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Indiana Michigan Power
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
AEP.com

December 27, 2007

AEP:NRC:7448
10 CFR 50.90

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

SUBJECT: Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
Application to Revise Technical Specification Regarding Control Room Envelope Habitability in Accordance with Technical Specification Task Force Improved Technical Specification Change Traveler-448, Revision 3, Using the Consolidated Line Item Improvement Process.

Dear Sir or Madam:

In accordance with the provisions of 10 CFR 50.90, Indiana Michigan Power Company (I&M) is submitting a request for an amendment to the technical specification (TS) for Donald C. Cook Nuclear Plant (CNP) Units 1 and 2. The proposed amendment would modify TS requirements related to control room envelope habitability in accordance with Industry/Technical Specification Task Force (TSTF) Standard Technical Specification (STS) change TSTF-448, Revision 3.

The enclosure to this letter provides an affirmation statement pertaining to the matters set forth in this letter. 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 to show the proposed changes. Attachment 3 provides revised TS pages. Attachment 4 provides existing CNP TS Bases pages marked to show the proposed changes. Changes to the Bases will be implemented in accordance with the CNP TS Bases Control Program. Attachment 5 provides a copy of Section 3.0 of the model safety evaluation, marked to indicate the CNP-specific information.

I&M requests approval of the proposed license amendment in accordance with the normal Nuclear Regulatory Commission review schedule for such amendments, with the amendment being implemented within 180 days of approval. In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the Michigan Public Service Commission and Michigan Department of Environmental Quality.

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This letter contains no new regulatory commitments. If you should have any questions regarding this submittal, please contact Mr. James M. Petro, Regulatory Affairs Manager, at (269) 466-2491.

Sincerely,

Joseph N. Jensen
Site Vice President

JRW/rdw

Enclosure:

Affirmation

Attachments:

1. Description and Assessment of the Proposed Changes.
2A. Proposed Technical Specification Changes (Mark-Up) for Donald C. Cook Plant Unit 1.
2B. Proposed Technical Specification Changes (Mark-Up) for Donald C. Cook Plant Unit 2.
3A. Revised Technical Specification Pages for Donald C. Cook Plant Unit 1.
3B. Revised Technical Specification Pages for Donald C. Cook Plant Unit 2.
4. Proposed Technical Specification Bases Changes (Mark-Up).
5. Model Safety Evaluation Section 3.0 Mark-Up.

c: J. L. Caldwell, NRC Region III
K. D. Curry, Ft. Wayne AEP, w/o enclosure/attachments
J. T. King, MPSC
MDEQ – WHMD/RPMWS
NRC Resident Inspector
P. S. Tam, NRC Washington, DC

Enclosure to AEP:NRC:7448

AFFIRMATION

I, Joseph N. Jensen, being duly sworn, state that I am Site Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

Indiana Michigan Power Company

Joseph N. Jensen
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 27th DAY OF December, 2007

Regan D Wendzel
Notary Public

My Commission Expires

REGAN D. WENDZEL
Notary Public, Berrien County, MI
My Commission Expires Jan. 21, 2009

Attachment 1 to AEP:NRC:7448

DESCRIPTION AND ASSESSMENT OF THE PROPOSED CHANGES

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 Ventilation (CREV) 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 (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 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Indiana Michigan Power Company (I&M) has reviewed the safety evaluation dated January 17, 2007, as part of the CLIIP. This review included a review of the NRC staff's evaluation, as well as the information provided to support TSTF-448. I&M has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Donald C. Cook Nuclear Plant (CNP) Units 1 and 2 as described in Section 2.2 of this attachment, and justify this amendment for incorporation of the changes to the CNP TS.

2.2 Optional Changes and Variations

I&M is not proposing any significant variations or deviations from the TS changes and TS Bases changes described in the TSTF-448, Revision 3, or the applicable parts of the NRC staff's model safety evaluation dated January 17, 2007. The proposed optional changes and variations are as follows:

TS Changes

Optional changes and non-significant variations or deviations from the NUREG-1431 Westinghouse Owners Group standard TS changes identified in TSTF-448, Revision 3, are described below, and are reflected in the TS pages provided in Attachments 2A through 3B.

- The term "Control Room Emergency Filtration System" and abbreviation "CREFS" used in TSTF-448 has been replaced with the term "Control Room Emergency Ventilation System" and abbreviation "CREV" for consistency with the existing terminology in the CNP TS.

- The changes to TS 3.7.10, Condition E, identified in TSTF-448 have been applied to TS 3.7.10, Condition F, in the CNP TS because CNP TS 3.7.10, Condition F, corresponds to TS 3.7.10, Condition E, in TSTF-448.

- The TSTF-448 editorial correction which changes the word "irradiate" to "irradiated" in TS 3.7.10, Condition E, has not been applied to CNP TS 3.7.10, Condition F, because the correction was made during the CNP transition to the NUREG-1431 standard TS.

- The description of requirements for the new Control Room Envelope Habitability Program, designated as TS Section 5.5.18 in TSTF-448, has been designated as CNP TS Section 5.5.16 because 5.5.16 is the next available section number in CNP TS 5.5.

- The "5 rem total effective dose equivalent (TEDE)" criteria option, rather than the "5 rem whole body or its equivalent to any part of the body" criteria option, has been specified in CNP TS Section 5.5.16 for consistency with the criteria used in the CNP control room dose analyses.

- The option of proposing exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0, has been selected. The following two exceptions are proposed for inclusion in CNP TS 5.5.16.c:

  Exception: The appropriate application of ASTM E-741-00, required by C.1.1 may include taking minor exceptions to the test methodology. These exceptions shall be documented in the test report.

  Justification: This exception is necessary because the required testing methodology, ASTM-E741, was not originally intended for nuclear power plant control room envelope testing. Some minor exceptions from the standard are necessary and are usually determined by the test vendor. NEI 99-03, "Control Room Habitability Assessment Guaidance," Revision 1, Appendix EE discusses exceptions typically taken by ASTM E-741 test vendors. While not an all-inclusive list, the exceptions listed in Appendix EE provide examples of the type of exceptions that will be allowed by the proposed Control Room Envelope Habitability program. Any exceptions to the test methodology will be documented in the individual test report to allow confirmation that the testing performed is in accordance with the Control Room Envelope Habitability Program requirements of proposed Technical Specification 5.5.2.16.c. A similar exception was approved for the San Onofre Nuclear Generating Station via a letter from N. Kalyanam, NRC, to R M. Rosenblum, Southern California Edison Company, dated October 31, 2007 (ML072890012).

  Exception: Section 4.3.2, "Periodic CRH Assessment," from NEI 99-03, Revision 1, may be used as input to a site specific Self Assessment procedure, in lieu of Appendix H of NEI 99-03, Revision 0.

Justification: Appendix H of NEI 99-03, Revision 0, is specifically written to support the initial assessment. Section 4.3.2 "Periodic CRH Assessment," of NEI 99-03, Revision 1, is specifically written to support the periodic assessments required by Figure 1 of Regulatory Guide 1.197. A similar exception was approved for the Comanche Peak Steam Electric Station via a letter from M. C. Thadani, NRC, to M. R. Blevins, TXU Power, dated March 26, 2007 (ML063040564).

- A 24-month Surveillance Frequency for the control room envelope (CRE) pressure test, rather than the 18-month Frequency option, has been specified in CNP TS 5.5.16.d for consistency with the nominal 24-month refueling cycle Surveillance Frequency specified throughout the CNP TS (except for ice condenser related TS).

- CNP TS 5.5.16.d refers to a "periodic assessment" of the CRE boundary rather than the "[18] month assessment" of the CRE boundary referenced in TSTF-448. The term "periodic assessment" is consistent with the requirements Regulatory Guide 1.197, Figure 1, which can result in a variable periodicity.

TS Bases Changes

As shown in the marked up CNP TS Bases pages provided in Attachment 4 to this letter, there are optional changes and non-significant variations or deviations from the TS Bases changes provided with TSTF-448 that are similar to those identified above for the TS changes.

Additionally, text has been included in the Bases providing site-specific information regarding the CRE boundary, limits for smoke, chemical hazard analyses, and CREV System SRs with respect to chemical hazards or smoke. This information is consistent with the current CNP plant design and hazards analyses. If the CNP design or hazards change in the future, the TS Bases would be modified accordingly and the proposed new Actions B.1 and B.2 of TS 3.7.10 would address the chemical and/or smoke hazards to assure that appropriate mitigating actions are taken.

Model Safety Evaluation Changes

The model TSTF-448 license amendment request provided by the NRC as part of the CLIIP indicates that licensees should state which parts of Section 3.0 of the model safety evaluation are applicable to their facility, since the model contains variations based on the plant-specific design and existing TS requirements. Accordingly, Attachment 5 to this letter provides a copy of Section 3.0 of the model safety evaluation marked to make it applicable to CNP.

Additionally, Section 2.2 of the model safety evaluation should indicate that the CNP CREV System trains are not completely redundant in that they share a common high efficiency particulate air filter and charcoal adsorber, and that the CNP CREV System does not contain

heaters, demisters, or valves. Section 2.3 of the safety evaluation should indicate that the CNP was not licensed under the General Design Criteria from 10 CFR Part 50, but was licensed under similar plant-specific design criteria as described in the CNP Updated Final Safety Analysis Report.

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

I&M proposes the following as license conditions to support implementation of the proposed TS changes:

Upon implementation of Amendment No. XXX adopting TSTF-448, Revision 3, the determination of CRE unfiltered air inleakage as required by SR 3.7.10.4, in accordance with TS 5.5.16.c.(i), the assessment of CRE habitability as required by TS 5.5.16.c(ii), and the measurement of CRE pressure as required by TS 5.5.16.d, shall be considered met. Following implementation:

(a) The first performance of SR 3.7.10.4, in accordance with TS 5.5.16.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from June 1999, the date of the most recent successful tracer gas test, as stated in the December 4, 2003, 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, TS 5.5.16.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from June 1999, the date of the most recent successful tracer gas test, as stated in the December 4, 2003, 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, TS 5.5.16.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from the date of the most recent successful pressure measurement test, or within 182 days if not performed previously.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

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

3.2 Commitments

This letter contains no new regulatory commitments.

4.0 ENVIRONMENTAL EVALUATION

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

Attachment 2A to AEP:NRC:7448

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP) FOR
DONALD C. COOK NUCLEAR PLANT UNIT 1

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3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation (CREV) System

LCO 3.7.10 Two CREV trains shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and the Unit 2 containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREV train inoperable for reasons other than Condition B.	A.1 Restore CREV train to OPERABLE status.	7 days
B. ~~Two~~One or more CREV trains inoperable due to inoperable ~~control room~~CRE boundary in MODE 1, 2, 3, or 4.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CRE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.~~1~~3 Restore ~~control room~~CRE boundary to OPERABLE status.	Immediately 24 hours ~~24 hours~~90 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two CREV trains inoperable due to inoperable filter unit in MODE 1, 2, 3, or 4.	C.1 Restore filter unit to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, 3, or 4.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	E.1 Place OPERABLE CREV train in pressurization/ cleanup mode. OR E.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
F. Two CREV trains inoperable during movement of irradiated fuel assemblies. OR One or more CREV trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies.	F.1 Suspend movement of irradiated fuel assemblies.	Immediately
G. Two CREV trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Conditions B and C.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREV train for ≥15 minutes.	46 days on a STAGGERED TEST BASIS
SR 3.7.10.2	Perform required CREV System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.3	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4. ---------- Verify each CREV System train actuates on an actual or simulated actuation signal.	 24 months
SR 3.7.10.4	~~Verify one CREV System train can maintain a positive pressure of ≥0.0625 inches water gauge, relative to the outside atmosphere during the pressurization/cleanup mode of operation at a makeup flow rate of ≤1000 cfm.~~Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	~~24 months on a STAGGERED TEST BASIS~~In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals

5.5.15 Battery Monitoring and Maintenance Program

This program provides for battery 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," or of the battery manufacturer including 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 minimum established design limit.

5.5.16 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 (CREV) 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 total effective dose equivalent (TEDE) 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.

The following are exceptions to Section C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

1. The appropriate application of ASTM E-741 required by C.1.1 may include minor exceptions to the test methodology. These exceptions shall be documented in the test report.

2. Section 4.3.2, "Periodic CRH Assessment" from NEI 99-03, Revision 1, may be used as input to a site-specific Self Assessment procedure, in lieu of Appendix H of NEI 99-03, Revision 0.

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

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 CREV 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 periodic 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 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 2B to AEP:NRC:7448

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP) FOR
DONALD C. COOK NUCLEAR PLANT UNIT 2

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3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation (CREV) System

LCO 3.7.10 Two CREV trains shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and the Unit 1 containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREV train inoperable for reasons other than Condition B.	A.1 Restore CREV train to OPERABLE status.	7 days
B. ~~Two~~One or more CREV trains inoperable due to inoperable ~~control room~~CRE boundary in MODE 1, 2, 3, or 4.	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	
	B.~~1~~3 Restore ~~control room~~CRE boundary to OPERABLE status.	~~24 hours~~90 days

ACTIONS (continued)

C. Two CREV trains inoperable due to inoperable filter unit in MODE 1, 2, 3, or 4.	C.1	Restore filter unit to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, 3, or 4.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	E.1	Place OPERABLE CREV train in pressurization/ cleanup mode.	Immediately
	OR		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREV trains inoperable during movement of irradiated fuel assemblies. OR One or more CREV trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies.	F.1	Suspend movement of irradiated fuel assemblies.	Immediately
G. Two CREV trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Conditions B and C.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREV train for ≥15 minutes.	46 days on a STAGGERED TEST BASIS
SR 3.7.10.2	Perform required CREV System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.3	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4. ---------- Verify each CREV System train actuates on an actual or simulated actuation signal.	24 months
SR 3.7.10.4	~~Verify one CREV System train can maintain a positive pressure of ≥0.0625 inches water gauge, relative to the outside atmosphere during the pressurization/cleanup mode of operation at a makeup flow rate of ≤1000 cfm.~~Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	~~24 months on a STAGGERED TEST BASIS~~In accordance with the Control Room Envelope Habitability Program

5.5 Programs and Manuals

5.5.16 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 (CREV) 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 total effective dose equivalent (TEDE) 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.

The following are exceptions to Section C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

1. The appropriate application of ASTM E-741 required by C.1.1 may include minor exceptions to the test methodology. These exceptions shall be documented in the test report.

2. Section 4.3.2, "Periodic CRH Assessment" from NEI 99-03, Revision 1 may be used as input to a site-specific Self Assessment procedure, in lieu of Appendix H of NEI 99-03, 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 CREV 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 periodic 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

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

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 3A to AEP:NRC:7448

REVISED TECHNICAL SPECIFICATION PAGES FOR DONALD C. COOK NUCLEAR PLANT UNIT 1

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3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation (CREV) System

LCO 3.7.10 Two CREV trains shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and the Unit 2 containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREV train inoperable for reasons other than Condition B.	A.1	Restore CREV train to OPERABLE status.	7 days
B. One or more CREV trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4.	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		
	B.3	Restore CRE boundary to OPERABLE status.	90 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Two CREV trains inoperable due to inoperable filter unit in MODE 1, 2, 3, or 4.	C.1	Restore filter unit to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, 3, or 4.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	E.1	Place OPERABLE CREV train in pressurization/ cleanup mode.	Immediately
	OR		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREV trains inoperable during movement of irradiated fuel assemblies. OR One or more CREV trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies.	F.1	Suspend movement of irradiated fuel assemblies.	Immediately
G. Two CREV trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Conditions B and C.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREV train for ≥15 minutes.	46 days on a STAGGERED TEST BASIS
SR 3.7.10.2	Perform required CREV System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.3	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4. ---------- Verify each CREV System train actuates on an actual or simulated actuation signal.	24 months
SR 3.7.10.4	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

5.5.15 Battery Monitoring and Maintenance Program

This program provides for battery 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," or of the battery manufacturer including 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 minimum established design limit.

5.5.16 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 (CREV) 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 total effective dose equivalent (TEDE) 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.

The following are exceptions to Section C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

1. The appropriate application of ASTM E-741 required by C.1.1 may include minor exceptions to the test methodology. These exceptions shall be documented in the test report.

2. Section 4.3.2, "Periodic CRH Assessment" from NEI 99-03, Revision 1, may be used as input to a site-specific Self Assessment procedure, in lieu of Appendix H of NEI 99-03, Revision 0.

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

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 CREV 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 periodic 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 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 3B to AEP:NRC:7448

REVISED TECHNICAL SPECIFICATION PAGES FOR DONALD C. COOK NUCLEAR PLANT UNIT 2

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3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation (CREV) System

LCO 3.7.10 Two CREV trains shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies in the containment, auxiliary building, and the Unit 1 containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREV train inoperable for reasons other than Condition B.	A.1	Restore CREV train to OPERABLE status.	7 days
B. One or more CREV trains inoperable due to inoperable CRE boundary in MODE 1, 2, 3, or 4.	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		
	B.3	Restore CRE boundary to OPERABLE status.	90 days

ACTIONS (continued)

C. Two CREV trains inoperable due to inoperable filter unit in MODE 1, 2, 3, or 4.	C.1	Restore filter unit to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, 3, or 4.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours
E. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies.	E.1	Place OPERABLE CREV train in pressurization/ cleanup mode.	Immediately
	OR		
	E.2	Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREV trains inoperable during movement of irradiated fuel assemblies. OR One or more CREV trains inoperable due to an inoperable CRE boundary during movement of irradiated fuel assemblies.	F.1	Suspend movement of irradiated fuel assemblies.	Immediately
G. Two CREV trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Conditions B and C.	G.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREV train for ≥15 minutes.	46 days on a STAGGERED TEST BASIS
SR 3.7.10.2	Perform required CREV System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.10.3	----------NOTE---------- Only required to be met in MODES 1, 2, 3, and 4. ---------- Verify each CREV System train actuates on an actual or simulated actuation signal.	24 months
SR 3.7.10.4	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

5.5.16 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 (CREV) 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 total effective dose equivalent (TEDE) 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.

   The following are exceptions to Section C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

   1. The appropriate application of ASTM E-741 required by C.1.1 may include minor exceptions to the test methodology. These exceptions shall be documented in the test report.

   2. Section 4.3.2, "Periodic CRH Assessment" from NEI 99-03, Revision 1, may be used as input to a site-specific Self Assessment procedure, in lieu of Appendix H of NEI 99-03, 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 CREV 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 periodic 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

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

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 4 to AEP:NRC:7448

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES (MARK-UP) FOR DONALD C. COOK NUCLEAR PLANT UNIT 1

B 3.7.10-1

B 3.7.10-2

B 3.7.10-3

B 3.7.10-4

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B 3.7.10-8

B 3.7.10-9

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Emergency Ventilation (CREV) System

BASES

BACKGROUND

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

The CREV System consists of two trains that circulate and filter the control room envelope (CRE) and outside air and a CRE boundary that limits the inleakage of unfiltered air. Each train shares a common filter unit consisting of a prefilter, a high efficiency particulate air (HEPA) filter, and an activated charcoal adsorber section for removal of gaseous activity (principally iodines). Each train includes an independent and redundant filter unit fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system.

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 consists of the control room, the control room heating, ventilation, and air conditioning equipment room, and the plant process computer room. 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 the CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

The CREV System is an emergency system which is normally in the standby mode of operation. The CREV System is part of the Control Room Ventilation System. During normal unit operation, the Control Room Air Conditioning (CRAC) System portion of the Control Room Ventilation System is operating in the air conditioning mode, which is further described in the Bases of LCO 3.7.11, "Control Room Air Conditioning (CRAC) System." Upon receipt of the actuating signal(s), normal outside air intake supply to the CRAC System is isolated. Upon receipt of the same actuating signal(s), the emergency air intake supply to the CREV System is opened to a predetermined position and the CREV fans start. Both outside air and ~~control room~~ air within the CRE is directed through the CREV System filter unit and directed to the ~~control room~~CRE to maintain the ~~control room~~CRE boundary at a positive pressure. This emergency mode of operation is known as the pressurization/cleanup mode. The prefilter removes any large particles in

BASES

BACKGROUND (continued)

the air to prevent excessive loading of the HEPA filter and charcoal adsorber.

Outside air is added to the air being recirculated from the ~~control room~~CRE and both are filtered. Pressurization of the ~~control room~~CRE ~~prevents~~minimizes infiltration of unfiltered air through the CRE boundary from all the surrounding areas ~~of the building~~adjacent to the CRE boundary. A Safety Injection signal from either unit or a Control Room Radiation - High signal will place the CREV System in the pressurization/cleanup mode.

A single CREV System train operating at a flow rate of approximately 1000 cfm will pressurize the ~~control room~~CRE to about 0.0625 inches water gauge relative to external areas adjacent to the CRE boundary. The CREV System operation in maintaining the ~~control room~~CRE habitable is discussed in the UFSAR, Section 9.10 (Ref. 1).

Normally open isolation dampers of the CRAC System are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation of the control room boundary. The CREV System is designed in accordance with Seismic Category I requirements.

The CREV System is designed to maintain ~~the control room environment~~a habitable environment in the CRE for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem total effective dose equivalent (TEDE).

APPLICABLE SAFETY ANALYSES

The CREV System components are arranged in redundant, safety related ventilation trains both sharing a common filter unit, ducting, and intake path. The location of components and ducting within the ~~control room envelope~~CRE ensures an adequate supply of filtered air to all areas requiring access. The CREV System provides airborne radiological protection for the ~~control room operators~~CRE occupants, as demonstrated by the ~~control room accident~~CRE occupant dose analyses for the most limiting design basis ~~loss of coolant~~ accident~~,~~ fission product release presented in the UFSAR, Chapter 14 (Ref. 2).

The CREV System provides protection from smoke to the CRE occupants. There is no quantitative limit for smoke. The limit is qualitative and is based on the discretion of the Shift Manager. If the level of smoke, as determined by the Shift Manager, would prevent the operators from functioning in the control room, then the CREV System should be considered inoperable.

BASES

APPLICABLE SAFETY ANALYSES (continued)

Analyses have determined that the CREV System is not required to be operable to ensure hazardous chemical limits are not exceeded. (Ref. 3). There are no Surveillance Requirements to verify CREV System operability for hazardous chemicals or smoke.

The worst case single active failure of a component of the CREV System, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The CREV System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

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

~~The~~Each CREV System train is considered OPERABLE when the individual components necessary to limit ~~operator~~CRE occupant exposure are OPERABLE~~ in both trains~~. A CREV 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; and

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

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

In order for the CREV System 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 smoke.

The LCO is modified by a Note allowing the ~~control room~~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

BASES

LCO (continued)

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 ~~control room~~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 ~~control room~~CRE isolation is indicated.

APPLICABILITY

In MODES 1, 2, 3, and 4, and during movement of irradiated fuel assemblies in the containment, auxiliary building, and Unit 2 containment, the CREV System must be OPERABLE to ~~control operator exposure~~ensure that the CRE will remain habitable during and following a DBA.

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

ACTIONS

A.1

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

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

~~If the control room boundary is inoperable in MODE 1, 2, 3, or 4, the CREV trains cannot perform their intended functions. Action 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 should be utilized to protect control room operators. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the 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 boundary.~~

BASES

ACTIONS (continued)

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 TEDE), or inadequate protection of CRE occupants from 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 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 smoke. Analyses have determined that the CREV System is not required to be operable to ensure hazardous chemical limits are not exceeded (Ref. 3). 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.

C.1

If the CREV filter unit is inoperable in MODE 1, 2, 3, or 4, the CREV trains cannot perform their intended functions. Action must be taken to restore an OPERABLE filter unit within 24 hours. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period. The 24 hour Completion Time is a typically reasonable time to diagnose, plan and possibly repair, and test most problems with the filter unit.

BASES

ACTIONS (continued)

D.1 and D.2

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

E.1 and E.2

During movement of irradiated fuel assemblies in the containment, auxiliary building, or Unit 2 containment, if the inoperable CREV train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CREV train in the pressurization/cleanup mode. This action ensures that the remaining train is OPERABLE and that any active failure would be readily detected.

An alternative to Required Action E.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the ~~control room~~CRE (Required Action E.2). This places the unit in a condition where the LCO does not apply. This does not preclude the movement of fuel to a safe position.

F.1

During movement of irradiated fuel assemblies in the containment, auxiliary building, or Unit 2 containment, with two CREV trains inoperable, or with one or more CREV System trains inoperable due to inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that ~~might enter~~require isolation of the ~~control room~~CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

BASES

ACTIONS (continued)

G.1

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

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1

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 92 days provides an adequate check of this system. Operating the CREV train, with flow through the HEPA filter and charcoal adsorber train, for ≥15 minutes demonstrates the function of the CREV train. The 46 day on a STAGGERED TEST BASIS Frequency is based on the reliability of the equipment and the two train ~~availability~~redundancy.

SR 3.7.10.2

This SR verifies that the required CREV System testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The VFTP includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum and maximum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.10.3

This SR verifies that each CREV train starts and operates on an actual or simulated actuation signal. The only actuation signal necessary to be verified is the Safety Injection (SI) signal, since the Control Room Radiation - High signal is not assumed in the accident analysis. A Note has been included that states the Surveillance is only required to be met in MODES 1, 2, 3, and 4, since these are the MODES the SI signal is assumed to start the CREV trains. The CREV trains are assumed to be manually started during a fuel handling accident. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint. This test must be performed in such a way to verify the each CREV train has the capability to start from a Safety Injection signal from both units.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.10.4

~~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 CREV System. During the pressurization/cleanup mode of operation, the CREV System is designed to pressurize the control room ≥0.0625 inches water gauge positive pressure with respect to outside atmosphere in order to prevent unfiltered inleakage. The CREV System is designed to maintain this positive pressure with one train at a makeup flow rate of 1000 cfm. The CREV System flow rate during this test should be ≥5400 cfm and ≤6600 cfm. The Frequency of 24 months on a STAGGERED TEST BASIS is consistent with industry practice and with other filtration system SRs.~~

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 TEDE, the CRE occupants are protected from smoke, and analyses demonstrate that the CREV System is not needed to prevent exceeding hazardous chemical limits. 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. 4) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 5). 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. 6). 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. There are no SRs to verify CREV System operability for hazardous chemicals or smoke.

BASES

REFERENCES

1. UFSAR, Section 9.10.

2. UFSAR, Chapter 14.

3. Letter from Indiana Michigan Power Company (J. A. Zwolinski) to the NRC, "Response to Nuclear Regulatory Commission Generic Letter 2003-01: Control Room Habitability," dated December 4, 2003, Response to Item 1.b (Letter AEP:NRC:3054-15).

4. Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," May 2003.

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

6. 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. ML040160868).

Attachment 5 to AEP:NRC:7448

MODEL SAFETY EVALUATION SECTION 3.0 MARK-UP
DONALD C. COOK NUCLEAR PLANT

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the proposed changes against the corresponding changes made to the STS by TSTF-448, Revision 3, which the NRC staff has found to satisfy applicable regulatory requirements, as described above in Section 2.0. [The emergency operational mode of the ~~[CREEVS]~~Control Room Emergency Ventilation (CREV) System at ~~[facility name]~~Donald C. Cook Nuclear Plant CNP [pressurizes] ~~[isolates but does not pressurize]~~ the CRE to minimize unfiltered air inleakage.] The proposed changes are consistent with this design.

3.1 Proposed Changes

The proposed amendment would strengthen CRE habitability TS requirements by changing TS [3.7.10, ~~CREEVS]~~"Control Room Emergency Ventilation (CREV) System" and adding a new TS administrative controls program on CRE habitability. Accompanying the proposed TS changes are appropriate conforming technical changes to the TS Bases. The proposed revision to the Bases also includes editorial and administrative changes to reflect applicable changes to the corresponding STS Bases, which were made to improve clarity, conform with the latest information and references, correct factual errors, and achieve more consistency among the STS NUREGs. [Except for plant specific differences, all of] these changes are consistent with STS as revised by TSTF-448, Revision 3.

The NRC staff compared the proposed TS changes to the STS and the STS markups and evaluations in TSTF-448. [The staff verified that differences from the STS were adequately justified on the basis of plant-specific design or retention of current licensing basis.] The NRC staff also reviewed the proposed changes to the TS Bases for consistency with the STS Bases and the plant-specific design and licensing bases, although approval of the Bases is not a condition for accepting the proposed amendment. However, TS 5.5.~~[11]~~12, "Technical Specification (TS) Bases Control Program," provides assurance that the licensee has established and will maintain the adequacy of the Bases. The proposed Bases for TS 3.7.[10] refer to specific guidance in NEI 99-03, "Control Room Habitability Assessment Guidance," Revision 0, dated June 2001 (Reference 6), which the NRC staff has formally endorsed, with exceptions, through Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," dated May 2003 (Reference 4).

3.2 Editorial Changes

The licensee proposed editorial changes to TS [3.7.10, "~~CREEVS~~CREV System,"] to establish standard terminology, such as "control room envelope (CRE)" in place of "control room," except for the plant-specific name for the ~~[CREEVS]~~ CREV System, and "radiological, chemical, and smoke hazards (or challenges)" in place of various phrases to describe the hazards that CRE occupants are protected from by the ~~[CREEVS]~~ CREV System. ~~[The licensee also proposed to correct a typographical error by replacing "irradiate" with "irradiated" in TS 3.7.10 Condition E.]~~ These changes improve the usability and quality of the presentation of the TS, have no impact on safety, and therefore, are acceptable.

3.3 TS [3.7.10, ~~CREEVS~~] CREV System

< Evaluation 1 - for facilities that have adopted the [CREEVS] TS LCO Note and Action B of TSTF-287, Rev. 5 >

The licensee proposed to revise the action requirements of TS [3.7.10, "~~CREEVS~~ CREV System,"] to acknowledge that an inoperable CRE boundary, depending upon the location of the associated degradation, could cause just one, instead of both ~~[CREEVS]~~ CREV [trains] to be inoperable. This is accomplished by revising Condition A to exclude Condition B, and revising Condition B to address one or more ~~[CREEVS]~~ CREV [trains], as follows:

- Condition A One ~~[CREEVS]~~ CREV [train] inoperable for reasons other than Condition B.
- Condition B One or more ~~[CREEVS]~~ CREV [trains] inoperable due to inoperable CRE boundary in MODE 1, 2, ~~[or]~~ 3[, or 4].

This change clarifies how to apply the action requirements in the event just one ~~[CREEVS]~~ CREV [train] is unable to ensure CRE occupant safety within licensing basis limits because of an inoperable CRE boundary. It enhances the usability of Conditions A and B with a presentation that is more consistent with the intent of the existing requirements. This change is an administrative change because it neither reduces nor increases the existing action requirements, and, therefore, is acceptable.

The licensee proposed to replace existing Required Action B.1, "Restore control room boundary to OPERABLE status," which has a 24-hour Completion Time, with Required Action B.1, to immediately initiate action to implement mitigating actions; Required Action B.2, to verify, within 24 hours, that in the event of a DBA, 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; and Required Action B.3, to restore CRE boundary to operable status within 90 days.

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

< End of Evaluation 1 >

< Evaluation 2 - for facilities that have not yet adopted the [CREEVS] TS LCO Note and Action B of TSTF-287, Rev. 5 >

<Deleted - Evaluation 2 is not applicable to CNP>

< Evaluation 3 - for B&W CREVS TS >

< Deleted - Evaluation 3 is not applicable to CNP>

< Evaluation 4 - for B&W, CE, and W [CREEVS] TS >

The licensee proposed to add a new condition to Action ~~E~~F of TS 3.7.1~~[0]~~ that states, "One or more ~~[CREEVS]~~CREV trains inoperable due to an inoperable CRE boundary ~~[in Mode 5 or 6, or]~~ during movement of ~~[recently]~~ irradiated fuel assemblies." The specified Required Action proposed for this condition is the same as for the existing condition of Action ~~E~~F ~~[(revised as discussed previously) <for B&W plants if Evaluation 3 is used>]~~, which states "~~[~~Two ~~[CREEVS]~~CREV trains inoperable ~~[in MODE 5 or 6, or]~~ during movement of ~~[recently]~~ irradiated fuel assemblies." Accordingly, the new condition is stated with the other condition in Action ~~E~~F using the logical connector "OR" in accordance with the STS writer's guide (TSTF-GG-05-01, "Writer's Guide for Plant-Specific Improved Technical Specifications," June 2005). The practical result of this presentation in format is the same as specifying two separately numbered Actions, one for each condition. Its advantage is to make the TS Actions table easier to use by avoiding having an additional numbered row in the Actions table. The new condition in Action ~~E~~F is needed because proposed Action B will only apply in Modes 1, 2, 3, and 4. As such, this change will ensure that the Actions table continues to specify a condition for an inoperable CRE boundary during Modes 5 and 6 and during refueling. Therefore, this change is administrative and acceptable.

< End of Evaluation 4 >

< Evaluation 5 - for BWR4 and BWR6 [CREEVS] TS >

< Deleted - Evaluation 5 is not applicable to CNP>

< Evaluation 6 - for facilities that have a CRE pressurization surveillance requirement >

In the ~~[emergency radiation state]~~pressurization/cleanup mode of operation, the ~~[CREEVS]~~ CREV System isolates unfiltered ventilation air supply intakes, filters the emergency ventilation air supply to the CRE, and pressurizes the CRE to minimize unfiltered air inleakage past the CRE boundary. The licensee proposed to delete the CRE pressurization surveillance requirement (SR). This SR requires verifying that one ~~[CREEVS]~~ CREV System ~~[~~train~~][subsystem]~~, operating in the ~~[emergency radiation state]~~ pressurization/cleanup mode, can maintain a pressure of ~~[0.125]~~>0.0625 inches water gauge, relative to the ~~adjacent [turbine building]~~outside atmosphere during the pressurization/cleanup mode of operation at a makeup flow rate of ~~[3000]~~1000 cfm. The deletion of this SR is proposed because measurements of unfiltered air leakage into the CRE at numerous reactor facilities demonstrated that a basic assumption of this SR, an essentially leak-tight CRE boundary, was incorrect for most facilities. Hence, meeting this SR by achieving the required CRE pressure is not necessarily a conclusive indication of CRE boundary leak tightness, i.e., CRE boundary operability. ~~[~~In its response to

GL 2003-01, [dated ~~month, dd, yyyy]~~December 4, 2003, 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.]~~committed to determine the applicability of the NRC approved TSTF-448 to CNP and submit a license amendment request to require periodic measurement of unfiltered CRE inleakage. Based on the adoption of TSTF-448, Revision 3, the licensee's proposal to delete SR 3.7.~~[10].[4]~~ is acceptable.

< End of Evaluation 6 >

The proposed CRE inleakage measurement SR states, "Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program." The CRE Habitability Program TS, proposed TS 5.5.~~[18]~~16, requires that the program include ~~"R~~requirements for 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, Revision 0 (Reference 5). This guidance references ASTM E741 (Reference 2) as an acceptable method for ascertaining the unfiltered leakage into the CRE. The licensee has~~[, however, not]~~ proposed to follow this method. ~~[The NRC staff reviewed the licensee's proposed alternative method for measuring CRE inleakage to ensure it meets the criteria for such methods given in RG 1.197.] [Insert plant-specific technical evaluation by the staff of the alternative method.] [The NRC staff finds that the proposed alternative method satisfies the criteria of RG 1.197.]~~ Therefore, the proposed CRE inleakage measurement SR is acceptable.

3.4 TS 5.5.~~[18]~~16, CRE Habitability Program

The proposed administrative controls program TS is consistent with the model program TS in TSTF-448, Revision 3. In combination with SR 3.7.~~[10].[4]~~, this program is intended to ensure the operability of the CRE boundary, which as part of an operable ~~[CREEVS]~~ CREV System will ensure that CRE habitability is maintained such that CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under 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]~~ [5 rem total effective dose equivalent (TEDE)] for the duration of the accident.

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

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

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

Assessment of CRE habitability at the frequencies stated in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0 (Reference 5), and measurement of unfiltered air leakage into the CRE in accordance with the testing methods and at the frequencies stated in Sections C.1 and C.2 of Regulatory Guide 1.197. [The licensee proposed the following exception~~[s]~~ to Sections C.1 and C.2 of Regulatory Guide 1.197, to be listed in the TS with this program element.~~] [Insert plant-specific evaluation of licensee's proposed exceptions.]~~

Exception: The appropriate application of ASTM E-741 required by C.1.1 may include taking minor exceptions to the test methodology. These exceptions shall be documented in the test report.

The licensee provided the following justification for this exception:

This exception is necessary because the required testing methodology, ASTM-E741, was not originally intended for nuclear power plant control room envelope testing. Some minor exceptions from the standard are necessary and are usually determined by the test vendor. NEI 99-03, Revision 1, Appendix EE discusses exceptions typically taken by ASTM E-741 test vendors. While not an all-inclusive list, the exceptions listed in Appendix EE provide examples of the type of exceptions that will be allowed by the proposed Control Room Envelope Habitability program. Any exceptions to the test methodology will be documented in the individual test report to allow confirmation that the testing performed is in accordance with the Control Room Envelope Habitability Program requirements of proposed Technical Specification 5.5.2.16.c. A similar exception was approved for the San Onofre Nuclear Generating Station via a letter from N. Kalyanam, NRC, to R. M. Rosenblum, Southern California Edison Company, dated October 31, 2007 (ML072890012).

The licensee proposed the following additional exception:

Exception: Section 4.3.2, "Periodic CRH Assessment" from NEI 99-03, Revision 1, may be used as input to a site specific Self Assessment procedure, in lieu of Appendix H of NEI 99-03, Revision 0.

The licensee provided the following justification for this exception:

Appendix H of NEI 99-03, Revision 0, is specifically written to support the initial assessment. Section 4.3.2 "Periodic CRH Assessment" of NEI 99-03, Revision 1, is specifically written to support the periodic assessments required by Figure 1 of Regulatory Guide 1.197. A similar exception was approved for the Comanche Peak Steam Electric Station via a letter from M. C. Thadani, NRC, to M. R. Blevins, TXU Power, dated March 26, 2007 (ML063040564).

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

Measurement of CRE pressure with respect to all areas adjacent to the CRE boundary at designated locations for use in ~~assessing~~ periodic assessments of the CRE boundary ~~at a frequency of [18] months on a staggered test basis (with respect to the [CREEVS] trains).~~ This element is intended to ensure that CRE differential pressure is regularly measured to identify changes in pressure warranting evaluation of the condition of the CRE boundary. Obtaining and trending pressure data provides additional assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations.

Quantitative limits on unfiltered inleakage. This element is intended to establish the CRE inleakage limit as the CRE unfiltered infiltration rate assumed in the CRE occupant radiological consequence analyses of design basis accidents. Having an unambiguous criterion for the CRE boundary to be considered operable in order to meet LCO 3.7.~~[~~10~~]~~, will ensure that associated action requirements will be consistently applied in the event of CRE degradation resulting in inleakage exceeding the limit.

Consistent with TSTF-448, Revision 3, the program states that the provisions of SR 3.0.2 are applicable to the program frequencies for performing the activities required by program paragraph number c, parts (i) and (ii) (assessment of CRE habitability and measurement of CRE inleakage), and paragraph number d (measurement of CRE differential pressure). This statement is needed to avoid confusion. SR 3.0.2 is applicable to the surveillance that references the testing in the CRE Habitability Program. However, SR 3.0.2 is not applicable to Administrative Controls unless specifically invoked. Providing this statement in the program eliminates any confusion regarding whether SR 3.0.2 is applicable, and is acceptable.

Consistent with TSTF-448, Revision 3, proposed TS 5.5.~~[18]~~16 states that (1) a CRE Habitability Program shall be established and implemented, (2) the program shall include all of the NRC-staff required elements, as described above, and (3) the provisions of SR 3.0.2 shall apply to program frequencies. Therefore, TS 5.5.~~[18]~~16, which is consistent with the model program TS approved by the NRC staff in TSTF-448, Revision 3, is acceptable.