Entergy

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July 17, 2007
JAFP-07-0088

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

SUBJECT: Entergy Nuclear Operations, Inc.
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59
Application for Amendment to Technical Specifications Regarding Control Room Envelope Habitability, Consistent with TSTF-448 Revision 3

Gentlemen:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (Entergy) hereby requests an amendment to the Technical Specifications (TS) for the James A. FitzPatrick Nuclear Power Plant (JAF).

The proposed amendment would modify TS requirements related to control room envelope habitability consistent with TSTF-448 Revision 3. The availability of TS improvement was announced in the Federal Register on January 17, 2007 (72 FR 2022) as part of the consolidated line item improvement process (CLIIP).

Attachment 1 provides a description and evaluation of the proposed TS changes.
Attachment 2 provides the proposed changes to the current TS on marked up pages.
Attachment 3 provides the proposed changes in final typed format.
Attachment 4 provides the proposed changes to the current TS Bases on marked up pages. The Bases changes are provided for NRC information only. The final TS Bases pages will be submitted with a future update in accordance with TS 5.5.11, "Technical Specifications (TS) Bases Control Program".

Entergy requests NRC approval of the proposed TS amendment by July 17, 2008, with the amendment being implemented within 60 days from approval.

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In accordance with 10 CFR 50.91, a copy of this application, with the associated attachments, is being provided to the designated New York State official.

There are no new commitments made in this letter.

Should you have any questions concerning this submittal, please contact Mr. Jim Costedio at 315-349-6358.

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

Executed on the 17th day of July, 2007.

Sincerely,

Pete Dietrich
Site Vice President

PD/ed

Attachments:
1. Description and evaluation of the proposed TS changes
2. Proposed changes to the current TS on marked up pages
3. Proposed changes in final typed format
4. Proposed changes to the current TS Bases on marked up pages

cc: next page

cc:

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**JAFP-07-0088**
**Attachment 1**

# Description and Evaluation

## Application for Amendment to Technical Specifications Regarding Control Room Envelope Habitability Consistent with TSTF-448 Revision 3

## 1.0 Description

The proposed amendment would modify the technical specification (TS) requirements related to control room envelope habitability in TS 3.7.3. "Control Room Emergency Ventilation Air Supply (CREVAS) System" and TS Section 5.5 "Administrative Controls – Programs and Manuals".

The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) STS Change TSTF-448 Revision 3. The availability of this TS improvement was published in the Federal Register on January 17, 2007 as part of the consolidated line item improvement process (CLIIP).

## 2.0 Proposed Changes

Consistent with the NRC approved Revision 3 of TSTF–448, the proposed TS changes include a revised TS 3.7.3, "Control Room Emergency Ventilation Air Supply (CREVAS) System" and a new TS 5.5.14, "Control Room Envelope Habitability Program." Proposed revisions to the TS Bases are also included in this application. Adoption of the TS Bases associated with TSTF–448, Revision 3 is an integral part of implementing this TS amendment. The copies of the TS Bases pages are provided for NRC information. The changes to the affected TS Bases pages will be incorporated in accordance with the TS Bases Control Program.

## 3.0 Background

The background for this application is adequately addressed by the NRC Notice of Availability published on January 17, 2007 (72 FR 2022).

## 4.0 Technical Analysis

### 4.1 Applicability of Published Safety Evaluation

Entergy has reviewed the safety evaluation (SE) published on January 17, 2007 (72 FR 2022) as part of the CLIIP Notice of Availability. Entergy has concluded that the technical justifications presented in the SE prepared by the NRC staff are applicable to JAF and therefore justify this amendment for the incorporation of the proposed changes to the JAF TS.

### 4.2 Optional Changes and Variations

This application is being made in accordance with the CLIIP. Entergy Nuclear Operations, Inc. (Entergy) is not proposing variations or deviations from the TS changes described in TSTF–448, Revision 3, published on January 17, 2007 (72 FR 2022) as part

of the CLIIP Notice of Availability. Based on plant specific design and existing JAF TS requirements sections 3.1, 3.2, 3.3 Evaluation 6, and 3.4 of the SE prepared by the NRC Staff are applicable.

### 4.3 License Condition Regarding Initial Performance of New Surveillance and Assessment Requirements

Entergy proposes the following as a license condition, for JAF, to support implementation of the proposed TS changes:

Upon Implementation of Amendment No. _____adoptingTSTF-448 Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage required by SR 3.7.3.3 in accordance with TS 5.5.14.c.(i), the assessment of CRE habitability as required by Specification 5.5.14.c.(ii) , and the measurement of CRE pressure as required by Specification 5.5.14.d shall be considered met. Following implementation:

(a) The first performance of SR 3.7.3.3 in accordance with specification 5.5.14.c(i) shall be within the specified Frequency of 6 years, plus the 15-month allowance of SR 3.0.2 as measured from June 28, 2004, the date of the most recent successful tracer gas test, as stated in Entergy's letter "NRC Generic Letter 2003-01 Control Room Habitability Initial Action Summary Report" (JAFP-04-0159), dated September 27, 2004, or within 15 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 5.5.14.c(ii) shall be within 3 years, plus the 9-month allowance of SR 3.0.2 as measured from June 28, 2004, the date of the most recent successful tracer gas test, as stated in Entergy's letter "NRC Generic Letter 2003-01 Control Room Habitability Initial Action Summary Report" (JAFP-04-0159), dated September 27, 2004, or within 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 5.5.14.d shall be within 18 months, plus the 138-day allowance of SR 3.0.2 as measured from the date of the most recent successful pressure measurement test or within 138 days if not performed previously.

## 5.0 Regulatory Safety Analysis

### 5.1 No Significant Hazards Consideration

Entergy has reviewed the no significant hazards determination published on January 17, 2007 (72 FR 2022) as part of the CLIIP Notice of Availability. Entergy has concluded that the determination presented in the notice is applicable to JAF and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

### 5.2 Applicable Regulatory Requirements / Criteria

A description of the proposed TS changes and its relationship to applicable regulatory requirements was provided in the NRC Notice of Availability published on January 17, 2007 (72 FR 2022).

## 6.0 Environmental Assessment

Entergy has reviewed the environmental evaluation included in the safety evaluation (SE) published on January 17, 2007 (72 FR 2022) as part of the CLIIP Notice of Availability. Entergy has concluded that the staff's findings presented in that evaluation are applicable to JAF and the evaluation is hereby incorporated by reference for this application.

## 7.0 References

1. Federal Register Notice, Notice of Availability of Model Safety Evaluation published on January 17, 2007 (72 FR 2022).
2. Federal Register Notice, Notice for Comment published on October 17, 2006 (71 FR 61075).
3. TSTF-448 Revision 3, "Control Room Habitability."
4. Federal Register Notice, Notice of Availability of Model Application published on January 17, 2007 (72 FR 2032).
5. Regulatory Guide 1.197 Revision 0, Demonstrating Control Room Envelope Integrity at Nuclear Power Plants, dated May 2003
6. Entergy Letter, NRC Generic Letter 2003-01 Control Room Habitability, Initial Summary Actions Report (JAFP-04-0159), dated September 27, 2006
7. Entergy Letter, James A. FitzPatrick Nuclear Power Plant – Request For Additional Information, RE: Response to Generic Letter 2003-01. "Control Room Habitability" (TAC No. MB9805) Response (JAFP-07-0006), dated January 26, 2007

**JAFP-07-0088**
**Attachment 2**

# Proposed Technical Specification Changes (Mark up)

**Pages**

**3.7.3-1**
**3.7.3-2**
**3.7.3-3**
**3.7.3-4**
**5.5-14**

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation Air Supply (CREVAS) System

LCO 3.7.3 Two CREVAS subsystems shall be OPERABLE

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

APPLICABILITY: MODES 1, 2, and 3
During movement of recently irradiated fuel assemblies in the secondary containment
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One CREVAS subsystem inoperable for reasons other than Condition B. | A.1 Restore CREVAS subsystem to OPERABLE status. | 7 days |
| B. ~~Two~~ One or more CREVAS subsystems inoperable due to inoperable ~~control room~~ CRE boundary in MODE 1, 2, or 3. | B.1 Initiate action to implement mitigating actions.<br>AND<br>B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.<br>AND<br>B.~~1~~3 Restore CRE boundary to OPERABLE status. | Immediately<br><br>24 hours<br><br>~~24 hours~~ 90 days |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| (Moved from Page 3.7.3-1)<br>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 Be in MODE 3.<br><br>AND<br><br>C.2 Be in MODE 4. | 12 hours<br><br><br><br>36 hours |
| D. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | ---------- NOTE ----------<br>LCO 3.0.3 is not applicable.<br>----------<br><br>D.1 Place OPERABLE CREVAS subsystem in isolate mode.<br><br>OR<br><br>D.2.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment.<br><br>AND<br><br>D.2.2 Initiate action to suspend OPDRVs. | <br><br>Immediately<br><br><br><br>Immediately<br><br><br><br>Immediately |
| E. Two CREVAS subsystems inoperable in MODE 1, 2, or 3 for reasons other then Condition B. | E.1 Enter LCO 3.0.3 | Immediately |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| F. Two CREVAS subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.<br><br>OR<br><br>One or more CREVAS subsystems inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | ---------- NOTE ----------<br>LCO 3.0.3 is not applicable.<br>----------<br><br>F.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment.<br><br>AND<br><br>F.2 Initiate action to suspend OPDRVs. | Immediately<br><br>Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | | FREQUENCY |
|---|---|---|---|
| SR | 3.7.3.1 | Operate each CREVAS subsystem for ≥ 15 minutes. | 92 days |
| SR | 3.7.3.2 | Perform required CREVAS filter testing in accordance with the Ventilation Filter Testing Program (VFTP) | In accordance with the VFTP |

(continued)

SURVEILLANCE REQUIREMENTS (continued)

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.7.3.3 | ~~Verify each CREVAS subsystem can maintain a positive pressure of ≥ 0.125 inches water gauge reative to atmosphere and turbine building during the isolate mode of operation at flow rate of ≥ 900 scfm and ≤ 1100 scfm.~~ Perform required CRE unfiltered air in-leakage testing in accordance with the Control Room Envelope Habitability Program. | ~~18 months on a STAGGERED TEST BASIS~~ In accordance with the Control Room Envelope Habitability Program |

5.5.13 Configuration Risk Management Program (CRMP) (continued)

d. Provisions for assessing the need for additional actions after the discovery of additional equipment-out-of-service conditions while in the plant configuration described by the LCO Condition(s).

e. Provisions for considering other applicable risk significant contributors such as level 2 issues and external events, qualitatively or quantitatively.

5.5.14 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 Ventilation Air Supply (CREVAS) System, 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 isolate mode of operation by one subsystem of the CREVAS System, 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.

(continued)

5.5.14 Control Room Envelope Habitability Program (continued)

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.

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.

**JAFP-07-0088**
**Attachment 3**

**Proposed Technical Specification Changes**
**(Final Typed)**

**Pages**

**3.7.3-1**
**3.7.3-2**
**3.7.3-3**
**3.7.3-4**
**5.5-14**
**5.5-15**

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Ventilation Air Supply (CREVAS) System

LCO 3.7.3 Two CREVAS subsystems shall be OPERABLE

---------- NOTE ----------
The control room envelope (CRE) boundary may be opened intermittently under administrative control.
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APPLICABILITY: MODES 1, 2, and 3
During movement of recently irradiated fuel assemblies in the secondary containment
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One CREVAS subsystem inoperable for reasons other than Condition B. | A.1 Restore CREVAS subsystem to OPERABLE status. | 7 days |
| B. One or more CREVAS subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3. | B.1 Initiate action to implement mitigating actions.<br>AND<br>B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits.<br>AND<br>B.3 Restore CRE boundary to OPERABLE status. | Immediately<br><br>24 hours<br><br>90 days |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3. | C.1 Be in MODE 3.<br><br>AND<br><br>C.2 Be in MODE 4. | 12 hours<br><br><br><br>36 hours |
| D. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | ---------- NOTE ----------<br>LCO 3.0.3 is not applicable.<br>----------<br><br>D.1 Place OPERABLE CREVAS subsystem in isolate mode.<br><br>OR<br><br>D.2.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment.<br><br>AND<br><br>D.2.2 Initiate action to suspend OPDRVs. | <br><br><br><br>Immediately<br><br><br><br>Immediately<br><br><br><br>Immediately |
| E. Two CREVAS subsystems inoperable in MODE 1, 2, or 3 for reasons other then Condition B. | E.1 Enter LCO 3.0.3 | Immediately |

(continued)

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| F. Two CREVAS subsystems inoperable during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs.<br><br>OR<br><br>One or more CREVAS subsystems inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs. | ---------- NOTE ----------<br>LCO 3.0.3 is not applicable.<br>----------<br><br>F.1 Suspend movement of recently irradiated fuel assemblies in the secondary containment.<br><br>AND<br><br>F.2 Initiate action to suspend OPDRVs. | Immediately<br><br>Immediately |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | | FREQUENCY |
|---|---|---|---|
| SR | 3.7.3.1 | Operate each CREVAS subsystem for ≥ 15 minutes. | 92 days |
| SR | 3.7.3.2 | Perform required CREVAS filter testing in accordance with the Ventilation Filter Testing Program (VFTP) | In accordance with the VFTP |

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SURVEILLANCE REQUIREMENTS (continued)

| SURVEILLANCE | | | FREQUENCY |
|---|---|---|---|
| SR | 3.7.3.3 | Perform required CRE unfiltered air in-leakage testing in accordance with the Control Room Envelope Habitability Program. | In accordance with the Control Room Envelope Habitability Program |

5.5.13 Configuration Risk Management Program (CRMP) (continued)

d. Provisions for assessing the need for additional actions after the discovery of additional equipment-out-of-service conditions while in the plant configuration described by the LCO Condition(s).

e. Provisions for considering other applicable risk significant contributors such as level 2 issues and external events, qualitatively or quantitatively.

5.5.14 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 Ventilation Air Supply (CREVAS) System, 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 isolate mode of operation by one subsystem of the CREVAS System, 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.

(continued)

5.5.14 Control Room Envelope Habitability Program (continued)

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.

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.

**JAFP-07-0088**
**Attachment 4**

**Proposed Technical Specification Bases Changes**
**(Information Only)**

**Pages**

**B 3.7.3-1**
**B 3.7.3-2**
**B 3.7.3-3**
**B 3.7.3-4**
**B 3.7.3-5**
**B 3.7.3-6**
**B 3.7.3-7**
**B 3.7.3-8**

B 3.7 PLANT SYSTEMS

B 3.7.3 Control Room Emergency Ventilation Air Supply (CREVAS) System

BASES

BACKGROUND

The CREVAS System; a portion of the Control Room Air Conditioning (AC) System provides a protected environment from which occupants can control the plant following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.

Deleted: radiologically controlled environment from which the plant can be safely operated following a Design Basis Accident (DBA).

The safety related function of the CREVAS System includes two redundant high efficiency air filtration subsystems for emergency treatment of outside supply air and a Control room Envelope (CRE) boundary that limits the inleakage of unfiltered air. Each CREVAS subsystem consists of a prefilter, a high efficiency particulate air (HEPA) filter, two activated charcoal adsorber sections in series, a second HEPA filter, a control room emergency air supply fan, an air handling unit (excluding the condensing unit), a recirculation exhaust fan and the associated ductwork, valves or dampers, doors, barriers and instrumentation. Prefilters and HEPA filters remove particulate matter, which may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay.

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The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the plant 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.

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The CREVAS System is a standby system, parts of which also operate during normal plant operations to maintain the CRE environment. Upon occurrence of a DBA or receipt of an alarm from a radiation monitor installed in the control room ventilation intake duct (indicative of conditions that could result in radiation exposure to CRE occupants), the CREVAS System is manually placed in the isolate mode of operation to minimize infiltration of contaminated air into the CRE. A system of dampers isolates the CRE. Outside air is taken in at either the primary or secondary ventilation intake and is passed through one of the charcoal adsorber filter subsystems for removal of airborne radioactive particles. This filtered air is then mixed with recirculated air from one of the recirculation exhaust fans and then passed through one of two fans of the air handling units where it can be cooled before it is recirculated back to the control room. The

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BASES

cooling capability of the air handling units is not required to satisfy the requirements of this Specification.

The CREVAS System is designed to maintain a habitable environment in the CRE for a 31 day continuous occupancy after a DBA without exceeding 5 rem whole body dose or its equivalent to any part of the body. A single CREVAS subsystem will pressurize the CRE to ≥ 0.125 inches water gauge

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BASES

**BACKGROUND (continued)**

relative to external areas adjacent to the CRE boundary to minimize infiltration of air from all surrounding areas adjacent to the CRE boundary. CREVAS System operation in maintaining CRE habitability is discussed in the UFSAR, Sections 9.9.3.11 and 14.8.2, (Refs. 1 and 2, respectively).

**APPLICABLE SAFETY ANALYSES**

The ability of the CREVAS System to maintain the habitability of the CRE is an explicit assumption for the safety analyses presented in the UFSAR, Chapters 6 and 14 (Refs. 3 and 4, respectively). The isolate mode of the CREVAS System is assumed to operate following a DBA as discussed in the UFSAR, Section 14.8.2 (Ref. 2). The radiological doses to control room personnel as a result of the various DBAs are summarized in Reference 2.

The CREVAS System provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (Ref. 6) 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. 7).

The CREVAS System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 5).

**LCO**

Two redundant subsystems of the CREVAS System are required to be OPERABLE to ensure that at least one is available, if a single active failure disables the other subsystem. Total CREVAS system failure, such as from a loss of both ventilation subsystems 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 some DBAs.

Each CREVAS subsystem is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A subsystem is considered OPERABLE when its associated:

a. Fans are OPERABLE (i.e., one control room emergency air supply fan, one air handling unit fan, one recirculation exhaust fan);

b. A prefilter, two HEPA filters and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions; and

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

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Deleted: surrounding buildings, since these are the only adjacent areas to the control room that could be directly contaminated by a design basis accident

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BASES

LCO (continued)

In order for the CREVAS subsystems 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.

Deleted: In addition, the control room boundary must be maintained,¶ (continued) including the integrity of the walls, floors, ceilings, ductwork, and access doors such that the pressurization limit of SR 3.7.3.3 can be met. However, it is acceptable for access doors to be open for normal control room entry and exit, and not consider it to be a failure to meet the LCO.

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APPLICABILITY

In MODES 1, 2, and 3, the CREVAS System must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA, since the DBA could lead to a fission product release.

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In MODES 4 and 5, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the CREVAS System OPERABLE is not required in MODE 4 or 5, except for the following situations under which significant radioactive releases can be postulated:

a. During operations with a potential for draining the reactor vessel (OPDRVs);and

b. During movement of recently irradiated fuel assemblies in the secondary containment. Due to radioactive decay, the CREVAS system is only requried to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor within the previous 96 hours).

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ACTIONS

A.1

With one CREVAS subsystem inoperable for reasons other than an inoperable CRE boundary, the inoperable CREVAS subsystem must be restored to OPERABLE status within 7 days. With the plant in this condition, the remaining OPERABLE CREVAS subsystem is adequate to perform the the CRE occupant protection function. However, the overall reliability is

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BASES

ACTIONS

A.1 (continued)

reduced because a failure in the OPERABLE subsystem could result in loss of the CREVAS System function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

B.1, B.2, and B.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 form 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 ad 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.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable CREVAS subsystem or CRE boundary cannot be restored to OPERABLE status within the required Completion Time, the plant must be placed in a MODE that minimizes accident risk. To achieve this status, the plant must be placed in at least MODE 3 within 12 hours and in MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant

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BASES

systems.

D.1, D.2.1, and D.2.2

LCO 3.0.3 is not applicable when in MODE 4 or 5. However, since recently irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Required Actions of Condition D are modified by a Note indicating that LCO 3.0.3 does not apply.

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BASES

ACTIONS D.1, D.2.1, and D.2.2 (continued)

If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs, if the inoperable CREVAS subsystem cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE CREVAS subsystem may be placed in the isolate mode. This action ensures that the remaining subsystem is OPERABLE, and that any active failure will be readily detected.

An alternative to Required Action D.1 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE. This places the plant in a condition that minimizes the accident risk.

If applicable, movement of recently irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of this activity shall not preclude completion of movement of a component to a safe position. Also, if applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Action must continue until the OPDRVs are suspended.

E.1

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

F.1 and F.2

LCO 3.0.3 is not applicable when in MODE 4 or 5. However, since recently irradiated fuel assembly movement can occur in MODES 1, 2, or 3, the Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply.

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BASES

ACTIONS

F.1 and F.2 (continued)

If moving recently irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown.

During movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs, with two CREVAS subsystems inoperable or with one or more CREVAS subsystems inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk.

If applicable, movement of recently irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of this activity shall not preclude completion of movement of a component to a safe position. If applicable, action must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Action must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1

This SR verifies that a subsystem in a standby mode starts on demand and continues to operate. These subsystems should be checked periodically to ensure that they start and function properly. As the environmental and normal operating conditions of this system are not severe, testing each subsystem once every three months provides an adequate check on this system. Since the CREVAS System does not contain heaters, it need only be operated for ≥ 15 minutes to demonstrate the function of the system. The 92 day Frequency is based on the known reliability of the equipment and the two subsystem redundancy available.

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SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.3.2

This SR verifies that the required CREVAS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations). Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.3.3

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

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem whole body or its equivalent to any part of the body and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3,(Ref. 8) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 9). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 10). 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. UFSAR, Section 9.9.3.11.
2. UFSAR, Section 14.8.2.
3. UFSAR, Chapter 6.
4. UFSAR, Chapter 14.
5. 10 CFR 50.36(c)(2)(ii).

**Deleted:** This SR verifies the integrity of the control room enclosure and the assumed inleakage rates of potentially contaminated air. The control room positive pressure, with respect to potentially contaminated adjacent areas (outside and the turbine building), is periodically tested to verify proper function of the CREVAS System. During the isolate mode of operation, the CREVAS System is designed to slightly pressurize the control room ≥ 0.125 inches water gauge positive pressure with respect to outside and the turbine building to prevent unfiltered inleakage. The CREVAS System is designed to maintain this positive pressure at a flow rate of ≥ 900 scfm and ≤ 1100 scfm to the control room in the isolate mode. The Frequency of 18 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration systems SRs.¶

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BASES

6. Calculation No. JAF-CALC-CRC-01953, "Toxic Chemical Control Room Habitability Analysis", Revision 1, dated April 7, 2004.

7. Interface Control Document No. JAF-ICD-04-00038, "Control Room Habitability Smoke Evaluation", Revision 0, dated March 2, 2004.

8. Regulatory Guide 1.196, "Control Room Habitability at Light Water Nuclear Power Reactors", dated January 2007

9. NEI 99-03, "Control Room Habitability Assessment", Revision 1, dated March, 2003.

10. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI), "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), dated January 30, 2004.

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