevent any credible accident that could result in a release of radioactivity.

During movement of irradiated fuel assemblies, the CREFS must be OPERABLE to cope with the release from a fuel handling accident.

ACTIONS (continued)

A.1

With one CREFS train inoperable, for reasons other than an inoperable CRE boundary, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREFS ~~subsystem~~ train is adequate to perform the CRE occupant ~~control room radiation~~ protection function. However, the overall reliability is reduced because a ~~single~~ failure in the OPERABLE CREFS train could result in loss of CREFS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

B.1, and B.2, and B.3

If the unfiltered air leakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem whole body or its equivalent to any part of the body) or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based upon the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time 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. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair and test most problems with the CRE boundary.

ACTIONS
(continued)

C.1 and C.2

In MODE 1, 2, 3, or 4, if ~~If~~ the inoperable CREFS or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time ~~in MODE 1, 2, 3, or 4~~, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

~~C~~D.1

In MODE 5 or 6, if Required Action A.1 cannot be completed within the required Completion Time, the OPERABLE CREFS train must be immediately placed in the emergency mode of operation (i.e., fan running, valves/dampers aligned to the post-CREFAS mode, etc.). This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

~~D~~E.1 and ~~D~~E.2

During movement of irradiated fuel assemblies, if required Action A.1 cannot be completed within the required Completion Time, the OPERABLE CREFS train must be immediately placed in the emergency mode of operation (i.e., fan running, valves/dampers aligned to the post-CREFAS mode, etc.) or movement of irradiated fuel assemblies must be suspended immediately. The first action ensures that the remaining train is OPERABLE, that no undetected failures preventing system operation will occur, and that any active failure will be readily detected.

An alternative to Required Action E.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. ~~If the system is not placed in the emergency mode of operation, this action requires suspension of the movement of irradiated fuel assemblies in order to minimize the risk of a release of radioactivity that might require the actuation of CREFS.~~ This does not preclude the movement of fuel to a safe position.

ACTIONS (continued)

~~E~~F.1 and ~~E~~F.2

~~When in MODES 5 and 6, or during movement of irradiated fuel assemblies with two CREFS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.~~

If two CREFS trains become inoperable for reasons other than an inoperable CRE boundary or one or more CREFS trains become inoperable due to an inoperable CRE boundary, during Mode 5 or 6, or during the movement of irradiated fuel assemblies, immediate action must be taken to suspend activities that could release radioactivity that might enter the CRE. The Required Actions place the unit in a condition that minimizes accident risk. These actions do not preclude movement of fuel assemblies to safe positions.

~~F~~G.1

If both CREFS trains are inoperable in MODE 1, 2, 3, or 4 **for reasons other than an inoperable CRE boundary (i.e., Condition B)**, the CREFS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train once every month provides an adequate check on this system.

Monthly operations for ≥ 15 minutes to demonstrate the function of the system is required. The 31 day Frequency is based on the known reliability of the equipment, and the two train redundancy available.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.11.2

This SR verifies that the required CREFS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CREFS filter tests are in accordance with Regulatory Guide 1.52 (Ref. ~~3~~5). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test ~~f~~Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.11.3

This SR verifies that each CREFS train starts and operates on an actual or simulated actuation signal. This includes verification that the system is automatically placed into a filtration mode of operation with flow through the HEPA filters and charcoal adsorber banks. The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle. ~~The Frequency of 18 months is consistent with that specified in Reference 3.~~

SR 3.7.11.4

This SR verifies the operability of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

SURVEILLANCE REQUIREMENTS (continued)

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem whole body or its equivalent to any part of the body and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 6) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 7). These compensatory measures may also be used as mitigating actions as required by Action B.2. Temporary analytical methods may also be used as compensatory measures to restore operability (Ref. 8). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending on the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

~~This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper function of the CREFS. During operation, the CREFS is designed to pressurize the control room ≥ 0.125 inches water gauge positive pressure with respect to adjacent areas in order to prevent unfiltered inleakage. The CREFS is designed to maintain this positive pressure with one train at a ventilation flow rate of ≤1000 cfm. The ventilation flowrate is the outside makeup air flowrate. The Frequency of 18 months on a STAGGERED TEST BASIS is consistent with the guidance provided in NUREG-0800, Section 6.4 (Ref. 4).~~

REFERENCES

1. UFSAR, Section 6.4.
2. UFSAR, Chapter 15.

SURVEILLANCE REQUIREMENTS (continued)

3. ~~Regulatory Guide 1.52 (Rev. 2)~~ UFSAR, Section 2.2.3

4. ~~NUREG-0800, Section 6.4, Rev. 2, July 1981.~~ UFSAR, Section 9.4

5. ~~UFSAR, Section 9.4~~. Regulatory Guide 1.52 (Rev. 2)

6. ~~UFSAR, Section 2.2.~~ Regulatory Guide 1.196

7. NEI 99-03, "Control Room Envelope Habitability Assessment," March 2003.

8. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).