

Tom Tynan
Vice President - Vogtle

**Southern Nuclear
Operating Company, Inc.**
7821 River Road
Waynesboro, Georgia 30830
Tel /36 826 3151
Fax 706 826.3321

February 29, 2008



Energy to Serve Your World™
NL-07-2299

Docket Nos.: 50-424
50-425

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant – Units 1 & 2
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.90, Southern Nuclear Operating Company (SNC) is submitting a request for an amendment to the Technical Specifications (TS) for Vogtle Electric Generating Plant (VEGP), Units 1 and 2.

The proposed amendment would modify TS requirements related to control room envelope habitability in accordance with TSTF-448, Revision 3, "Control Room Habitability."

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

SNC requests approval of the proposed license amendment by August 29, 2008, with the amendment being implemented within 90 days of issuance of the amendment.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Georgia Official.

(Affirmation and signature are provided on the following page.)

Mr. T. E. Tynan states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

This letter contains no NRC commitments. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Mr. T. E. Tynan

Mr. T. E. Tynan
Vice President – Vogtle

Sworn to and subscribed before me this 29th day of February, 2008.

Melba J. Kicklighter
Notary Public

My commission expires: January 11, 2011

TET/DWM/daj

- Enclosures:
1. Basis for Proposed Changes
 2. Markup of Proposed TS and TS Bases Changes
 3. Clean Typed Pages for Proposed TS and TS Bases Changes

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. D. H. Jones, Vice President – Engineering
RType: CVC7000

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Acting Regional Administrator
Mr. S. P. Lingam, NRR Project Manager – Vogtle
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

State of Georgia
Mr. N. Holcomb, Commissioner – Department of Natural Resources

**Vogtle Electric Generating Plant Units 1 & 2
Request for Technical Specifications Amendment
Adoption of Previously NRC-Approved Generic Technical Specification
Changes**

Enclosure 1

Basis for Proposed Changes

**Vogle Electric Generating Plant Units 1 & 2
Request for Technical Specifications Amendment
Adoption of Previously NRC-Approved Generic Technical Specification
Changes**

Enclosure 1

Basis for Proposed Change

Table of Contents

1.0 Description

2.0 Assessment

 2.1 Applicability of Published Safety Evaluation

 2.2 Optional Changes and Variations

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

3.0 Regulatory Analysis

 3.1 No Significant Hazards Consideration Determination

4.0 Environmental Evaluation

Vogtle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

1.0 Description

The proposed amendment would modify technical specification (TS) requirements related to control room envelope habitability in TS 3.7.10, "Control Room Emergency Filtration System (CREFS) - Both Units Operating," TS 3.7.11, "Control Room Emergency Filtration System (CREFS) - One Unit Operating," TS 3.7.12, "Control Room Emergency Filtration System (CREFS) - Both Units Shutdown," and TS Section 5.5, "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, "Control Room Habitability." The availability of this TS improvement was published in the Federal Register on January 17, 2007 as part of the consolidated line item improvement process (CLIIP).

2.0 Assessment

2.1 Applicability of Published Safety Evaluation

Southern Nuclear Operating Company (SNC) has reviewed the safety evaluation dated January 17, 2007 as part of the CLIIP. This review included a review of the NRC staff's Safety Evaluation, as well as the supporting information provided to support TSTF-448. SNC has concluded that the justifications presented in the TSTF proposal and the Safety Evaluation prepared by the NRC staff are applicable to Vogtle Electric Generating Plant (VEGP) Units 1 and 2 and justify this amendment for the incorporation of the changes to the VEGP Unit 1 and Unit 2 TS.

The model Safety Evaluation and model application provided optional statements and evaluations to accommodate variations in plant design and licensing basis. For the purposes of the VEGP Unit 1 and 2 Technical Specifications, the following optional statements and evaluations are applicable:

1. The name of the control room ventilation systems at VEGP is "Control Room Emergency Filtration System (CREFS)."
2. The Standard Technical Specifications applicable to VEGP is NUREG-1431, "Standard Technical Specifications - Westinghouse Plants."
3. As discussed in Section 2.2, Item 1, below, references to ISTS LCO 3.7.10 should be replaced with references to LCO 3.7.10, 3.7.11, and 3.7.12. The Surveillance number for the proposed Surveillance to

Vogle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

perform inleakage testing in accordance with the Control Room Envelope Habitability Program is SR 3.7.10.5. The TS number for the proposed Control Room Envelope Habitability Program is TS 5.5.20.

4. In those locations in the model Safety Evaluation that provide the option of stating "5 rem whole body dose or its equivalent to any part of the body" or "5 rem total effective dose equivalent (TEDE)," the correct limit for VEGP is "5 rem whole body dose or its equivalent to any part of the body."
5. In those locations in the model Safety Evaluation that provide the option of referring to CREFS "trains" or "subsystems," the appropriate term at VEGP is "trains."
6. Section 2.3 of the model Safety Evaluation, first paragraph, contains the optional sentence, "Facilities not licensed under the GDC from 10 CFR Part 50 are licensed under similar plant-specific design criteria, as described in the facility's licensing basis documents." VEGP is licensed under the GDC and, therefore, this sentence is not required.
7. Section 2.3 of the model Safety Evaluation, ninth paragraph beginning "In these specifications ...," the bracketed value of "0.125" inches water gauge is applicable to VEGP. The bracketed makeup flow rate value of "3000" cfm should be changed to "1500" cfm to be consistent with existing VEGP Unit 1 and 2 Surveillance 3.7.10.5.
8. Section 3.0 of the model Safety Evaluation, first paragraph, provides the option of stating that in the [the emergency operational mode the facility "pressurizes" or "isolates but does not pressurize" the control room envelope (CRE) to minimize unfiltered air inleakage. The correct statement for VEGP is that in the "emergency mode" the facility "pressurizes" the CRE to minimize unfiltered air inleakage.
9. Section 3.1 of the model Safety Evaluation, second paragraph, refers to the Technical Specification Bases Control Program as "TS 5.5.[11]." The corresponding TS number for this program in the VEGP TS is 5.5.14.
10. Section 3.2 of the model Safety Evaluation, first paragraph, contains an optional sentence, "[The licensee also proposed to correct a typographical error by replacing ``irradiate" with ``irradiated" in TS 3.7.10 Condition E.]" This sentence is not applicable to VEGP.
11. Section 3.3 of the model Safety Evaluation, the evaluation entitled "Evaluation 1--for facilities that have adopted the [CREEVS] TS LCO Note and Action B of TSTF-287, Rev. 5," is applicable to VEGP.

Vogtle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

However, in the VEGP Unit 1 and 2 TS 3.7.10, CREFS trains inoperable due to an inoperable control room boundary are described in Condition D instead of Condition B, and VEGP Unit 1 and 2 TS 3.7.10 Conditions A, B, and C contain an exception for Condition D. This is consistent with VEGP adoption of TSTF-287, Rev. 5.

12. Section 3.3 of the model Safety Evaluation, the evaluation entitled "Evaluation 2--for facilities that have not yet adopted the [CREEVS] TS LCO Note and Action B of TSTF-287, Rev. 5," is not applicable to VEGP, with the following exception.

The ISTS LCO 3.7.10 Note added by TSTF-287 was applied to VEGP LCO 3.7.10 and LCO 3.7.11, but is not yet added to LCO 3.7.12. This Note, which allows the CRE to be opened intermittently under administrative control, is applicable to VEGP LCO 3.7.12 and is proposed to be added. The following statement from Evaluation 2 (modified as required to be applicable to the VEGP TS) is applicable to the SNC proposed change: "The licensee also proposed to modify CREFS LCO 3.7.12 by adding a note allowing the CRE boundary to be opened intermittently under administrative control. 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 the 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'."

13. Section 3.3 of the model Safety Evaluation, the evaluation entitled "Evaluation 3 - for B&W CREVS TS," is not applicable to the VEGP Unit 1 and 2 TS.
14. Section 3.3 of the model Safety Evaluation, the evaluation entitled "Evaluation 4 - for B&W, CE, and W [CREEVS] TS," is applicable to VEGP TS 3.7.12, "Control Room Emergency Filtration System (CREFS) - Both Units Shutdown." However, TSTF-448, Revision 3, modified ISTS 3.7.10, Condition E, to address an inoperable CRE boundary in Mode 5 or 6 or during movement of [recently] irradiated fuel. The equivalent condition in the VEGP Unit 1 and 2 TS is LCO 3.7.12, Condition E. It is not necessary to state the applicable Modes or conditions in Condition E as that information is captured in the applicability of VEGP LCO 3.7.12.

Vogtle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

15. Section 3.3 of the model Safety Evaluation, the evaluation entitled "Evaluation 5 - for BWR4 and BWR6 [CREEVS] TS," is not applicable to the VEGP Unit 1 and 2 TS.
16. Section 3.3 of the model Safety Evaluation, the evaluation entitled "Evaluation 6 - for facilities that have a CRE pressurization surveillance requirement," is applicable to VEGP. The following changes are necessary for the model Safety Evaluation discussion to be applicable to the VEGP Unit 1 and 2 TS:
 - a. The bracketed phrase "emergency radiation state" should be revised to "emergency mode."
 - b. The bracketed pressure value of "0.125" inches of water is applicable to VEGP.
 - c. The bracketed phrase, adjacent "turbine building" should state adjacent "areas" to be consistent with existing VEGP Surveillance 3.7.10.5.
 - d. The bracketed makeup flow rate of "3000" cfm should be revised to "1500" cfm.
 - e. The following bracketed statement is not applicable to VEGP, "In its response to GL 2003-01, [dated month, dd, yyyy], the licensee reported that it had determined that the [facility name] CRE pressurization surveillance, SR 3.7.[10].[4], was inadequate to demonstrate the operability of the CRE boundary, and proposed to replace it with an inleakage measurement SR and a CRE Habitability Program in TS Section 5.5, in accordance with the approved version of TSTF-448." The SNC response to GL 2003-01, dated June 16, 2004, stated that the measured unfiltered air inleakage was zero. Therefore, SNC could not conclude that the CRE pressurization surveillance (SR 3.7.10.5) was inadequate. However, in their response to the Generic Letter, SNC committed to adopt TSTF-448 after its approval.
 - f. SNC is not proposing an alternative to ASTM E741 as a method for measuring CRE inleakage. Therefore, the optional discussion of alternative methods is not required.
17. Section 3.4 of the model Safety Evaluation, entitled "TS 5.5.[18], CRE Habitability Program," the fifth paragraph beginning "Assessment of CRE habitability..." contains an optional discussion of exceptions of Section C.1 and C.2 of Regulatory Guide 1.197. SNC is not proposing

Vogle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

any exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197. Therefore, this optional discussion is not required.

18. Section 3.4 of the model Safety Evaluation, entitled "TS 5.5.[18], CRE Habitability Program," sixth paragraph beginning "Measurement of CRE pressure ... " refers to the bracketed frequency of [18] months for performing the pressure test required by proposed TS 5.5.20.d. The frequency of 18 months is appropriate for VEGP.
19. Section 2.3 of the model application, "License Condition Regarding Initial Performance of New Surveillance and Assessment Requirements," item (a), refers to a 6 year Frequency plus the 15-month allowance of SR 3.0.2. As discussed in the NRC memorandum from C. Harbuck to T. Kobetz dated February 2, 2007 (ADAMS Accession number ML070330657), Section 2.3 contained a typographical error. The appropriate allowance provided by SR 3.0.2 is 18 months (i.e. 25% of 6 years). This correction has been incorporated into this amendment request.

2.2 Optional Changes and Variations

SNC is not proposing any variations or deviations from the TS changes described in the TSTF-448, Revision 3, or the applicable parts of the NRC staff's model safety evaluation dated January 17, 2007, except as noted below:

1. NUREG-1431, "Standard Technical Specifications - Westinghouse Plants," contains TS 3.7.10, "Control Room Emergency Filtration Systems (CREFS)," which is applicable in Modes 1, 2, 3, 4, optionally Modes 5 or 6, and during movement of [recently] irradiated fuel assemblies. The NUREG-1431 STS are modeled on a single unit site.

VEGP Units 1 and 2 share a common CRE and the CREFS has a total of four redundant, completely independent, full capacity air filtration trains. The filter trains for Unit 1 are powered from the Unit 1 safety feature buses and the filter trains for Unit 2 are powered from the Unit 2 safety feature buses. To reflect this design, the VEGP Unit 1 and Unit 2 TS contain three specifications on the CREFS:

- TS 3.7.10, "Control Room Emergency Filtration System (CREFS) - Both Units Operating," which is applicable when both units are in Modes 1, 2, 3, or 4.
- TS 3.7.11, "Control Room Emergency Filtration System (CREFS) - One Unit Operating," which is applicable when only one unit is in Modes 1, 2, 3, or 4.

Vogtle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

- TS 3.7.12, "Control Room Emergency Filtration System (CREFS) - Both Units Shutdown," which is applicable when both units have an average Reactor Coolant System temperature $\leq 200^{\circ}\text{F}$ during movement of irradiated fuel or CORE ALTERATIONS in either unit.

These specifications also contain requirements on control room temperature which, in the NUREG-1431 STS, are contained in TS 3.7.11, "Control Room Emergency Air Temperature Control System (CREATCS)."

The TSTF-448, Revision 3, changes applicable in Modes 1, 2, 3, or 4 are applied to VEGP TS 3.7.10 and 3.7.11. The TSTF-448, Revision 3, changes applicable in Modes 5 or 6 or during movement of irradiated fuel are applied to VEGP TS 3.7.12. Specifically:

- The TSTF-448, Revision 3, changes to the LCO Note are applied to the LCO Note in VEGP TS 3.7.10 and 3.7.11. The LCO Note, as modified by TSTF-448, Revision 3, is added to VEGP TS 3.7.12.
- The TSTF-448, Revision 3, changes to ISTS 3.7.10, Condition A, already exist in VEGP TS 3.7.10, Conditions A, B, and C, and VEGP TS 3.7.11, Conditions A, B, C, D, and E, and are not required in VEGP TS 3.7.12.
- TSTF-448, Revision 3, changes to ISTS 3.7.10, Condition B, are applied to VEGP TS 3.7.10, Condition D, and VEGP TS 3.7.11, Condition F. Since VEGP TS 3.7.10 and TS 3.7.11 are only applicable in Modes 1, 2, 3, or 4, it is not necessary to specify the applicable Modes in the VEGP conditions.
- TSTF-448, Revision 3, changes to ISTS 3.7.10, Condition E, are applied to VEGP TS 3.7.12, Condition E. Since VEGP TS 3.7.12 is only applicable in Mode 5 or 6 during movement of irradiated fuel, it is not necessary to specify the applicable Modes or condition in the VEGP Condition E.
- The TSTF-448, Revision 3, editorial correction to SR 3.7.10.2 Frequency is applied to VEGP SR 3.7.10.3.
- The TSTF-448, Revision 3, changes to SR 3.7.10.4 are applied to VEGP Unit 1 and 2 Surveillance 3.7.10.5. VEGP TS 3.7.11 and 3.7.12 each contain one Surveillance which states that the Surveillances in Specification 3.7.10 are applicable. Therefore, no Surveillance changes other than those in TSTF-448, Revision 3, are necessary in the VEGP Unit 1 and Unit 2 TS.

Vogle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

Applying the proposed changes in TSTF-448, Revision 3, to the VEGP Unit 1 and Unit 2 TS alters the format of the proposed changes but does not result in any change in the intent of the proposed Conditions, Required Actions, or Surveillances. Therefore, TSTF-448, Revision 3, and the NRC staff's model Safety Evaluation are applicable to the proposed changes.

The TSTF-448, Revision 3, Bases are applied, as appropriate, to the VEGP Unit 1 and 2 TS Bases, taking into consideration the division of the applicability of the VEGP Unit 1 and 2 Specifications and existing references in the VEGP TS 3.7.11 and 3.7.12 Bases to TS 3.7.10. As with the Specifications, the changes in formatting do not result in a change in intent.

2. On December 29, 2006, in a letter from the Technical Specification Task Force (TSTF) to the NRC (ADAMS Accession Number ML063630467), the TSTF provided editorial corrections to the proposed Bases in TSTF-448, Revision 3, to reference the date of Revision 0 of NEI 99-03 instead of the date for Revision 1 of NEI 99-03. That editorial correction has been incorporated in the Bases changes in Attachment 4.

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

SNC proposes the following as a license condition to support implementation of the proposed TS changes:

Upon implementation of THE amendment adopting TSTF-448, Revision 3, the determination of CRE unfiltered air leakage as required by SR 3.7.10.5, in accordance with TS 5.5.20.c.(i), the assessment of CRE habitability as required by Specification 5.5.20.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.20.d, shall be considered met. Following implementation:

- (a) The first performance of SR 3.7.10.5, in accordance with Specification 5.5.20.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from March 23, 2004, the date of the most recent successful tracer gas test, as stated in the June 16, 2004 letter response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.
- (b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.20.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from March 23, 2004, the date of the most recent successful tracer gas test, as stated in the June 16,

Vogtle Electric Generating Plant
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process

Enclosure 1

2004 letter response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

- (c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.20.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from March 23, 2004, the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.

3.0 Regulatory Analysis

3.1 No Significant Hazards Consideration Determination

SNC has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIIP. SNC has concluded that the proposed NSHCD presented in the Federal Register notice is applicable to Vogtle Units 1 and 2 and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

4.0 Environmental Evaluation

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

**Vogtle Electric Generating Plant Units 1 & 2
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process**

Enclosure 2

Markup of Proposed TS and TS Bases Changes

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Filtration System (CREFS) - Both Units Operating

LCO 3.7.10 Four CREFS trains shall be OPERABLE.

-----NOTE-----
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY: Both Units in MODES 1, 2, 3, or 4
envelope (CRE)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable for reasons other than Condition D.	A.1 Place one CREFS train in the unaffected unit in the emergency mode.	7 days
B. One CREFS train inoperable in each unit for reasons other than Condition D.	B.1 Place two OPERABLE CREFS trains in the emergency mode.	7 days
C. Two CREFS trains inoperable in one unit for reasons other than Condition D.	C.1 Place two CREFS trains in the unaffected unit in the emergency mode.	Immediately
D. Four CREFS trains inoperable due to inoperable control room boundary.	D.1 Restore control room boundary to OPERABLE status.	24 hours 90 days

Insert 1

3

CRE

CRE

One or more

(continued)

Insert 1

	D.1	Initiate action to implement mitigating actions.	Immediately
	<u>AND</u>		
	D.2	Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	24 hours
	<u>AND</u>		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify control room air temperature $\leq 85^{\circ}\text{F}$.	12 hours
SR 3.7.10.2	Operate each CREFS train for ≥ 10 continuous hours with the heater control circuit energized.	31 days
SR 3.7.10.3	Perform required CREFS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP the
SR 3.7.10.4	Verify each CREFS train actuates (switches to emergency mode) on an actual or simulated actuation signal.	18 months
SR 3.7.10.5	Verify one CREFS train per unit can maintain a positive pressure of ≥ 0.125 inches water gauge, relative to the adjacent areas during the pressurization mode of operation at a makeup flow rate of ≤ 1500 cfm.	18 months on a STAGGERED TEST BASIS

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

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Filtration System (CREFS) - One Unit Operating

LCO 3.7.11 Four CREFS trains shall be OPERABLE.

-----NOTE-----
The control room boundary may be opened intermittently under administrative control.

APPLICABILITY envelope (CRE) Only one Unit in MODES 1, 2, 3, or 4

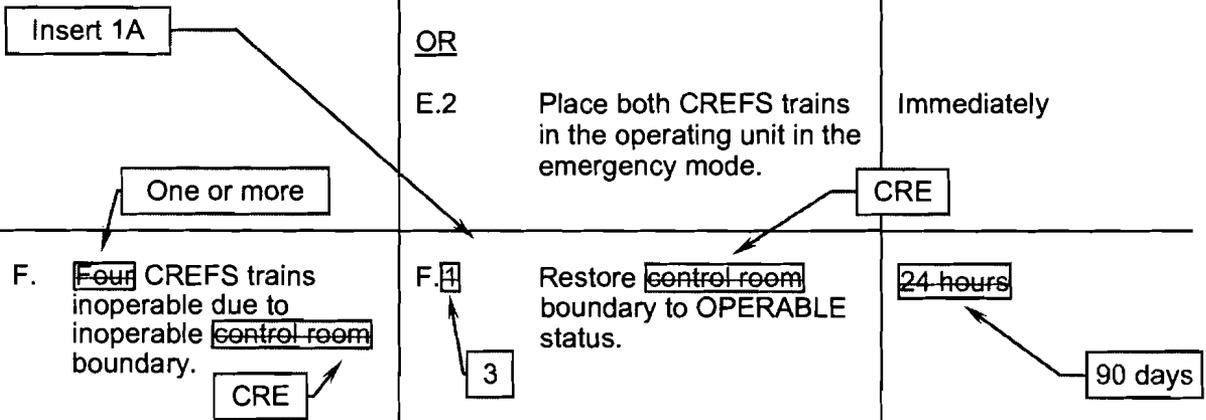
ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable in operating unit for reasons other than Condition F.	A.1 Place one CREFS train in the shutdown unit in the emergency mode.	7 days
B. One CREFS train inoperable in shutdown unit for reasons other than Condition F.	B.1 Lock closed the outside air (OSA) intake dampers of the shutdown unit and lock open the OSA intake dampers of the operating unit.	7 days
	<u>OR</u> B.2 Place one CREFS train in the operating unit in the emergency mode.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One CREFS train inoperable in each unit for reasons other than Condition F.</p>	<p>C.1 Lock closed the shutdown unit's OSA intake dampers and lock open the operating unit's OSA intake dampers.</p> <p><u>AND</u></p> <p>C.2 Place the OPERABLE CREFS train in the shutdown unit in the emergency mode.</p>	<p>7 days</p> <p>7 days</p>
<p>D. Two CREFS trains inoperable in operating unit for reasons other than Condition F.</p>	<p>D.1 Place both CREFS trains in the shutdown unit in the emergency mode.</p>	<p>Immediately</p>
<p>E. Two CREFS trains inoperable in shutdown unit for reasons other than Condition F.</p>	<p>E.1 Lock closed the OSA intake dampers of the shutdown unit and lock open the OSA intake dampers of the operating unit.</p> <p><u>OR</u></p> <p>E.2 Place both CREFS trains in the operating unit in the emergency mode.</p>	<p>Immediately</p> <p>Immediately</p>
<p>F. Four CREFS trains inoperable due to inoperable control room boundary.</p>	<p>F.1 Restore control room boundary to OPERABLE status.</p>	<p>24 hours</p>



(continued)

Insert 1A

	F.1	Initiate action to implement mitigating actions.	Immediately
	<u>AND</u>		
	F.2	Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	24 hours
	<u>AND</u>		

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Filtration System (CREFS) - Both Units Shutdown

LCO 3.7.12 Four CREFS trains shall be OPERABLE.

APPLICABILITY: Both units with average Reactor Coolant Temperature $\leq 200^{\circ}\text{F}$ during movement of irradiated fuel or CORE ALTERATIONS in either unit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable.	A.1 Lock closed the outside air (OSA) intake dampers of the affected unit and lock open the OSA intake dampers of the unaffected unit.	7 days
	<u>OR</u> A.2 Place one CREFS train in the unaffected unit in the emergency mode.	7 days
B. One CREFS train inoperable in each unit.	B.1 Place one CREFS train in the emergency mode.	7 days

(continued)

NOTE

The control room envelope (CRE) boundary may be opened intermittently under administrative control.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Four CREFS trains inoperable. <u>OR</u> The CREFS train required in the emergency mode by Required Actions of Conditions A, B, C, or D not capable of being powered by an OPERABLE emergency power source.	E.1 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u> E.2 Suspend CORE ALTERATIONS.	Immediately
F. Control room air temperature not within limit.	F.1 Restore control room air temperature to within limit.	7 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.12.1	The Surveillance Requirements of Specification 3.7.10 are applicable.	In accordance with applicable SRs.

OR

One or more CREFS trains inoperable due to an inoperable CRE boundary.

5.5 Programs and Manuals (continued)

5.5.18 Configuration Risk Management Program

The Configuration Risk Management Program (CRMP) provides a proceduralized risk-informed assessment to manage the risk associated with equipment inoperability. The program applies to technical specification structures, systems, or components for which a risk-informed allowed outage time has been granted. The program shall include the following elements:

- a. Provisions for the control and implementation of a Level 1 at power internal events PRA-informed methodology. The assessment shall be capable of evaluating the applicable plant configuration.
- b. Provisions for performing an assessment prior to entering the LCO Condition for preplanned activities.
- c. Provisions for performing an assessment after entering the LCO Condition for unplanned entry into the LCO Condition.
- d. Provisions for assessing the need for additional actions after the discovery of additional equipment out of service conditions while in the LCO Condition.
- e. Provisions for considering other applicable risk significant contributors such as Level 2 issues and external events, qualitatively or quantitatively.

5.5.19 Battery Monitoring and Maintenance Program

This program provides for restoration and maintenance, based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," of the following:

- a. Actions to restore battery cells with float voltage < 2.13 V, and
- b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates.



Insert 1C

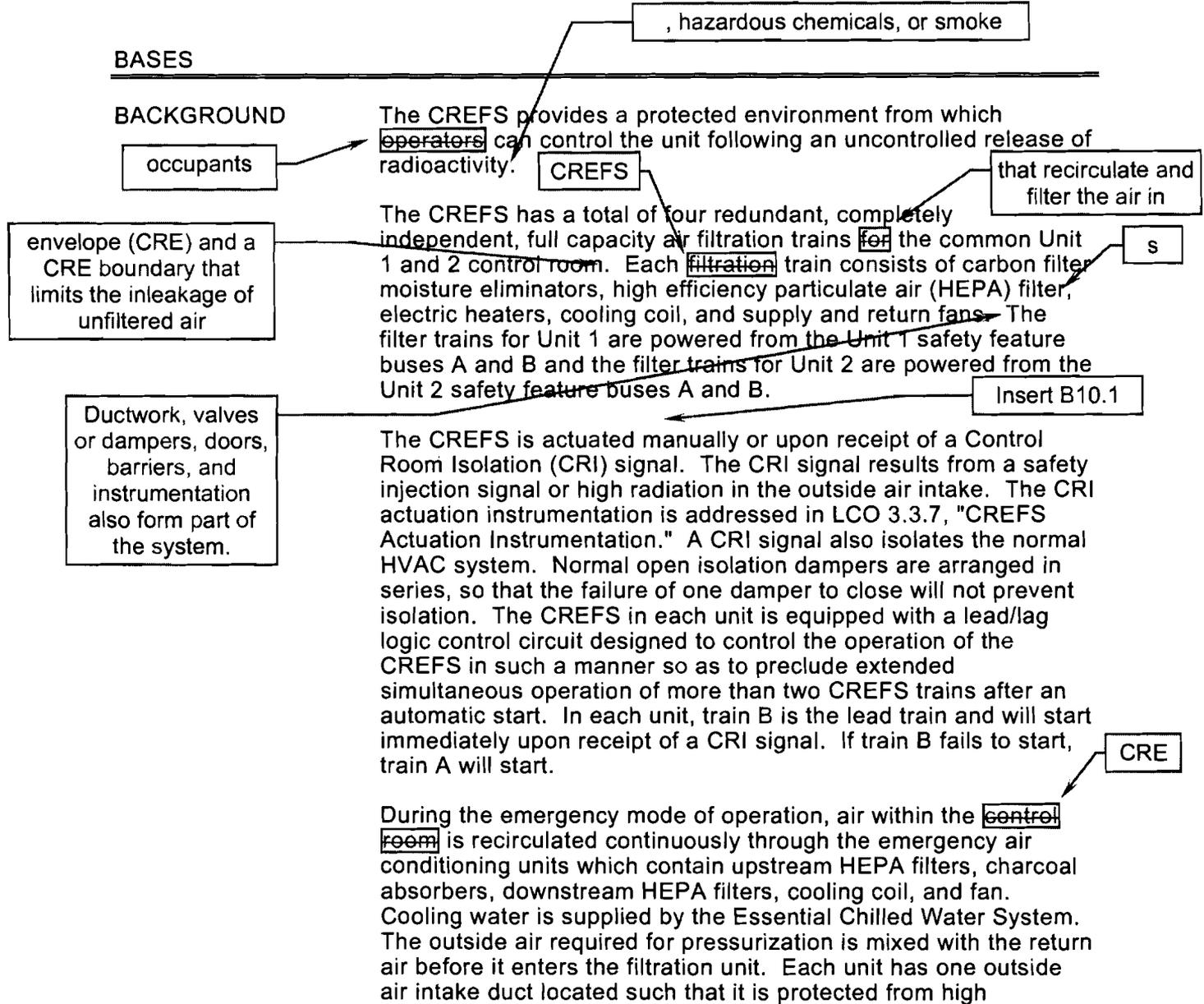
5.5.20 Control Room Envelope Habitability Program

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 Emergency 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 leakage past the CRE boundary into the CRE in accordance with the testing methods and at 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 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 by 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 18 month assessment of the CRE boundary.
- e. The quantitative limits on unfiltered air leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air leakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.
- f. 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.

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Emergency Filtration System (CREFS) - Both Units Operating



(continued)

BASES

BACKGROUND
(continued)

a habitable environment in

CRE

energy line breaks, the introduction of airborne radioactive material from release points, and diesel generator exhaust fumes.

The CREFS is designed to maintain 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 equivalent to any part of the body. This is accomplished by the following CREFS functions:

relative to external areas adjacent to the CRE boundary to minimize any

1. Pressurizing the control room to 0.125-inch water gage pressure to prevent unfiltered inleakage during a radiological accident, and
2. Removal of airborne radioactivity by circulating air through carbon adsorbers.

into the CRE through the CRE boundary

In addition, the CREFS is designed to ensure that the control room temperature will not exceed equipment operational requirements following a CRI actuation. This is accomplished by the cooling coils supplied by the Essential Chilled Water System, LCO 3.7.14, "Engineered Safety Features (ESF) Room Cooler and Safety-Related Chiller System" that are part of each CREFS train. At the normal system air flow rate of 19,000 cfm, each CREFS train is capable of maintaining the control room temperature $\leq 85^{\circ}\text{F}$. The CREFS operation in maintaining the control room temperature and habitability is discussed in the FSAR, Section 6.4 (Ref. 1).

CRE

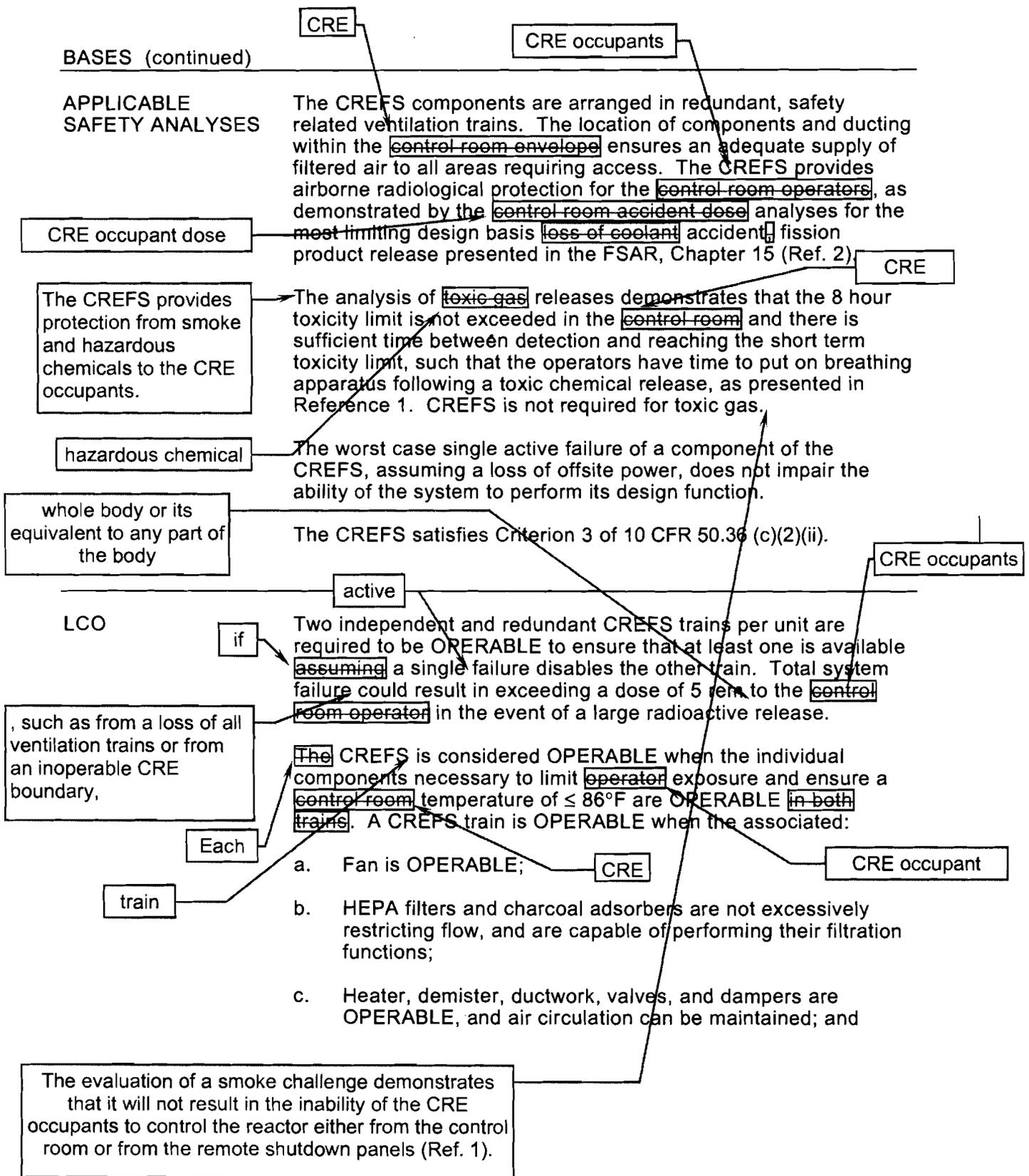
CRE

CRE

The CREFS contains heaters that are controlled by the relative humidity of the air flowing through the system. The heaters automatically turn on at 70% relative humidity to limit the moisture content of the carbon adsorbers. Periodic operation of each CREFS train with the heater control circuit energized ensures the moisture content of the adsorbers is maintained $\leq 70\%$ relative humidity.

The CREFS is also designed to remain functional during the safe shutdown earthquake, design basis tornado, loss of coolant accident, main steam line or feedwater line break, and single failure of any component in the system.

(continued)



(continued)

BASES

LCO
(continued)

d. Cooling coils and associated temperature control equipment are capable of performing their function.

Insert B10.2 CRE

In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

should be proceduralized and CRE

the operators in the CRE

The LCO is modified by a Note allowing the control room boundary to be opened intermittently under administrative controls without requiring entry into the Condition for an inoperable pressure boundary. 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 consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

APPLICABILITY

ensure that the CRE will remain habitable

In MODES 1, 2, 3, and 4, CREFS must be OPERABLE to control operator exposure and maintain control room temperature during and following a DBA.

ACTIONS

and to restore the CRE boundary to a condition equivalent to the design condition

The following ACTIONS have been developed to take credit for the redundancy and inherent flexibility designed into the four 100% capacity CREFS trains. These ACTIONS were reviewed to ensure that the system function would be maintained under accident conditions coupled with a postulated single failure. The results of this review are documented in Reference 3.

A.1

CRE occupant

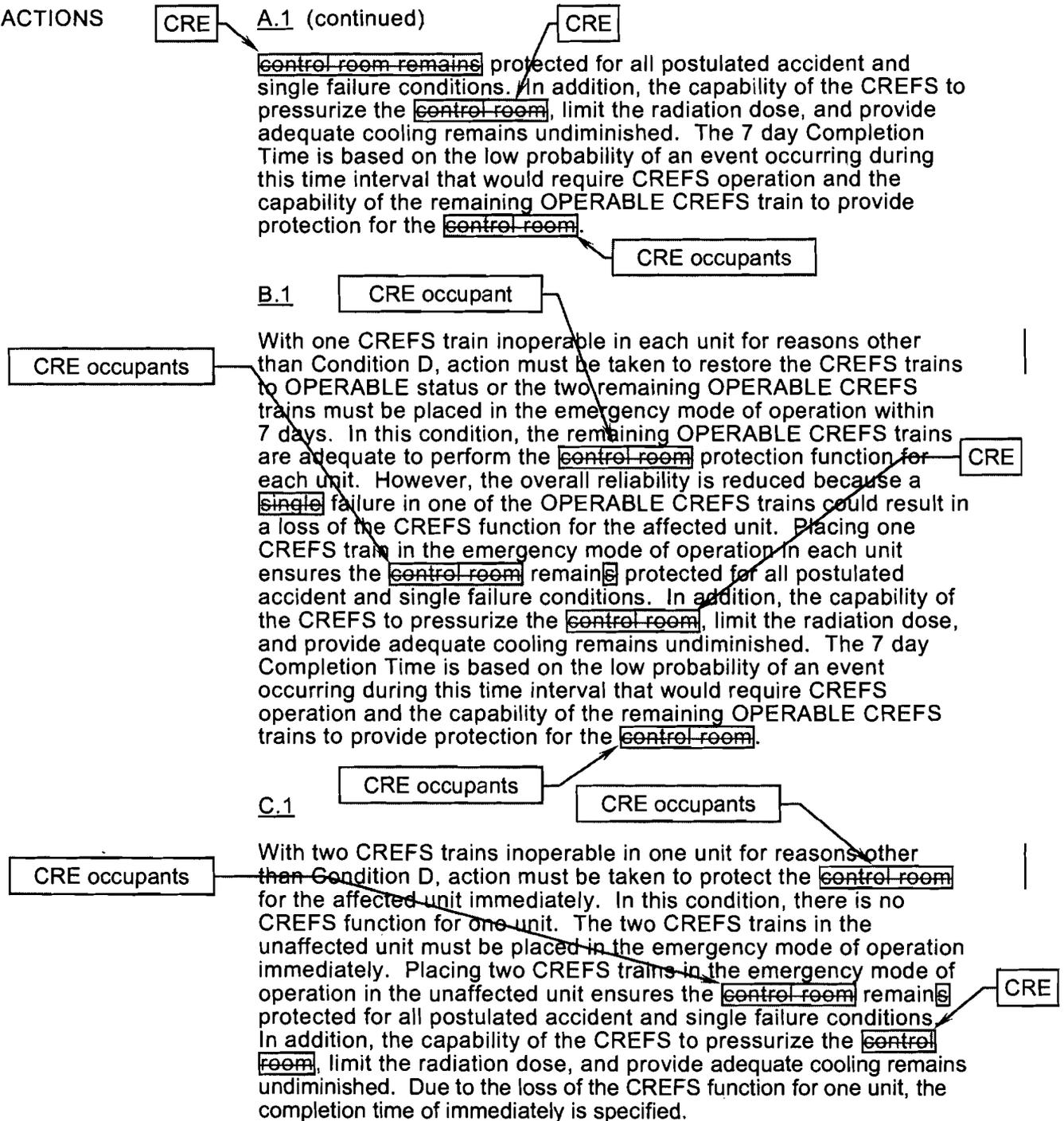
With a single CREFS train inoperable for reasons other than Condition D, action must be taken to restore the CREFS train to OPERABLE status, or one train of CREFS in the unaffected unit must be placed in the emergency mode of operation within 7 days. In this condition, the remaining OPERABLE CREFS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the affected unit. Placing one CREFS train in the emergency mode of operation ensures the

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.

(continued)

BASES

ACTIONS



(continued)

BASES

ACTIONS
(continued)

D.1

Insert B10.3

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREFS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) will be utilized to provide physical security and to protect control room operators from potential hazards such as radioactive contamination, smoke, temperature, and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. These preplanned measures will include, but not necessarily be limited to, suspension of movement of irradiated fuel assemblies and/or loads over irradiated fuel assemblies within the fuel handling building. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period and the use of compensatory measures. The 24-hour Completion Time is a typically reasonable time to test, diagnose, plan, and possibly execute a repair of most problems with the control room boundary.

E.1

CRE

With the control room air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room air temperature exceeds its limit, the ability of a single train of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

CRE

CRE

(continued)

BASES

ACTIONS
(continued)

F.1, F.2, and F.3

CRE occupant

If the Required Actions and associated Completion Times of Conditions A, B, C, D, or E are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. Locking closed the outside air (OSA) dampers in the affected unit and locking open the OSA dampers in the unaffected unit within 1 hour, ensure that all control room air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. The affected unit(s) must also be placed in MODE 3 within the following 6 hours and MODE 5 within the following 36 hours, which removes the requirement for control room protection in the event of an SI in the affected unit(s). These actions ensure that if the control room cannot be protected from all postulated accident and single failure conditions, the unit or units are placed in a MODE where the protection is no longer required. The allowed Completion Times are reasonable, based on operating experience, to perform the Required Actions and to reach the required unit conditions from full power conditions in an orderly manner without challenging unit systems.

CRE

CRE occupants

Required Action F.1 is modified by a Note that excepts Conditions B, D, and E. Conditions B, D, and E affect both units, and Required Action F.1 is based on a single affected unit. Therefore, upon entry into Condition F from Condition B, D, or E, only Required Actions F.2 and F.3 apply.

SURVEILLANCE
REQUIREMENTS

SR 3.7.10.1

CRE

The CREFS is required to maintain the control room temperature $\leq 85^{\circ}\text{F}$ in the event of a CRI. The maintenance of the control room below this temperature ensures the operational requirements of equipment located in the control room will not be exceeded. To accomplish this function, the CREFS air flow is directed through cooling coils which are supplied by the Essential Chilled Water System. The design cooling capacity of the CREFS and the limitation of the normal control room ambient temperature (before CRI) ensure the capability of the CREFS to maintain the

CRE

CRE

CRE

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.10.1 (continued)

CRE

control room temperature within limit after a CRI. The control room temperature is verified every 12 hours, and operating experience has proven this Frequency to be adequate.

CRE

SR 3.7.10.2

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. Monthly operations with the heater control circuit energized allows the heaters to operate as necessary to reduce the humidity in the ambient air and ensure excessive moisture (> 70% relative humidity) is removed from the adsorber and HEPA filters. Systems with heaters must be operated for ≥ 10 continuous hours with the heater control circuit energized and flow (FI-12191, FI-12192) through the HEPA filters and charcoal adsorbers. The 31 day Frequency is based on the reliability of the equipment and the two train per unit redundancy availability.

SR 3.7.10.3

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. 4). The VFTP includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the VFTP.

The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle.

SR 3.7.10.4

This SR verifies that each CREFS train starts and operates on an actual or simulated actuation signal. The Frequency of 18 months is specified in Regulatory Guide 1.52 (Ref. 3).

SR 3.7.10.5

Insert B10.4

This SR verifies the integrity of the control room enclosure, and the assumed inleakage rates of the potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper functioning of the CREFS. During the emergency mode of operation, the CREFS is designed to pressurize the control room

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

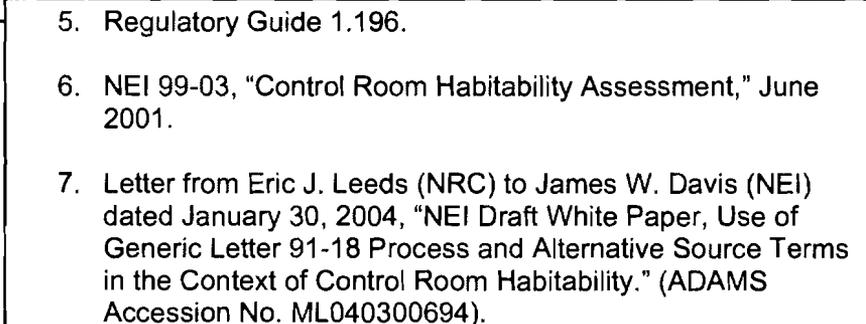
SR 3.7.10.5 (continued)

~~≥ 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 makeup flow rate of 1500 cfm. The Frequency of 18 months on a STAGGERED TEST BASIS is consistent with the guidance provided in NUREG-0800 (Ref. 5).~~

REFERENCES

1. FSAR, Section 6.4.
2. FSAR, Chapter 15.
3. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.
4. Regulatory Guide 1.52, Rev. 2.

~~5. NUREG-0800, Section 6.4, Rev. 2, July 1981.~~

- 
5. Regulatory Guide 1.196.
 6. NEI 99-03, "Control Room Habitability Assessment," June 2001.
 7. 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).

Insert B10.1

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.

Insert B10.2

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 CRE occupants are protected from hazardous chemicals and smoke.

Insert B10.3

If the unfiltered inleakage 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 on 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.

Insert B10.4

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

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 leakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air leakage is greater than the assumed flow rate, Condition D must be entered. Required Action D.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. 5) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). These compensatory measures may also be used as mitigating actions as required by Required Action D.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 7). 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 upon the nature of the problem and the corrective action, a full scope leakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

. 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.

B 3.7.11 Control Room Emergency Filtration System (CREFS — One Unit Operating

BASES

BACKGROUND A description of the CREFS is provided in the Bases for LCO 3.7.10, "CREFS — Both Units Operating."

APPLICABLE SAFETY ANALYSES The Applicable Safety Analyses section of the Bases for LCO 3.7.10 also applies to this Bases section.

envelope (CRE) occupants

The CREFS provides airborne radiological protection for the control room operators in the event of the most limiting design basis loss of coolant accident (LOCA) in the operating unit as well as for a design basis fuel handling accident in the shutdown unit.

The CREFS also provides protection from smoke and hazardous chemicals to the CRE occupants.

(DBA)

LCO

should be proceduralized and

As this LCO requires all four CREFS trains OPERABLE, the LCO section of the Bases for LCO 3.7.10 also applies to this Bases section.

The LCO is modified by a Note allowing the control room boundary to be opened intermittently under administrative controls without requiring entry into the Condition for an Inoperable Pressure Boundary. 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 consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room isolation is indicated.

operators in the CRE

CRE

CRE

APPLICABILITY

ensure that the CRE will remain habitable

In MODES 1, 2, 3, and 4 the CREFS must be OPERABLE to control the operators' exposure to radiation and maintain the control room temperature during and following a design basis LOCA in the operating unit.

CRE

The LCO requirements and ACTIONS of this LCO bound the movement of irradiated fuel or CORE ALTERATIONS in the shutdown unit as well. During movement of irradiated fuel or

DBA

(continued)

ensure that the CRE will remain habitable
BASES

APPLICABILITY
(continued)

CORE ALTERATIONS, the CREFS must be OPERABLE to control the operators' exposure to radiation and maintain the control room temperature during and following a design basis radiological release.

CRE

DBA

ACTIONS

The following ACTIONS have been developed to take credit for the redundancy and inherent flexibility designed into the four 100% capacity CREFS trains.

These ACTIONS were reviewed to ensure that the system function would be maintained under accident conditions coupled with a postulated single failure. The results of this review are documented in Reference 1.

A.1

CRE occupant

CRE occupants

With a single CREFS train inoperable in the operating unit for reasons other than Condition F, action must be taken to restore the CREFS train to OPERABLE status or one CREFS train in the shutdown unit must be placed in the emergency mode of operation within 7 days. In this condition the remaining OPERABLE CREFS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the operating unit. Placing one CREFS train in the shutdown unit in the emergency mode of operation ensures the control room remains protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the control room.

CRE

CRE occupants

B.1 and B.2

With a single CREFS train inoperable in the shutdown unit for reasons other than Condition F, action must be taken to restore the CREFS train to OPERABLE status or lock closed the outside air (OSA) dampers in the shutdown unit and lock open the OSA dampers in the operating unit or one train of CREFS in the

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

operating unit must be placed in the emergency mode of operation within 7 days.

CRE occupant

In this condition the remaining OPERABLE CREFS train is adequate to perform the control room protection function.

CRE

However, the overall reliability is reduced because a single failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the shutdown unit. Locking closed the OSA dampers in the shutdown unit and locking open the OSA dampers in the operating unit ensure that all control room air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. Placing one CREFS train in the operating unit in the emergency mode of operation ensures the control room remains protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the control room.

CRE occupants

CRE

CRE occupants

C.1 and C.2

With one CREFS train inoperable in each unit for reasons other than Condition F, action must be taken to restore the CREFS trains to OPERABLE status or lock close the OSA dampers in the shutdown unit and lock open the OSA dampers in the operating unit and place the OPERABLE CREFS train in the shutdown unit in the emergency mode within 7 days. Locking closed the OSA dampers in the shutdown unit and locking open the OSA dampers in the operating unit ensure that all control room air intake is monitored by redundant radiogas monitors that actuate an OPERABLE CREFS train. Placing the OPERABLE CREFS train of the shutdown unit in the emergency mode of operation ensures the control room remains protected for all postulated accident and single failure conditions.

CRE

CRE occupants

CRE

In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the control room.

CRE occupants

(continued)

BASES

ACTIONS
(continued)

D.1

CRE occupants

With two CREFS trains inoperable in the operating unit for reasons other than Condition F, action must be taken to place both CREFS trains in the shutdown unit in the emergency mode immediately. In this condition, there is no CREFS function for the operating unit. The two CREFS trains in the shutdown unit must be placed in the emergency mode of operation immediately. Placing two CREFS trains in the emergency mode of operation in the shutdown unit ensures the control room remains protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. Due to the loss of the CREFS function for one unit, the completion time of immediately is specified.

CRE

E.1 and E.2

CRE

CRE occupants

CRE

With two trains inoperable in the shutdown unit for reasons other than Condition F, action must be taken to lock close the OSA dampers in the shutdown unit and lock open the OSA dampers in the operating unit or place both the operating unit CREFS trains in the emergency mode immediately. In this condition, there is no CREFS function for the shutdown unit. Locking closed the OSA dampers in the shutdown unit and locking open the OSA dampers in the operating unit ensure that all control room air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. Placing two CREFS trains in the emergency mode of operation in the operating unit ensures the control room remains protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. Due to the loss of the CREFS function for one unit, the completion time of immediately is specified.

Insert B11.1

F.1

If the control room boundary is inoperable in MODES 1, 2, 3, and 4, the CREFS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) will be utilized to provide physical security and to protect control room operators from potential hazards such as radioactive contamination, smoke,

(continued)

BASES

ACTIONS

F.1 (continued)

~~temperature, and relative humidity. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. These preplanned measures will include, but not necessarily be limited to, suspension of CORE ALTERATIONS and/or movement of irradiated fuel assemblies and/or loads over irradiated fuel assemblies. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period and the use of compensatory measures. The 24-hour Completion Time is a typically reasonable time to test, diagnose, plan, and possibly execute a repair of most problems with the control room boundary.~~

G.1

With the control room air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room air temperature exceeds its limit, the ability of a single train of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

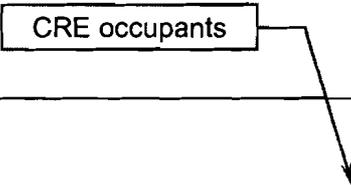
H.1 and H.2

If the Required Actions and associated Completion Times for the operating unit are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. The operating unit must be placed in MODE 3 within 6 hours and MODE 5 within 36 hours, which removes the requirement for control room protection in the event of an SI in the

CRE occupant

(continued)

CRE occupants



BASES

ACTIONS

H.1 and H.2 (continued)

operating unit. These actions ensure that if the control room cannot be protected from all postulated accident and single failure conditions, the unit is placed in a MODE where the protection is no longer required. The allowed Completion Times are reasonable, based on operating experience to reach the required unit conditions from full power conditions in an orderly manner without challenging unit systems.

**SURVEILLANCE
REQUIREMENTS**

SR 3.7.11.1

SR 3.7.11.1 requires that the SRs specified in LCO 3.7.10 be applicable for this LCO as well. The description and Frequencies of those required SRs are included in the Bases for LCO 3.7.10.

REFERENCES

1. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.
-

Insert B11.1

If the unfiltered inleakage 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 on 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.

B 3.7 PLANT SYSTEMS

B 3.7.12 Control Room Emergency Filtration System (CREFS) — Both Units
Shut Down

BASES

BACKGROUND A description of the CREFS is provided in the Bases for LCO 3.7.10, "CREFS — Both Units Operating."

APPLICABLE SAFETY ANALYSES The Applicable portions of the Safety Analyses section of the Bases for LCO 3.7.10 also apply to this Bases section.

ensures that the control room envelope (CRE) will remain habitable for the CRE occupants

CRE

During movement of irradiated fuel or CORE ALTERATIONS, the CREFS provides airborne radiological protection for the control room operators in the event of the most limiting design basis fuel handling accident in either shutdown unit. The CREFS also functions to maintain the control room temperature after a Control Room Isolation (CRI).

LCO As this LCO requires all four CREFS trains OPERABLE, the LCO section of the Bases for LCO 3.7.10 also applies to this Bases section.

Insert B12.1 →

APPLICABILITY The Applicability specifies when both units have an average RCS temperature of $\leq 200^{\circ}\text{F}$ during movement of irradiated fuel or CORE ALTERATIONS. The temperature related Applicability requires CREFS OPERABLE even in a defueled state where no MODE is applicable and fuel may still be moved or in movement. During the movement of irradiated fuel or CORE ALTERATIONS in either unit, the CREFS must be OPERABLE to control the operators' exposure to radiation and maintain the control room temperature during and following a design basis radiological release.

provide a habitable environment for the CRE occupants

CRE

ACTIONS The following ACTIONS have been developed to take credit for the redundancy and inherent flexibility designed into the four 100% capacity CREFS trains. These ACTIONS were

The CREFS provides protection from smoke and hazardous chemicals to the CRE occupants.

(continued)

BASES

ACTIONS
(continued)

reviewed to ensure that the system function would be maintained for the design basis accident. The results of this review are documented in Reference 1.

A.1 and A.2

With a single CREFS train inoperable in one of the shutdown units, action must be taken to restore the CREFS train to OPERABLE status or lock closed the outside air (OSA) dampers in the affected unit and lock open the OSA dampers in the unaffected unit or one CREFS train in the unaffected unit must be placed in the emergency mode of operation within 7 days. In this condition, the remaining OPERABLE CREFS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the affected unit. Locking closed the OSA dampers in the affected unit and locking open the OSA dampers in the unaffected unit ensure that all control room air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. Placing one CREFS train in the unaffected unit in the emergency mode of operation ensures the control room remains protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the control room.

B.1

With a CREFS train inoperable in each shutdown unit, action must be taken to restore the CREFS train to OPERABLE status or place one train of CREFS in the emergency mode of operation within 7 days. In this condition, the remaining OPERABLE CREFS trains are adequate to perform the control room protection function.

CRE occupant

(continued)

BASES

ACTIONS

B.1 (continued)

CRE occupants

CRE

CRE occupants

However, the overall reliability is reduced. Placing one CREFS train in the emergency mode of operation ensures the control room remain~~s~~ protected for all postulated accident conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS trains to provide protection for the control room.

C.1 and C.2

CRE occupants

CRE

With two CREFS trains inoperable in one unit, action must be taken to lock closed the OSA dampers in the affected unit and lock open the OSA dampers in the unaffected unit or place one train of CREFS in the unaffected unit in the emergency mode of operation immediately. In this condition, the affected unit has no CREFS function. Locking closed the OSA dampers in the affected unit and locking open the OSA dampers in the unaffected unit ensures that all control room air intake is monitored by redundant radiogas monitors that actuate OPERABLE redundant CREFS trains. Placing a CREFS train in the unaffected unit in the emergency mode of operation ensures the control room remain~~s~~ protected for all postulated accident conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. Since in this condition one unit has no CREFS function, an immediate Completion Time is specified.

CRE

D.1, D.2.1, D.2.2.1, and D.2.2.2

With three CREFS trains inoperable, action must be taken to place the remaining CREFS train in the emergency mode of operation or lock closed the OSA dampers in the unit with two inoperable systems and lock open the OSA dampers in the unit with one inoperable system immediately.

If the OSA dampers are positioned according to Required Action D.2.1, one train of CREFS must then be restored to

(continued)

BASES

ACTIONS D.1, D.2.1, D.2.2.1, and D.2.2.2 (continued)

CRE occupants
 CRE
 OPERABLE status or the remaining CREFS train must be placed in the emergency mode of operation within the following 7 days. Placing the remaining CREFS train in the emergency mode of operation ensures the control room remains protected for all postulated accident conditions. In addition, the capability of the CREFS to pressurize the control room, limit the radiation dose, and provide adequate cooling remains undiminished. Alternatively, locking closed the OSA dampers in the unit with two inoperable CREFS trains and locking open the OSA dampers in the unit with one OPERABLE CREFS train ensures that all control room air intake is monitored by redundant radiogas monitors that actuate an OPERABLE CREFS train. Once the dampers have been positioned, 7 days are allowed before the remaining CREFS train must be placed in the emergency mode of operation. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the control room.

E.1 and E.2

CRE occupants
 CRE occupants
 With four trains of CREFS inoperable or if the CREFS train required to be in the emergency mode of operation by the other Required Actions of this LCO is not capable of being powered by an OPERABLE emergency power source, action must be taken to suspend movement of irradiated fuel assemblies and CORE ALTERATIONS immediately. In this condition, the control room cannot be fully protected from accidents resulting in significant releases of radioactivity. Suspending the movement of irradiated fuel and CORE ALTERATIONS removes the potential for accidents that may release significant amounts of airborne radioactivity.

F.1

CRE
 With the control room air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the control room air temperature exceeds its limit, the ability of a single train

or with one or more CREFS trains inoperable due to an inoperable CRE boundary,

(continued)

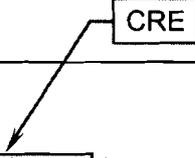
BASES

ACTIONS

F.1 (continued)

of CREFS to maintain control room temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

CRE



SURVEILLANCE
REQUIREMENTS

SR 3.7.12.1

SR 3.7.12.1 requires that the SRs specified in LCO 3.7.10 be applicable for this LCO as well. The description and Frequencies of those required SRs are included in the Bases for LCO 3.7.10.

REFERENCES

1. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.
-

Insert B12.1

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 to a condition equivalent to the design condition when a need for CRE isolation is indicated.

**Vogtle Electric Generating Plant Units 1 & 2
Request for Technical Specification Amendment
Application to Revise Technical Specifications Regarding Control
Room Envelope Habitability in Accordance with TSTF-448, Revision 3,
Using the Consolidated Line Item Improvement Process**

Enclosure 3

Clean Typed Pages for Proposed TS and TS Bases Changes

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Filtration System (CREFS) - Both Units Operating

LCO 3.7.10 Four CREFS trains shall be OPERABLE.

-----NOTE-----

The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: Both Units in MODES 1, 2, 3, or 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable for reasons other than Condition D.	A.1 Place one CREFS train in the unaffected unit in the emergency mode.	7 days
B. One CREFS train inoperable in each unit for reasons other than Condition D.	B.1 Place two OPERABLE CREFS trains in the emergency mode.	7 days
C. Two CREFS trains inoperable in one unit for reasons other than Condition D.	C.1 Place two CREFS trains in the unaffected unit in the emergency mode.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One or more CREFS trains inoperable due to inoperable CRE boundary.</p>	<p>D.1 Initiate action to implement mitigating actions.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>D.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.</p>	
	<p><u>AND</u></p>	
	<p>D.3 Restore CRE boundary to OPERABLE status.</p>	<p>90 days</p>
<p>E. Control room air temperature not within limit.</p>	<p>E.1 Restore control room air temperature to within limit.</p>	<p>7 days</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time not met.	F.1 -----NOTE----- Required Action F.1 is not applicable when entering this Condition from Condition B, D, or E. ----- Lock closed the outside air (OSA) intake dampers of the affected unit and lock open the OSA intake dampers of the unaffected unit.	1 hour
	<u>AND</u>	
	F.2 Place the affected units(s) in MODE 3.	7 hours
	<u>AND</u>	
	F.3 Place the affected unit(s) in MODE 5.	37 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify control room air temperature $\leq 85^{\circ}\text{F}$.	12 hours
SR 3.7.10.2	Operate each CREFS train for ≥ 10 continuous hours with the heater control circuit energized.	31 days
SR 3.7.10.3	Perform required CREFS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.4	Verify each CREFS train actuates (switches to emergency mode) on an actual or simulated actuation signal.	18 months
SR 3.7.10.5	Perform required CRE unfiltered air leakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

3.7 PLANT SYSTEMS

3.7.11 Control Room Emergency Filtration System (CREFS) - One Unit Operating

LCO 3.7.11 Four CREFS trains shall be OPERABLE.

-----NOTE-----
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: Only one Unit in MODES 1, 2, 3, or 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable in operating unit for reasons other than Condition F.	A.1 Place one CREFS train in the shutdown unit in the emergency mode.	7 days
B. One CREFS train inoperable in shutdown unit for reasons other than Condition F.	B.1 Lock closed the outside air (OSA) intake dampers of the shutdown unit and lock open the OSA intake dampers of the operating unit.	7 days
	<u>OR</u> B.2 Place one CREFS train in the operating unit in the emergency mode.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One or more CREFS trains inoperable due to inoperable CRE boundary.	F.1 Initiate action to implement mitigating actions.	Immediately
	<u>AND</u>	
	F.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.	24 hours
	<u>AND</u>	
	F.3 Restore CRE boundary to OPERABLE status.	90 days
G. Control room air temperature not within limit.	G.1 Restore control room air temperature to within limit.	7 days
H. Required Action and associated Completion Time not met for operating unit.	H.1 Place the unit in MODE 3.	6 hours
	<u>AND</u>	
	H.2 Place the unit in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.11.1 The Surveillance Requirements of Specification 3.7.10 are applicable.	In accordance with applicable SRs.

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Filtration System (CREFS) - Both Units Shutdown

LCO 3.7.12 Four CREFS trains shall be OPERABLE.

-----NOTE-----
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: Both units with average Reactor Coolant Temperature $\leq 200^{\circ}\text{F}$ during movement of irradiated fuel or CORE ALTERATIONS in either unit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREFS train inoperable.	A.1 Lock closed the outside air (OSA) intake dampers of the affected unit and lock open the OSA intake dampers of the unaffected unit.	7 days
	<u>OR</u> A.2 Place one CREFS train in the unaffected unit in the emergency mode.	7 days
B. One CREFS train inoperable in each unit.	B.1 Place one CREFS train in the emergency mode.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. Four CREFS trains inoperable.</p> <p><u>OR</u></p> <p>The CREFS train required in the emergency mode by Required Actions of Conditions A, B, C, or D not capable of being powered by an OPERABLE emergency power source.</p> <p><u>OR</u></p> <p>One or more CREFS trains inoperable due to an inoperable CRE boundary.</p>	<p>E.1 Suspend movement of irradiated fuel assemblies.</p> <p><u>AND</u></p> <p>E.2 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p> <p>Immediately</p>
<p>F. Control room air temperature not within limit.</p>	<p>F.1 Restore control room air temperature to within limit.</p>	<p>7 days</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.12.1 The Surveillance Requirements of Specification 3.7.10 are applicable.</p>	<p>In accordance with applicable SRs.</p>

5.5 Programs and Manuals (continued)

5.5.20 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 Emergency 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 into the CRE in accordance with the testing methods and at 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 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 by 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 18 month assessment of the CRE boundary.
- e. The quantitative limits on unfiltered air inleakage into the CRE. These limits 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. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

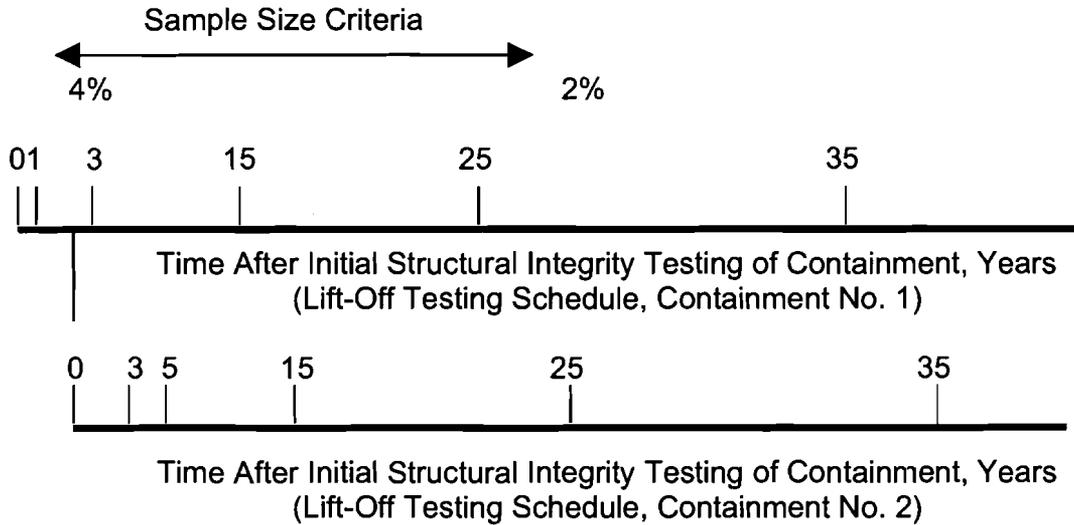
(continued)

5.5 Programs and Manuals (continued)

5.5.20 Control Room Envelope Habitability Program (continued)

- 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.
-

(continued)



Schedule to be used provided:

- a. The containments are identical in all aspects such as size, tendon system, design, materials of construction, and method of construction. The tendon system for Unit 2 does not provide for detensioning. Detensioning can be performed only on the Unit 1 tendon system.
- b. The 1-year inspection for Unit 2 will consist of a visual inspection only. No lift-off testing will be performed on Unit 2 until the 3-year inspection.
- c. There is no unique situation that may subject either containment to a different potential for structural or tendon deterioration.
- d. The Unit 1 and Unit 2 surveillances may be performed back-to-back to facilitate detensioning of Unit 1 tendons during the Unit 2 surveillance.

Figure 5.5.6-1 Schedule of Lift-Off Testing for Two Containments at a Site

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Emergency Filtration System (CREFS) - Both Units Operating

BASES

BACKGROUND

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

The CREFS has a total of four redundant, completely independent, full capacity air filtration trains that recirculate and filter the air in the common Unit 1 and 2 control room envelope (CRE) and a CRE boundary that limits the inleakage of unfiltered air. Each CREFS train consists of carbon filter moisture eliminators, high efficiency particulate air (HEPA) filters, electric heaters, cooling coil, and supply and return fans. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system. The filter trains for Unit 1 are powered from the Unit 1 safety feature buses A and B and the filter trains for Unit 2 are powered from the Unit 2 safety feature buses A and B.

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 actuated manually or upon receipt of a Control Room Isolation (CRI) signal. The CRI signal results from a safety injection signal or high radiation in the outside air intake. The CRI actuation instrumentation is addressed in LCO 3.3.7, "CREFS Actuation Instrumentation." A CRI signal also isolates the normal HVAC system. Normal open isolation dampers are arranged in series, so that the failure of one damper to close will not prevent

(continued)

BASES

BACKGROUND
(continued)

isolation. The CREFS in each unit is equipped with a lead/lag logic control circuit designed to control the operation of the CREFS in such a manner so as to preclude extended automatic start. In each unit, train B is the lead train and will start immediately upon receipt of a CRI signal. If train B fails to start, train A will start.

During the emergency mode of operation, air within the CRE is recirculated continuously through the emergency air conditioning units which contain upstream HEPA filters, charcoal absorbers, downstream HEPA filters, cooling coil, and fan. Cooling water is supplied by the Essential Chilled Water System. The outside air required for pressurization is mixed with the return air before it enters the filtration unit. Each unit has one outside air intake duct located such that it is protected from high energy line breaks, the introduction of airborne radioactive material from release points, and diesel generator exhaust fumes.

The CREFS is designed to maintain a habitable environment in the CRE environment for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or equivalent to any part of the body. This is accomplished by the following CREFS functions:

1. Pressurizing the CRE to 0.125-inch water gage pressure relative to external areas adjacent to the CRE boundary to minimize any unfiltered inleakage into the CRE through the CRE boundary during a radiological accident, and
2. Removal of airborne radioactivity by circulating air through carbon adsorbers.

In addition, the CREFS is designed to ensure that the CRE temperature will not exceed equipment operational requirements following a CRI actuation. This is accomplished by the cooling coils supplied by the Essential Chilled Water System, LCO 3.7.14, "Engineered Safety Features (ESF) Room Cooler and Safety-Related Chiller System" that are part of each CREFS train. At the normal system air flow rate of 19,000 cfm, each CREFS train is capable of maintaining the CRE temperature $\leq 85^{\circ}\text{F}$. The CREFS operation in maintaining the CRE temperature and habitability is discussed in the FSAR, Section 6.4 (Ref. 1).

The CREFS contains heaters that are controlled by the relative humidity of the air flowing through the system. The heaters automatically turn on at 70% relative humidity to limit the moisture

(continued)

BASES

BACKGROUND
(continued)

content of the carbon adsorbers. Periodic operation of each CREFS train with the heater control circuit energized ensures the moisture content of the adsorbers is maintained $\leq 70\%$ relative humidity.

The CREFS is also designed to remain functional during the safe shutdown earthquake, design basis tornado, loss of coolant accident, main steam line or feedwater line break, and single failure of any component in the system.

APPLICABLE
SAFETY ANALYSES

The CREFS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the CRE ensures an adequate supply of filtered air to all areas requiring access. The CREFS provides airborne radiological protection for the CRE occupants, as demonstrated by the CRE occupant dose analyses for the most limiting design basis accident fission product release presented in the FSAR, Chapter 15 (Ref. 2).

The CREFS provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of hazardous chemical releases demonstrates that the 8 hour toxicity limit is not exceeded in the CRE and there is sufficient time between detection and reaching the short term toxicity limit, such that the operators have time to put on breathing apparatus following a toxic chemical release, as presented in Reference 1. CREFS is not required for toxic gas. 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 panels (Ref. 1).

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 CREFS trains per unit are required to be OPERABLE to ensure that at least one is available if a single active failure disables the other train. Total system failure, such as from a loss of all ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose 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.

(continued)

BASES

LCO
(continued)

Each CREFS train is considered OPERABLE when the individual components necessary to limit CRE occupant exposure and ensure a CRE temperature of $\leq 86^{\circ}\text{F}$ are OPERABLE. A CREFS train is OPERABLE when the associated:

- a. Fan is OPERABLE;
- b. HEPA filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions;
- c. Heater, demister, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained; and
- d. Cooling coils and associated temperature control equipment are capable of performing their function.

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 CRE occupants are protected from hazardous chemicals and smoke.

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 to a condition equivalent to the design condition when a need for CRE isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CREFS must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA.

BASES (continued)

ACTIONS

The following ACTIONS have been developed to take credit for the redundancy and inherent flexibility designed into the four 100% capacity CREFS trains. These ACTIONS were reviewed to ensure that the system function would be maintained under accident conditions coupled with a postulated single failure. The results of this review are documented in Reference 3.

A.1

With a single CREFS train inoperable for reasons other than Condition D, action must be taken to restore the CREFS train to OPERABLE status, or one train of CREFS in the unaffected unit must be placed in the emergency mode of operation within 7 days. In this condition, the remaining OPERABLE CREFS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the affected unit. Placing one CREFS train in the unaffected unit in the emergency mode of operation ensures the CRE protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the CRE occupants.

B.1

With one CREFS train inoperable in each unit for reasons other than Condition D, action must be taken to restore the CREFS trains to OPERABLE status or the two remaining OPERABLE CREFS trains must be placed in the emergency mode of operation within 7 days. In this condition, the remaining OPERABLE CREFS trains are adequate to perform the CRE occupant protection function for each unit. However, the overall reliability is reduced because a failure in one of the OPERABLE CREFS trains could result in a loss of the CREFS function for the affected unit. Placing one CREFS train in the emergency mode of operation in each unit ensures the CRE occupants remain protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE,

(continued)

BASES

ACTIONS

B.1 (continued)

limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS trains to provide protection for the CRE occupants.

C.1

With two CREFS trains inoperable in one unit for reasons other than Condition D, action must be taken to protect the CRE occupants for the affected unit immediately. In this condition, there is no CREFS function for one unit. The two CREFS trains in the unaffected unit must be placed in the emergency mode of operation immediately. Placing two CREFS trains in the emergency mode of operation in the unaffected unit ensures the CRE occupants remain protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. Due to the loss of the CREFS function for one unit, the completion time of immediately is specified.

D.1

If the unfiltered inleakage 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

(continued)

BASES

ACTIONS

D.1 (continued)

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 on 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.

E.1

With the CRE air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the CRE air temperature exceeds its limit, the ability of a single train of CREFS to maintain CRE temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

F.1, F.2, and F.3

If the Required Actions and associated Completion Times of Conditions A, B, C, D, or E are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. Locking closed the outside air (OSA) dampers in the affected unit and locking open the OSA dampers in the unaffected unit within 1 hour, ensure that all CRE air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. The affected unit(s) must also be placed in MODE 3 within the following 6 hours and MODE 5 within

(continued)

BASES

ACTIONS

F.1, F.2, and F.3 (continued)

the following 36 hours, which removes the requirement for CRE occupant protection in the event of an SI in the affected unit(s). These actions ensure that if the CRE occupants cannot be protected from all postulated accident and single failure conditions, the unit or units are placed in a MODE where the protection is no longer required. The allowed Completion Times are reasonable, based on operating experience, to perform the Required Actions and to reach the required unit conditions from full power conditions in an orderly manner without challenging unit systems.

Required Action F.1 is modified by a Note that excepts Conditions B, D, and E. Conditions B, D, and E affect both units, and Required Action F.1 is based on a single affected unit. Therefore, upon entry into Condition F from Condition B, D, or E, only Required Actions F.2 and F.3 apply.

SURVEILLANCE
REQUIREMENTS

SR 3.7.10.1

The CREFS is required to maintain the CRE temperature $\leq 85^{\circ}\text{F}$ in the event of a CRI. The maintenance of the CRE below this temperature ensures the operational requirements of equipment located in the CRE will not be exceeded. To accomplish this function, the CREFS air flow is directed through cooling coils which are supplied by the Essential Chilled Water System. The design cooling capacity of the CREFS and the limitation of the normal CRE ambient temperature (before CRI) ensure the capability of the CREFS to maintain the CRE temperature within limit after a CRI. The CRE temperature is verified every 12 hours, and operating experience has proven this Frequency to be adequate.

SR 3.7.10.2

Standby systems should be checked periodically to ensure that they function properly. As the environment and normal operating conditions on this system are not too severe, testing each train once every month provides an adequate check of this system. Monthly operations with the heater control circuit energized allows the heaters to operate as necessary to reduce the humidity in the

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.10.2 (continued)

ambient air and ensure excessive moisture (> 70% relative humidity) is removed from the adsorber and HEPA filters. Systems with heaters must be operated for ≥ 10 continuous hours with the heater control circuit energized and flow (FI-12191, FI-12192) through the HEPA filters and charcoal adsorbers. The 31 day Frequency is based on the reliability of the equipment and the two train per unit redundancy.

SR 3.7.10.3

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. 4). The VFTP includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.10.4

This SR verifies that each CREFS train starts and operates on an actual or simulated actuation signal. The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle.

SR 3.7.10.5

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air leakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program. 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 leakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air leakage is greater than the assumed flow rate, Condition D must

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.10.5 (continued)

be entered. Required Action D.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. 5) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). These compensatory measures may also be used as mitigating actions as required by Required Action D.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 7). 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 upon 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.

REFERENCES

1. FSAR, Section 6.4.
2. FSAR, Chapter 15.
3. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.
4. Regulatory Guide 1.52, Rev. 2.
5. Regulatory Guide 1.196.
6. NEI 99-03, "Control Room Habitability Assessment," June 2001.
7. 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).

B 3.7 PLANT SYSTEMS

B 3.7.11 Control Room Emergency Filtration System (CREFS — One Unit Operating)

BASES

BACKGROUND A description of the CREFS is provided in the Bases for LCO 3.7.10, "CREFS — Both Units Operating."

APPLICABLE SAFETY ANALYSES The Applicable Safety Analyses section of the Bases for LCO 3.7.10 also applies to this Bases section.

The CREFS provides airborne radiological protection for the control room envelope (CRE) occupants in the event of the most limiting design basis accident (DBA) in the operating unit as well as for a design basis fuel handling accident in the shutdown unit. The CREFS also provides protection from smoke and hazardous chemicals to the CRE occupants.

LCO As this LCO requires all four CREFS trains OPERABLE, the LCO section of the Bases for LCO 3.7.10 also applies to this Bases section.

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 to a condition equivalent to the design condition when a need for CRE isolation is indicated.

APPLICABILITY In MODES 1, 2, 3, and 4 the CREFS must be OPERABLE to ensure that the CRE will remain habitable and maintain the CRE temperature during and following a DBA in the operating unit.

The LCO requirements and ACTIONS of this LCO bound the movement of irradiated fuel or CORE ALTERATIONS in the shutdown unit as well. During movement of irradiated fuel or CORE ALTERATIONS, the CREFS must be OPERABLE to

(continued)

BASES

APPLICABILITY ensure that the CRE will remain habitable and maintain the CRE
(continued) temperature during and following a DBA.

ACTIONS The following ACTIONS have been developed to take credit for
the redundancy and inherent flexibility designed into the four
100% capacity CREFS trains.

These ACTIONS were reviewed to ensure that the system function would be maintained under accident conditions coupled with a postulated single failure. The results of this review are documented in Reference 1.

A.1

With a single CREFS train inoperable in the operating unit for reasons other than Condition F, action must be taken to restore the CREFS train to OPERABLE status or one CREFS train in the shutdown unit must be placed in the emergency mode of operation within 7 days. In this condition the remaining OPERABLE CREFS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the operating unit. Placing one CREFS train in the shutdown unit in the emergency mode of operation ensures the CRE occupants remain protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the CRE occupants.

B.1 and B.2

With a single CREFS train inoperable in the shutdown unit for reasons other than Condition F, action must be taken to restore the CREFS train to OPERABLE status or lock closed the outside air (OSA) dampers in the shutdown unit and lock open the OSA dampers in the operating unit or one train of CREFS in the operating unit must be placed in the emergency mode of operation within 7 days.

In this condition the remaining OPERABLE CREFS train is adequate to perform the CRE occupant protection function.

(continued)

BASES

ACTIONS

B.1 and B.2 (continued)

However, the overall reliability is reduced because a failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the shutdown unit. Locking closed the OSA dampers in the shutdown unit and locking open the OSA dampers in the operating unit ensure that all CRE air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. Placing one CREFS train in the operating unit in the emergency mode of operation ensures the CRE occupants remain protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the CRE occupants.

C.1 and C.2

With one CREFS train inoperable in each unit for reasons other than Condition F, action must be taken to restore the CREFS trains to OPERABLE status or lock close the OSA dampers in the shutdown unit and lock open the OSA dampers in the operating unit and place the OPERABLE CREFS train in the shutdown unit in the emergency mode within 7 days. Locking closed the OSA dampers in the shutdown unit and locking open the OSA dampers in the operating unit ensure that all CRE air intake is monitored by redundant radiogas monitors that actuate an OPERABLE CREFS train. Placing the OPERABLE CREFS train of the shutdown unit in the emergency mode of operation ensures the CRE occupants remain protected for all postulated accident and single failure conditions.

In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the CRE occupants.

(continued)

BASES

ACTIONS
(continued)

D.1

With two CREFS trains inoperable in the operating unit for reasons other than Condition F, action must be taken to place other CREFS trains in the shutdown unit in the emergency mode immediately. In this condition, there is no CREFS function for the operating unit. The two CREFS trains in the shutdown unit must be placed in the emergency mode of operation immediately. Placing two CREFS trains in the emergency mode of operation in the shutdown unit ensures the CRE occupants remain protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. Due to the loss of the CREFS function for one unit, the completion time of immediately is specified.

E.1 and E.2

With two trains inoperable in the shutdown unit for reasons other than Condition F, action must be taken to lock close the OSA dampers in the shutdown unit and lock open the OSA dampers in the operating unit or place both the operating unit CREFS trains in the emergency mode immediately. In this condition, there is no CREFS function for the shutdown unit. Locking closed the OSA dampers in the shutdown unit and locking open the OSA dampers in the operating unit ensure that all CRE air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. Placing two CREFS trains in the emergency mode of operation in the operating unit ensures the CRE occupants remain protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. Due to the loss of the CREFS function for one unit, the completion time of immediately is specified.

F.1

If the unfiltered inleakage 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.

(continued)

BASES

ACTIONS

F.1 (continued)

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 on 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.

G.1

With the CRE air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the CRE air temperature exceeds its limit, the ability of a single train of CREFS to maintain CRE temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

H.1 and H.2

If the Required Actions and associated Completion Times for the operating unit are not met, action must be taken to place the unit in a condition where the inoperable CREFS train(s) are no longer required. The operating unit must be placed in MODE 3 within 6 hours and MODE 5 within 36 hours, which removes the requirement for CRE occupant protection in the event of an SI in

(continued)

BASES

ACTIONS

H.1 and H.2 (continued)

the operating unit. These actions ensure that if the CRE occupants cannot be protected from all postulated accident and single failure conditions, the unit is placed in a MODE where the protection is no longer required. The allowed Completion Times are reasonable, based on operating experience to reach the required unit conditions from full power conditions in an orderly manner without challenging unit systems.

SURVEILLANCE
REQUIREMENTS

SR 3.7.11.1

SR 3.7.11.1 requires that the SRs specified in LCO 3.7.10 be applicable for this LCO as well. The description and Frequencies of those required SRs are included in the Bases for LCO 3.7.10.

REFERENCES

1. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.
-

B 3.7 PLANT SYSTEMS

B 3.7.12 Control Room Emergency Filtration System (CREFS) — Both Units
Shut Down

BASES

BACKGROUND A description of the CREFS is provided in the Bases for LCO 3.7.10, "CREFS — Both Units Operating."

APPLICABLE SAFETY ANALYSES The Applicable portions of the Safety Analyses section of the Bases for LCO 3.7.10 also apply to this Bases section.

During movement of irradiated fuel or CORE ALTERATIONS, the CREFS ensures that the control room envelope (CRE) will remain habitable for the CRE occupants in the event of the most limiting design basis fuel handling accident in either shutdown unit. The CREFS provides protection from smoke and hazardous chemicals to the CRE occupants. The CREFS also functions to maintain the CRE temperature after a Control Room Isolation (CRI).

LCO As this LCO requires all four CREFS trains OPERABLE, the LCO section of the Bases for LCO 3.7.10 also applies to this Bases section.

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 to a condition equivalent to the design condition when a need for CRE isolation is indicated.

APPLICABILITY The Applicability specifies when both units have an average RCS temperature of $\leq 200^{\circ}\text{F}$ during movement of irradiated fuel or CORE ALTERATIONS. The temperature related Applicability requires CREFS OPERABLE even in a defueled state where no MODE is applicable and fuel may still be moved or in movement.

(continued)

BASES

APPLICABILITY
(continued)

During the movement of irradiated fuel or CORE ALTERATIONS in either unit, the CREFS must be OPERABLE to provide a habitable environment for the CRE occupants and maintain the CRE temperature during and following a design basis radiological release.

ACTIONS

The following ACTIONS have been developed to take credit for the redundancy and inherent flexibility designed into the four 100% capacity CREFS trains. These ACTIONS were reviewed to ensure that the system function would be maintained for the design basis accident. The results of this review are documented in Reference 1.

A.1 and A.2

With a single CREFS train inoperable in one of the shutdown units, action must be taken to restore the CREFS train to OPERABLE status or lock closed the outside air (OSA) dampers in the affected unit and lock open the OSA dampers in the unaffected unit or one CREFS train in the unaffected unit must be placed in the emergency mode of operation within 7 days. In this condition, the remaining OPERABLE CREFS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREFS train could result in a loss of the CREFS function for the affected unit. Locking closed the OSA dampers in the affected unit and locking open the OSA dampers in the unaffected unit ensure that all CRE air intake is monitored by redundant radiogas monitors that actuate OPERABLE CREFS trains. Placing one CREFS train in the unaffected unit in the emergency mode of operation ensures the CRE occupants remain protected for all postulated accident and single failure conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the CRE occupants.

B.1

With a CREFS train inoperable in each shutdown unit, action must be taken to restore the CREFS train to OPERABLE status or place one train of CREFS in the emergency mode of operation within 7 days. In this condition, the remaining OPERABLE

(continued)

BASES

ACTIONS

B.1 (continued)

CREFS trains are adequate to perform the CRE occupant protection function.

However, the overall reliability is reduced. Placing one CREFS train in the emergency mode of operation ensures the CRE occupants remain protected for all postulated accident conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS trains to provide protection for the CRE occupants.

C.1 and C.2

With two CREFS trains inoperable in one unit, action must be taken to lock closed the OSA dampers in the affected unit and lock open the OSA dampers in the unaffected unit or place one train of CREFS in the unaffected unit in the emergency mode of operation immediately. In this condition, the affected unit has no CREFS function. Locking closed the OSA dampers in the affected unit and locking open the OSA dampers in the unaffected unit ensures that all CRE air intake is monitored by redundant radiogas monitors that actuate OPERABLE redundant CREFS trains. Placing a CREFS train in the unaffected unit in the emergency mode of operation ensures the CRE occupants remain protected for all postulated accident conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. Since in this condition one unit has no CREFS function, an immediate Completion Time is specified.

D.1, D.2.1, D.2.2.1, and D.2.2.2

With three CREFS trains inoperable, action must be taken to place the remaining CREFS train in the emergency mode of operation or lock closed the OSA dampers in the unit with two inoperable systems and lock open the OSA dampers in the unit with one inoperable system immediately.

If the OSA dampers are positioned according to Required Action D.2.1, one train of CREFS must then be restored to

(continued)

BASES

ACTIONS

D.1, D.2.1, D.2.2.1, and D.2.2.2 (continued)

OPERABLE status or the remaining CREFS train must be placed in the emergency mode of operation within the following 7 days. Placing the remaining CREFS train in the emergency mode of operation ensures the CRE occupants remain protected for all postulated accident conditions. In addition, the capability of the CREFS to pressurize the CRE, limit the radiation dose, and provide adequate cooling remains undiminished. Alternatively, locking closed the OSA dampers in the unit with two inoperable CREFS trains and locking open the OSA dampers in the unit with one OPERABLE CREFS train ensures that all CRE air intake is monitored by redundant radiogas monitors that actuate an OPERABLE CREFS train. Once the dampers have been positioned, 7 days are allowed before the remaining CREFS train must be placed in the emergency mode of operation. The 7 day Completion Time is based on the low probability of an event occurring during this time interval that would require CREFS operation and the capability of the remaining OPERABLE CREFS train to provide protection for the CRE occupants.

E.1 and E.2

With four trains of CREFS inoperable, or if the CREFS train required to be in the emergency mode of operation by the other Required Actions of this LCO is not capable of being powered by an OPERABLE emergency power source, or with one or more CREFS trains inoperable due to an inoperable CRE boundary, action must be taken to suspend movement of irradiated fuel assemblies and CORE ALTERATIONS immediately. In this condition, the CRE occupants cannot be fully protected from accidents resulting in significant releases of radioactivity. Suspending the movement of irradiated fuel and CORE ALTERATIONS removes the potential for accidents that may release significant amounts of airborne radioactivity.

F.1

With the CRE air temperature outside its limit, action must be taken to restore the air temperature to within the limit within 7 days. If the CRE air temperature exceeds its limit, the ability of a single train of CREFS to maintain CRE temperature after a CRI may be affected. The completion time of 7 days is reasonable considering the number of CREFS trains available to perform the required temperature control function and the low probability of an event occurring that would require the CREFS operation during that time.

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.7.12.1

SR 3.7.12.1 requires that the SRs specified in LCO 3.7.10 be applicable for this LCO as well. The description and Frequencies of those required SRs are included in the Bases for LCO 3.7.10.

REFERENCES

1. VEGP Calculation No. X6CNA.09.01, Control Room HVAC Technical Specifications, October 21, 1988.
-