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Constellation Energy
Nine Mile Point Nuclear Station

July 12, 2007

U. S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Attention: Document Control Desk

Subject: Nine Mile Point Nuclear Station
Unit No. 2; Docket No. 50-410

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

In accordance with the provisions of 10 CFR 50.90, Nine Mile Point Nuclear Station, LLC (NMPNS) is submitting a request for an amendment to the technical specifications (TS) for Nine Mile Point, Unit 2, renewed operating license No. NPF-69. The proposed amendment would modify TS requirements related to control room envelope habitability in accordance with TSTF-448, Revision 3.

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

NMPNS requests approval of the proposed License Amendment by July 31, 2008, with the amendment being implemented within the subsequent 60 days.

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

A102
NRR

Should you have any questions regarding this submittal, please contact T. F. Syrell, Licensing Director, at (315) 349-5219.

Very truly yours,

STATE OF NEW YORK :
: **TO WIT:**
COUNTY OF OSWEGO :

I, Keith J. Polson, being duly sworn, state that I am Vice President-Nine Mile Point, and that I am duly authorized to execute and file this request on behalf of Nine Mile Point Nuclear Station, LLC. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other Nine Mile Point employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Subscribed and sworn before me, a Notary Public, in and for the State of New York and County of Oswego, this 12th day of July, 2007.

WITNESS my Hand and Notarial Seal:

Notary Public

My Commission Expires:

July 12, 2007
Date

SANDRA A. OSWALD
Notary Public, State of New York
No. 01OS6032276
Qualified in Oswego County
Commission Expires 10/25/09

KJP/JJD

Attachments: (1) Description and Assessment
(2) Proposed License and Technical Specification Changes (Mark-Up)
(3) Proposed Technical Specification Bases Changes (Mark-Up)

cc: M. J. David, NRC
S. J. Collins, NRC
Resident Inspector, NRC
J. P. Spath, NYSERDA

ATTACHMENT (1)

DESCRIPTION AND ASSESSMENT

1.0 DESCRIPTION

The proposed amendment would modify technical specification (TS) requirements related to control room envelope habitability in TS 3.7.2, "Control Room Envelope Filtration (CREF) System," and TS Section 5.5, "Programs and Manuals."

The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification 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 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Nine Mile Point Nuclear Station, LLC (NMPNS) has reviewed the safety evaluation (SE) 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 information provided to support TSTF-448. NMPNS has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Nine Mile Point Nuclear Station, Unit 2 (NMP2) and justify this amendment for the incorporation of the changes to the NMP2 TS.

2.2 Optional Changes and Variations

NMPNS is not proposing any variations or deviations (other than TS numbering) from the TS changes described in TSTF-448, Revision 3, or the applicable parts of the NRC staff's model safety evaluation dated January 17, 2007. The following parts of Section 3.0 of the model SE are applicable to NMP2: 3.1, 3.2, 3.3 Evaluation 1, 3.3 Evaluation 5, 3.3 Evaluation 6, and 3.4.

NMPNS is proposing the following changes from the new license condition described in the model license amendment request:

> Items (a) and (b) of the license condition includes the phrase, "as stated in the [date] letter response to Generic Letter 2003-01," to indicate the correspondence utilized by the licensee to notify the NRC of the date of performance of tracer gas testing. NMPNS did not specify the exact date of tracer gas testing for NMP2 in any correspondence to the NRC related to Generic Letter 2003-01: the month and year of the testing was provided, but not the day of the month. Deletion of this phrase does not change the requirements of the proposed license condition.
>
> Items (a) and (b) of the license condition discuss performing actions within specific time periods after the last "successful" tracer gas test. NMPNS is proposing to delete the word "successful" from these items. A tracer gas test was performed in August 2004, but the results of the test were not within the current licensing basis inleakage assumptions for NMP2 at the time of the test. An operability determination was completed demonstrating that when using alternative source term (AST) methodologies, the measured inleakage was acceptable. The operability determination is in accordance with the 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). No credit was taken in the operability determination for the use of any compensatory measures, e.g., KI tablets. As

part of the resolution of Generic Letter 2003-01, "Control Room Habitability," NMPNS committed to submit a license amendment request to revise the current licensing bases to utilize AST methodologies. The AST license amendment request was submitted on May 31, 2007. As shown by the operability determination, once the AST methodologies are incorporated into the current licensing basis, the August 2004 tracer gas test would be considered "successful." As such, a new tracer gas test would not be required until August 2010, plus the allowance permitted by SR 3.0.2. The AST license amendment is expected to be implemented prior to the end of the six year period from the performance of the last tracer gas test. With this change to the proposed license condition, the revised SR 3.7.2.4 addressing tracer gas testing will be considered met upon implementation of the license amendment.

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

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

> Upon implementation of Amendment No. xxx adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.2.4, in accordance with TS 5.5.13.c.(i), the assessment of CRE habitability as required by Specification 5.5.13.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.13.d, shall be considered met. Following implementation:
>
> (a) The first performance of SR 3.7.2.4, in accordance with Specification 5.5.13.c.(i), shall be within the specified Frequency of 6 years plus the 18-month allowance of SR 3.0.2, as measured from August 20, 2004, the date of the most recent tracer gas test, or within the next 18 months if the time period since the most recent tracer gas test is greater than 6 years.
>
> (b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.13.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from August 20, 2004, the date of the most recent tracer gas test, or within the next 9 months if the time period since the most recent tracer gas test is greater than 3 years.
>
> (c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.13.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from March 6, 2006, the date of the most recent successful pressure measurement test, or within the next 182 days if not performed previously.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

NMPNS has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the *Federal Register* as part of the CLIIP. NMPNS has concluded that the proposed NSHCD presented in the *Federal Register* notice is applicable to NMP2 and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

3.2 Commitments

There are no regulatory commitments made in conjunction with this application.

4.0 ENVIRONMENTAL EVALUATION

NMPNS has reviewed the environmental evaluation included in the model safety evaluation dated January 17, 2007 as part of the CLIIP. NMPNS has concluded that the staff's findings presented in that evaluation are applicable to NMP2 and the evaluation is hereby incorporated by reference for this application.

ATTACHMENT (2)

NINE MILE POINT UNIT 2

PROPOSED LICENSE AND TECHNICAL SPECIFICATION CHANGES (MARK-UP)

License Page

8

TS Pages

3.7.2-1
3.7.2-3
3.7.2-4
5.5-12

(15) At the time any subject direct transfer is effected, NMP LLC shall enter or shall have entered into an intercompany credit agreement with Constellation Energy Group (CEG), Inc., or New Controlled, whichever entity is the ultimate parent of NMP LLC at that time, in the form and on the terms represented in the Application for license transfer. Should New Controlled become the ultimate parent of NMP LLC following the direct transfer of the license to NMP LLC, NMP LLC shall enter or shall have entered into a substantially identical intercompany credit agreement with New Controlled at the time New Controlled becomes the ultimate parent; in such case, any existing intercompany credit agreement with CEG, Inc. may be canceled once the intercompany credit agreement with New Controlled is established. Except as otherwise provided above, NMP LLC shall take no action to void, cancel, or modify any intercompany credit agreement referenced above, without the prior written consent of the Director of the Office of Nuclear Reactor Regulation.

(16) Reactor Vessel Integrated Surveillance Program

NMP LLC is authorized to revise the Updated Safety Analysis Report (USAR) to allow implementation of the Boiling Water Reactor Vessel and Internals Project reactor pressure vessel Integrated Surveillance Program as the basis for demonstrating compliance with the requirements of Appendix H to Title 10 of the *Code of Federal Regulations*, Part 50, "Reactor Vessel Material Surveillance Program Requirements," as set forth in the licensee's application dated January 9, 2004, and as supplemented on June 17, 2004.

Insert 1 →

D. The facility requires exemptions from certain requirements of 10 CFR Part 50 and 10 CFR Part 70.

i) An exemption from the critically alarm requirements of 10 CFR Part 70.24 was granted in the Special Nuclear Materials License No. SNM-1895 dated November 27, 1985. This exemption is described in Section 9.1 of Supplement 4 to the SER. This previously granted exemption is continued in this operating license.

ii) Exemptions to certain requirements of Appendix J to 10 CFR Part 50 are described in Supplements 3, 4, and 5 to the SER. These include (a) (this item left intentionally blank); (b) an exemption from the requirement of Option B of Appendix J, exempting main steam isolation valve measured leakage from the combined leakage rate limit of 0.6 La. (Section 6.2.6 of SSER 5)*; (c) an exemption from Option B of Appendix J, exempting the hydraulic control system for the reactor recirculation flow control valves from Type A and Type C leak testing (Section 6.2.6 of SSER 3);

* The parenthetical notation following the discussion of each exemption denotes the section of the Safety Evaluation Report (SER) and/or its supplements wherein the safety evaluation of the exemption is discussed.

INSERT 1

(17) Upon implementation of Amendment No. xxx adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.2.4, in accordance with TS 5.5.13.c.(i), the assessment of CRE habitability as required by Specification 5.5.13.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.13.d, shall be considered met. Following implementation:

(a) The first performance of SR 3.7.2.4, in accordance with Specification 5.5.13.c.(i), shall be within the specified Frequency of 6 years plus the 18-month allowance of SR 3.0.2, as measured from August 20, 2004, the date of the most recent tracer gas test, or within the next 18 months if the time period since the most recent tracer gas test is greater than 6 years.

(b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.13.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from August 20, 2004, the date of the most recent tracer gas test, or within the next 9 months if the time period since the most recent tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.13.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from March 6, 2006, the date of the most recent successful pressure measurement test, or within the next 182 days if not performed previously.

3.7 PLANT SYSTEMS

3.7.2 Control Room Envelope Filtration (CREF) System

LCO 3.7.2 Two CREF subsystems shall be OPERABLE.

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREF subsystem inoperable for reasons other than Condition B. OR Two CREF subsystems inoperable with safety function maintained.	A.1 Restore CREF subsystem(s) to OPERABLE status.	7 days
B. One or more CREF subsystems inoperable due to inoperable CRE boundary in MODES 1, 2, or 3.	B.1 Restore CRE boundary to OPERABLE status.	24 hours 90 days
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. AND C.2 Be in MODE 4.	12 hours 36 hours

(continued)

INSERT 2

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

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two CREF subsystems inoperable with safety function not maintained during movement of irradiated fuel assemblies in in the secondary containment, during CORE ALTERATIONS, or during OPDRVs. Insert 3	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- F.1 Suspend movement of irradiated fuel assemblies in the secondary containment. AND F.2 Suspend CORE ALTERATIONS. AND F.3 Initiate action to suspend OPDRVs.	 Immediately Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Operate each CREF subsystem for $\geq$1 continuous hour.	31 days
SR 3.7.2.2	Perform required CREF System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.2.3	Verify each CREF subsystem actuates on an actual or simulated initiation signal.	24 months

(continued)

INSERT 3

OR

One or more CREF subsystems inoperable due to inoperable CRE boundary during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
	Insert 4	
SR 3.7.2.4	Verify all combinations of the CREF System can maintain a positive pressure of ≥ 1/8 inches water gauge relative to outside atmosphere during the emergency pressurization mode of operation at an outside air intake flow rate of ≤ 1500 cfm.	24 months

INSERT 4

Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals

5.5.12 10 CFR 50 Appendix J Testing Program Plan (continued)

(b) For each door, leakage rate is $\leq$ 5 scfh when the gap between the door seals is pressurized to $\geq$ 10 psig.

e. The provisions of SR 3.0.3 are applicable to the 10 CFR 50 Appendix J Testing Program Plan.

Insert 5 →

INSERT 5

5.5.13 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 Envelope Filtration (CREF) 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 pressurization mode of operation by one subsystem of the CREF System, operating at the flow rate required by the VFTP, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 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.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

ATTACHMENT (3)

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP)

The current versions of the following Technical Specifications Bases pages have been marked-up by hand to reflect the proposed changes. These Bases pages are provided for information only and do not require NRC approval.

B 3.7.2-1
B 3.7.2-2
B 3.7.2-3
B 3.7.2-4
B 3.7.2-5
B 3.7.2-6
B 3.7.2-7
B 3.7.2-8
B 3.7.2-9

B 3.7 PLANT SYSTEMS

B 3.7.2 Control Room Envelope Filtration (CREF) System

BASES

BACKGROUND

The CREF System provides a radiologically controlled environment from which the unit can be safely operated following a Design Basis Accident (DBA). The control room envelope consists of all rooms and areas located in the main control room and relay room of the control building. Included in the envelope are the main control room, relay room, instrument shop, training room, shift supervisor's office, lunch room, toilets, corridors, work release room, and HVAC equipment rooms (Ref. 1).

The safety related function of the CREF System used to control radiation exposure consists of two independent and redundant high efficiency air filtration subsystems for treatment of recirculated air and outside supply air. Each subsystem includes a control room outdoor air special filter train (CROASFT), which consists of an electric heater, a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section, a second HEPA filter, a filter booster fan, and the associated ductwork, valves or dampers. The electric heater is used to reduce the relative humidity of the air entering the filter train but, is not required for CROASFT OPERABILITY. Prefilters and HEPA filters remove particulate matter that may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay. Each subsystem also includes the necessary outside air intake(s) and two air conditioning units (fan portion only), one for the control room and one for the relay room. Each outside air intake is capable of providing 100% of the necessary makeup flow. Therefore, normally only one outside air intake is necessary. However, when the unit is in MODE 1, 2, or 3 with MSIV leakage > 15 scfh for any MSIV, both outside air intakes, including the capability to isolate the intakes, are necessary. Both outside air intakes are required in these conditions since the accident analysis assumes the most contaminated outside air intake is isolated 8 hours after the accident to ensure the dose to control room envelope personnel does not exceed the limit. The outside air intake that is not isolated continues to be capable of providing 100% of the necessary makeup flow. The two required outside air intakes are allowed to be common to both subsystems (since there are only two outside air

(continued)

INSERT B1

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

INSERT B2

and a CRE boundary that limits the inleakage of unfiltered air.

INSERT B3

, doors, barriers, and instrumentation.

BASES

BACKGROUND (continued)

intakes for the CREF System). Alternately, if MSIV leakage is > 15 scfh for any MSIV, an additional analysis may be performed to determine the "effective" MSIV leakage. The "effective" MSIV leakage is the individual MSIV leak rate when all four main steam lines are assumed to leak at the same rate, and the doses in the control room envelope are equivalent to those when the individual "as-left" valve leak rates are used. If the "effective" MSIV leakage is ≤ 15 scfh, then only one outside air intake is necessary.

Insert B4 →

The CROASFT portion of the safety related CREF System is normally in standby, but the remaining portions of the CREF System (the outside air intakes and fan portion of the air conditioning units) are operated to maintain the control room envelope CRE environment during normal operation. Upon receipt of the initiation signal(s) (indicative of conditions that could result in radiation exposure to control room envelope personnel CRE occupants), the CREF System automatically switches to the emergency pressurization mode of operation to prevent minimize infiltration of contaminated air into the control room envelope CRE. A system of valves and dampers redirects all control room envelope CRE outside air flow through the two CROASFTs. In addition, a portion of the control room air is recirculated through the CROASFTs. The air conditioning units (fan portion only) maintain the a 1/8 inch positive pressure; the CROASFT booster fan only provides the motive force to overcome the added resistance of the CROASFT being in service.

Insert B5 →

The CREF System is designed to maintain the control room envelope environment for a 30 day continuous occupancy (i.e., considering the occupancy factors of NUREG-0800, Table 6.4-1, Ref. 2) after a DBA, while limiting the dosage to personnel to not more than 5 rem whole body or its equivalent to any part of the body. CREF System operation in maintaining the control room envelope CRE habitability is discussed in the USAR, Sections 6.4.1 and 9.4.1 (Refs. 3 and 4, respectively).

APPLICABLE SAFETY ANALYSES

The ability of the CREF System CRE to maintain the habitability of the control room envelope is an explicit assumption for the safety analyses presented in the USAR, Chapters 6 and 15 (Refs. 5 and 6, respectively). The emergency pressurization mode of the CREF System is assumed to operate following a DBA, loss of coolant accident, main steam line break, fuel handling accident, and control rod drop accident. The radiological doses to control room envelope personnel CRE occupants as a

(continued)

INSERT B4

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. The CRE is protected for 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 B5

a habitable environment in the CRE

BASES

APPLICABLE SAFETY ANALYSES (continued)

result of the various DBAs are summarized in Reference 6. No single active failure will cause the loss of outside or recirculated air from the control room envelope. CRE.

Insert B6 → The CREF System satisfies Criterion 3 of Reference 7.

LCO

Two redundant subsystems of the CREF System are required to be OPERABLE to ensure that at least one is available, if active assuming a single failure disables the other subsystem. Total system failure could result in exceeding a dose of 5 rem to the control room operators in the event of a DBA.

Insert B7 →

Insert B8 →

Each The CREF System is considered OPERABLE when the individual components necessary to control operator exposure are OPERABLE in both subsystems. A subsystem is considered OPERABLE when its associated: ← Insert B9

a. CROASFT is OPERABLE;

b. Air conditioning units (fan portion only) are OPERABLE (one for the control room and one for the relay room), including the ductwork, to maintain air circulation to and from the control room envelope; and

c. Necessary outside air intake(s) are OPERABLE. When the unit is not in MODES 1, 2, and 3, or when the unit is in MODE 1, 2, or 3 with MSIV leakage $\leq$ 15 scfh for each MSIV, only one outside air intake is necessary. When the unit is in MODE 1, 2, or 3 with MSIV leakage > 15 scfh for any MSIV, both outside air intakes, including the capability to isolate the intakes, are necessary and are allowed to be common to both subsystems. Alternately, if MSIV leakage is > 15 scfh for any MSIV, an additional analysis may be performed to determine the "effective" MSIV leakage. If the "effective" MSIV leakage is $\leq$ 15 scfh, then only one outside air intake is necessary.

A CROASFT is considered OPERABLE when its associated filter booster fan is OPERABLE; HEPA filter and charcoal adsorber are not excessively restricting flow and are capable of performing their filtration functions; and ductwork, valves, and dampers are OPERABLE, and air circulation through the filter train can be maintained.

Insert B10 → In addition, the control room envelope boundary must be maintained, including the integrity of the walls, floors,

(continued)

INSERT B6

The CREF 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. 9). 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. 10).

A periodic offsite chemical survey and procedures for controlling onsite chemicals are essential elements of CRE protection against hazardous chemicals. Changes in offsite, mobile, and onsite hazardous chemical types or quantities are assessed in accordance with the Control Room Envelope Habitability Program. The assessments provide the necessary justification for not installing a toxic gas monitoring automatic isolation system.

INSERT B7

CREF System failure, such as from a loss of both ventilation subsystems or from an inoperable CRE boundary,

INSERT B8

whole body or its equivalent to any part of the body to the CRE occupants ,

INSERT B9

limit CRE occupant

INSERT B10

In order for the CREF 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.

BASES

LCO (continued)

ceilings, ductwork, and access doors, such that the pressurization limit of SR 3.7.2.4 can be met. However, it is acceptable for access doors to be open for normal control room envelope entry and exit and not consider it to be a failure to meet the LCO.

The LCO is modified by a Note allowing the control room envelope CRE boundary to be opened intermittently under administrative controls. For entry and exit through the 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.

Insert B11
Insert B12
Insert B13
Insert B14
CRE

APPLICABILITY

Insert B15

In MODES 1, 2, and 3, the CREF System must be OPERABLE to control operator exposure during and following a DBA, since the DBA could lead to a fission product release.

In MODES 4 and 5, the probability and consequences of a DBA are reduced due to the pressure and temperature limitations in these MODES. Therefore, maintaining the CREF 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 movement of irradiated fuel assemblies in the secondary containment;

b. During CORE ALTERATIONS; and

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

ACTIONS

A.1

Insert B16

With one CREF subsystem inoperable, or with both CREF subsystems inoperable but the CREF System safety function maintained, the inoperable CREF subsystem(s) must be restored to OPERABLE status within 7 days. The CREF System safety function is maintained when the CREF System components equivalent to one CREF subsystem are

(continued)

INSERT B11

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.

INSERT B12

should be proceduralized and

INSERT B13

operators in the CRE

INSERT B14

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

INSERT B15

ensure that the CRE will remain habitable

INSERT B16

for reasons other than an inoperable CRE boundary

ACTIONS (continued)

OPERABLE. With the unit in this condition, the remaining OPERABLE CREF subsystem (or OPERABLE components in both subsystems) is adequate to perform the control room envelope radiation protection function. However, the overall reliability is reduced because a single failure in the OPERABLE subsystem (or remaining OPERABLE portions of the subsystems, as applicable) could result in loss of CREF 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 (or components in both subsystems) can provide the required capabilities.

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

If the control room envelope boundary is inoperable in MODES 1, 2, and 3, the CREF trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE control room envelope boundary within 24 hours. During the period that the control room envelope boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, smoke, temperature, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into this condition. 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 diagnose, plan and possibly repair, and test most problems with the control room envelope boundary.

C.1 and C.2

In MODE 1, 2, or 3, if the inoperable CREF subsystem(s) or control room envelope boundary cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit 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 unit conditions from full power conditions in an orderly manner and without challenging the unit systems.

(continued)

INSERT B17

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.

BASES

ACTIONS (continued)

D.1, D.2.1, D.2.2, and D.2.3

LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since 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. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODE 1, 2, or 3 would require the unit to be shutdown, but would not require immediate suspension of movement of irradiated fuel assemblies. The Note to the ACTIONS, "LCO 3.0.3 is not applicable," ensures that the actions for immediate suspension of irradiated fuel assembly movement are not postponed due to entry into LCO 3.0.3.

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, if the inoperable CREF subsystem(s) cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE components of the CREF subsystem(s) equivalent to a single CREF subsystem (e.g., the CROASFT and fan portion of the air conditioning units do not have to be powered from the same electrical division) may be placed in the emergency pressurization mode. This action ensures that the remaining subsystem (or components in both subsystems equivalent to a single CREF subsystem) is OPERABLE, that no failures that would prevent automatic actuation will occur, 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 control room envelope. This places the unit in a condition that minimizes risk.

Insert B18

the accident

If applicable, CORE ALTERATIONS and movement of irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities 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 subsequent potential for fission product release. Action must continue until the OPDRVs are suspended.

(continued)

INSERT B18

the CREF System to be in the pressurization mode of operation.

BASES

ACTIONS
(continued)

E.1

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

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

LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the Required Actions of Condition F are modified by a Note indicating that LCO 3.0.3 does not apply. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODE 1, 2, or 3 would require the unit to be shutdown, but would not require immediate suspension of movement of irradiated fuel assemblies. The Note to the ACTIONS, "LCO 3.0.3 is not applicable," ensures that the actions for immediate suspension of irradiated fuel assembly movement are not postponed due to entry into LCO 3.0.3.

During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs, with two CREF subsystems inoperable with the CREF System safety function not maintained, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the control room envelope. This places the unit in a condition that minimizes risk.

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

INSERT B19

or with one or more CREF subsystems inoperable due to an inoperable CRE boundary,

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

Operating (from the control room) each CREF subsystem for ≥ 1 continuous hour ensures that both subsystems are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, filter booster or air conditioning unit fan or motor failure, or excessive vibration can be detected for corrective action. In addition, it is not necessary to operate all components of a single subsystem simultaneously for the 1 hour period. It is acceptable to operate the fan portion of the air conditioning unit(s) of one subsystem with the CROASFT of the other subsystem, such that the CROASFTs and fan portion of the air conditioning units are each operated for 1 continuous hour. The 31 day Frequency was developed in consideration of the known reliability of fan motors and controls and the redundancy available in the system.

SR 3.7.2.2

This SR verifies that the required CROASFT testing is performed in accordance with Specification 5.5.7, "Ventilation Filter Testing Program (VFTP)." The CROASFT filter tests are in accordance with Regulatory Guide 1.52 (Ref. 8). The VFTP includes testing HEPA filter performance, charcoal adsorber efficiency, 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 3.7.2.3

This SR verifies that each CREF subsystem starts and operates on an actual or simulated initiation signal. This SR also includes ensuring the air conditioning units (fan portion only) start on a low flow signal after the appropriate time delay. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.7.1, "Control Room Envelope Filtration (CREF) System Instrumentation," overlaps this SR to provide complete testing of the safety function. Operating experience has shown that these components normally pass the SR when performed at the 24 month Frequency. Therefore, the Frequency was found to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.2.4

This SR verifies the integrity of the control room envelope and the assumed inleakage rates of potentially contaminated air. The control room envelope positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper function of the CREF System. The SR requires all combinations of the CREF System to be verified. This can be met by determining (by test) the worst combination of the air conditioning units (fan portion only), then testing the worst combination of the air conditioning units (fan portion only) with each CROASFT. During the emergency pressurization mode of operation, the CREF System is designed to slightly pressurize the control room envelope to ≥ 0.125 inches water gauge positive pressure with respect to outside atmosphere to prevent unfiltered inleakage. The CREF System is designed to maintain this positive pressure at an outside air intake flow rate of ≤ 1500 cfm to the control room envelope in the emergency pressurization mode. Compliance with this SR is demonstrated by measurement of the pressure in the control room and relay room, which are representative of adequate positive pressure in both elevations of the control room envelope. The Frequency of 24 months on a STAGGERED TEST BASIS is consistent with industry practice and other filtration system SRs.

Insert B20 →

REFERENCES

1. USAR, Section 6.4.2.1.
2. NUREG-0800, Table 6.4-1.
3. USAR, Section 6.4.1.
4. USAR, Section 9.4.1.
5. USAR, Chapter 6.
6. USAR, Chapter 15.
7. 10 CFR 50.36(c)(2)(ii).
8. Regulatory Guide 1.52, Revision 2, March 1978.

Insert B21 →

INSERT B20

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. 11) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 12). 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. 13). 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.

INSERT B21

9. USAR, Section 2.2.3.1.3.

10. USAR, Section 9.4.

11. Regulatory Guide 1.196.

12. NEI 99-03, "Control Room Habitability Assessment," June 2001.

13. 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).