Duke Energy®

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January 22, 2008

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

ATTENTION: Document Control Desk

Subject: Duke Power Company LLC d/b/a
Duke Energy Carolinas, LLC
McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370

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 Duke Energy Carolinas (Duke) is submitting a request for an amendment to the Technical Specifications (TS) for McGuire Nuclear Station (McGuire) Units 1 and 2.

The proposed amendment would modify TS requirements related to control room envelope habitability in accordance with TSTF-448, Revision 3. For McGuire, this TSTF revises TS 3.7.9, Control Room Area Ventilation System (CRAVS), and adds a new administrative controls program, TS 5.5.16, Control Room Envelope Habitability Program.

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

Received from Reg 2
on 11/1/11

A102
NRR

Duke is requesting NRC review and approval of the proposed license amendment by January 22, 2009. Duke is requesting a 60 day implementation grace period due to the extensive document changes necessary to implement this license amendment.

Implementation of this proposed amendment to the McGuire Technical Specifications will impact the McGuire Updated Final Safety Analysis Report (UFSAR). As a result, it will be necessary to revise various sections of the McGuire UFSAR in accordance with 10 CFR 50.71(e).

In accordance with Duke administrative procedures and the Quality Assurance Program Topical Report, this proposed amendment has been reviewed and approved by the McGuire Plant Operations Review Committee and the Duke Corporate Nuclear Safety Review Board.

In accordance with 10 CFR 50.91, a copy of this proposed amendment is being forwarded to the appropriate North Carolina State officials.

Inquiries on this matter should be directed to Lee A. Hentz at 704-875-4187.

Sincerely,

Bruce H. Hamilton

Attachments:

1. Description and Assessment
2. Proposed Technical Specification Changes
3. Revised Technical Specification and FOL Pages
4. Proposed Technical Specification Bases Changes

cc: w/attachments

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OATH AND AFFIRMATION

Bruce H. Hamilton affirms that he is the person who subscribed his name to the foregoing statement, and that all the matters and facts set forth herein are true and correct to the best of his knowledge.

Bruce Hamilton

Bruce H. Hamilton, Site Vice President

Subscribed and sworn to me: 1/22/08

Date

Lori C Gibby / Lori C Gibby

Notary Public

My commission expires: July 1, 2012

Date

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 3.7.9, Control Room Area Ventilation System (CRAVS), and TS Section 5.5, Administrative Controls, Programs and Manuals.

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

2.0 Assessment

2.1 Applicability of Published Safety Evaluation

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

2.2 Optional Changes and Variations

Duke is not proposing any variations or deviations from the TS changes described in the TSTF-448, Revision 3, or the applicable parts of the NRC staff's model safety evaluation dated January 17, 2007, other than plant specific design differences and existing TS requirements discussed below.

1. Model Safety Evaluation Section 2.2

Regarding the first bulleted item that states; "Fan is operable." At McGuire, one train of CRAVS is considered operable when an Outside Air Pressure Filter Train (OAPFT) fan and a Control Room Air Handling unit are operable.

2. Model Safety Evaluation Section 2.3

Regarding the current CRE pressurization surveillance requirement, at McGuire, the CRAVS is designed to pressurize the control room $\geq$ 0.125 inches water gauge positive pressure with respect to atmospheric pressure. The CRAVS is designed to maintain this positive pressure with one train at a makeup flow rate of $\leq$ 2200 cfm.

3. Model Safety Evaluation Section 3.2

Regarding the typographical error "irradiate", this error does not exist in McGuire's TS 3.7.9.

4. Model Safety Evaluation Section 3.3

Evaluation 1 most resembles the McGuire TS 3.7.9. On September 13, 1999, McGuire proposed to revise TS 3.7.9 based on TSTF-287 on an exigent basis prior to the final approval of TSTF-287. McGuire adopted the TS LCO Note but chose to place new Condition B, inoperable boundary, as new Condition G. With this CLIIP revision, McGuire will re-order the TS 3.7.9 Conditions to align with the STS.

5. Model Safety Evaluation Section 3.4

McGuire has not received approval for the use of Alternate Source Term (AST) dose methodology for LOCAs. Therefore, CRE occupant dose will still be calculated in terms of whole body or its equivalent to any part of the body.

Also, as stated above, measurement of CRE pressure at McGuire is with respect to atmospheric pressure versus all adjacent areas.

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

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

Upon implementation of the Amendment adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered inleakage as required by SR 3.7.9.4, 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 3.7.9.4 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 October 2003, the date of the most recent successful tracer gas test, as stated in the February 19, 2004 letter response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.

(b) The first performance of the periodic assessment of CRE habitability, TS 5.5.16.c.(ii), shall be within 3 years, plus the 9 month allowance of SR 3.0.2 as measured from October 2003, the date of the most recent successful tracer gas test, as stated in the February 19, 2004 letter response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, TS 5.5.16.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from January 2007, the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.

3.0 Regulatory Analysis

3.1 No Significant Hazards Consideration Determination

Duke has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register on January 17, 2007 as part of the CLIIP. Duke has concluded that the proposed NSHCD presented in the Federal Register notice is applicable to McGuire and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

3.2 Commitments

There are no new regulatory commitments contained in this LAR. This LAR satisfies the commitment made in McGuire's response to NRC GL 2003-01 dated February 19, 2004 to review and implement TSTF-448 once approved.

4.0 Environmental Evaluation

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

ATTACHMENT 2

MARKED PAGES OF PROPOSED TECHNICAL SPECIFICATION CHANGES

3.7 PLANT SYSTEMS

3.7.9 Control Room Area Ventilation System (CRAVS)

envelope (CRE)

LCO 3.7.9 Two CRAVS trains shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies,
During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRAVS train inoperable for reasons other than Condition B.	A.1 Restore CRAVS train to OPERABLE status.	7 days
~~B.~~ C. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4. or B	~~B.1~~ C AND Be in MODE 3.	6 hours
	~~B.2~~ C Be in MODE 5.	36 hours
~~C.~~ D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS.	~~C.1~~ D OR Place OPERABLE CRAVS train in emergency mode.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Suspend CORE ALTERATIONS. AND C.2.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
D. Two CRAVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS. INSERT B	D.1 Suspend CORE ALTERATIONS. AND D.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
E. Two CRAVS trains inoperable in MODE 1, 2, 3, or 4 (for reasons other than Condition G). B	E.1 Enter LCO 3.0.3.	Immediately
F. One or more CRAVS train(s) heater inoperable.	F.1 Restore CRAVS train(s) heater to OPERABLE status. OR F.2 Initiate action in accordance with Specification 5.6.6.	7 days 7 days
G. Two CRAVS trains inoperable due to inoperable control room boundary in MODE 1, 2, 3, or 4. B.	G.1 Restore control room boundary to OPERABLE status.	24 hours

INSERT A

REVISION TO TS 3.7.9 IN ACCORDANCE WITH TSTF-448 R.3 CLIIP

INSERT A: REVISED CONDITION B.

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more CRAVS trains inoperable due to inoperable 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.3 Restore CRE boundary to OPERABLE status.	Immediately 24 hours 90 days

INSERT B: REVISED CONDITION E.

CONDITION
E. (continued) OR One or more CRAVS trains inoperable due to an inoperable CRE boundary in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS.

ACTIONS
SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Operate each CRAVS train for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.9.2	Perform required CRAVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.9.3	Verify each CRAVS train actuates on an actual or simulated actuation signal.	18 months
SR 3.7.9.4	Verify one CRAVS train can maintain a positive pressure of ≥ 0.125 inches water gauge, relative to atmospheric pressure during the pressurization mode of operation at a makeup flow rate of ≤ 2200 cfm.	18 months on a STAGGERED TEST BASIS

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

In accordance with the Control Room Envelope Habitability Program

REVISION TO TS 5.5 (PROGRAMS AND MANUALS) IN ACCORDANCE WITH TSTF-448 R.3 CLIIP, NEW PROGRAM FOR CRE HABITABILITY

5.5.16 Control Room Envelope Habitability Program **(NEW)**

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 Area Ventilation System (CRAVS), 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 atmospheric pressure during the pressurization mode of operation by one train of the CRAVS, operating at a makeup flow rate of $\leq$ 2200 cfm, at a Frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the periodic assessment of the CRE boundary in accordance with Regulatory Guide 1.197, Figure 1.

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

REPRINTED PAGES OF REVISED TECHNICAL SPECIFICATIONS AND FOL ADDITIONAL CONDITIONS

3.7 PLANT SYSTEMS

3.7.9 Control Room Area Ventilation System (CRAVS)

LCO 3.7.9 Two CRAVS trains shall be OPERABLE.

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

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies,
During CORE ALTERATIONS.

ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	One CRAVS train inoperable for reasons other than Condition B.	A.1	Restore CRAVS train to OPERABLE status.	7 days
B.	One or more CRAVS 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
C.	Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
		AND		
		C.2	Be in MODE 5.	36 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS.	D.1 Place OPERABLE CRAVS train in emergency mode. OR D.2.1 Suspend CORE ALTERATIONS. AND D.2.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately Immediately
E. Two CRAVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS. OR One or more CRAVS trains inoperable due to an inoperable CRE boundary in MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS.	E.1 Suspend CORE ALTERATIONS. AND E.2 Suspend movement of irradiated fuel assemblies.	Immediately Immediately
F. Two CRAVS trains inoperable in MODE 1, 2, 3, or 4 (for reasons other than Condition B).	F.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One or more CRAVS train(s) heater inoperable.	G.1 Restore CRAVS train(s) heater to OPERABLE status. OR G.2 Initiate action in accordance with Specification 5.6.6.	7 days 7 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Operate each CRAVS train for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.9.2	Perform required CRAVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.9.3	Verify each CRAVS train actuates on an actual or simulated actuation signal.	18 months
SR 3.7.9.4	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 Safety Function Determination Program (SFDP) (continued)

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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 Area Ventilation System (CRAVS), 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.

(continued)

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

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 atmospheric pressure during the pressurization mode of operation by one train of the CRAVS, operating at a makeup flow rate of $\leq$ 2200 cfm, at a Frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the periodic assessment of the CRE boundary in accordance with Regulatory Guide 1.197, Figure 1.

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.

APPENDIX B

ADDITIONAL CONDITIONS

FACILITY OPERATING LICENSE NO. NPF-9

Duke Power Power Company LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
xxx	Upon implementation of the Amendment adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered inleakage as required by SR 3.7.9.4, 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 3.7.9.4 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 October 2003, the date of the most recent successful tracer gas test, as stated in the February 19, 2004 letter response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years. (b) The first performance of the periodic assessment of CRE habitability, TS 5.5.16.c.(ii), shall be within 3 years, plus the 9 month allowance of SR 3.0.2 as measured from October 2003, the date of the most recent successful tracer gas test, as stated in the February 19, 2004 letter response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years. (c) The first performance of the periodic measurement of CRE pressure, TS 5.5.16.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from January 2007, the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.	See Condition

APPENDIX B

ADDITIONAL CONDITIONS

FACILITY OPERATING LICENSE NO. NPF-17

Duke Power Power Company LLC shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
xxx	Upon implementation of the Amendment adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered inleakage as required by SR 3.7.9.4, 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 3.7.9.4 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 October 2003, the date of the most recent successful tracer gas test, as stated in the February 19, 2004 letter response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years. (b) The first performance of the periodic assessment of CRE habitability, TS 5.5.16.c.(ii), shall be within 3 years, plus the 9 month allowance of SR 3.0.2 as measured from October 2003, the date of the most recent successful tracer gas test, as stated in the February 19, 2004 letter response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years. (c) The first performance of the periodic measurement of CRE pressure, TS 5.5.16.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from January 2007, the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.	See Condition

ATTACHMENT 4

MARKED PAGES OF PROPOSED TECHNICAL SPECIFICATION BASES 3.7.9 CHANGES

B 3.7 PLANT SYSTEMS

B 3.7.9 Control Room Area Ventilation System (CRAVS)

BASES

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

The CRAVS consists of two independent, redundant trains that draw in filtered outside air and mix this air with conditioned air recirculating through the Control Room ~~area~~ Envelope (CRE). Each outside air pressure filter train consists of a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal absorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, doors, barriers and instrumentation also form part of the system, as well as prefilters to remove water droplets from the air stream. A second bank of HEPA filters follows the absorber section to collect carbon fines and provides backup in case of failure of the main HEPA filter bank.

INSERT 1

The CRAVS is an emergency system. During normal operation the ~~Control Room~~ CRE is provided with 100% recirculated air and the outside air pressure filter train is in the standby mode. Upon receipt of the actuating signal(s), the ~~Control Room~~ CRE is provided with fresh air through outside air intakes and is circulated through the system filter trains. The prefilters remove any large particles in the air, and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers. Continuous operation of each train for at least 10 hours per month, with the heaters on, reduces moisture buildup on the HEPA filters and adsorbers. The heater is important to the effectiveness of the charcoal adsorbers.

Actuation of the CRAVS places the system in the emergency mode of operation, depending on the initiation signal. The emergency radiation state initiates pressurization and filtered ventilation of the air supply to the ~~control room~~ CRE. Pressurization of the ~~control room~~ CRE minimizes infiltration of unfiltered air from the surrounding areas ~~of the building~~ adjacent to the CRE boundary.

The air entering the outside air intakes is continuously monitored by radiation detectors. The detector output above the setpoint will cause actuation of the ~~emergency radiation~~ state.

A single ~~train~~ CRAVS can adequately pressurize the ~~control room~~ CRE to ≥ 0.125 inches water gauge relative to atmospheric pressure. The CRAVS operation in maintaining the ~~control room~~ CRE habitable is discussed in the UFSAR, Section 6.4 (Ref. 1).

BASES

BACKGROUND (continued)

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open outside air intake isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CRAVS is designed in accordance with Seismic Category I requirements.

a habitable environment in the CRE

The CRAVS is designed to maintain ~~the control room environment~~ for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body.

There are components that have nomenclature associated with the CRAVS but do not perform any function that impacts the control room. These components include the Control Room Area Air Handling units, the Switchgear Air Handling units, the Battery Room Exhaust Fans and the associated ductwork, dampers, and instrumentation. These components share the CRACWS with the CRAVS but are not governed by LCO 3.7.9.

APPLICABLE SAFETY ANALYSES

The CRAVS components are arranged in redundant, safety related ventilation trains. The CRAVS provides airborne radiological protection for the ~~control room operators~~, as demonstrated by the ~~control room~~ ~~accident~~ dose analyses for the most limiting design basis ~~loss of coolant~~ accident fission product release presented in the UFSAR, Chapter 15 (Ref. 2).

CRE occupants

occupant

CRE

INSERT 2

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

The CRAVS satisfies Criterion 3 of 10 CFR 50.36 ~~(Ref. 3)~~.

LCO

Two independent and redundant CRAVS trains are required to be OPERABLE to ensure that at least one is available ~~assuming~~ if a single failure disables the other train. ~~Total system failure could result in exceeding a dose of 5 rem to the control room operator in the event of a large radioactive release.~~

active

INSERT 3

train

Each

~~The~~ CRAVS is considered OPERABLE when the individual components necessary to limit ~~operator~~ exposure are OPERABLE ~~in both trains~~. A CRAVS train is OPERABLE when the associated:

CRE occupant

BASES

LCO (continued)

a. An Outside Air Pressure Filter Train fan and a Control Room Air Handling unit are 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.

INSERT 4

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

The CRAVS is shared between the two units. The system must be OPERABLE for each unit when that unit is in the MODE of Applicability. Additionally, both normal and emergency power must also be OPERABLE because the system is shared. If a CRAVS component becomes inoperable, or normal or emergency power to a CRAVS component becomes inoperable, then the Required Actions of this LCO must be entered independently for each unit that is in the MODE of applicability of the LCO.

INSERT 5

The LCO is modified by a Note allowing the control room boundary to be opened intermittently under administrative controls. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls consist of stationing a dedicated individual at the opening who is in continuous communication with the control room. This individual will have a method to rapidly close the opening when a need for control room area isolation is indicated.*

APPLICABILITY In MODES 1, 2, 3, 4, 5, and 6, and during movement of the irradiated fuel assemblies and during CORE ALTERATIONS, CRAVS must be OPERABLE to ~~control operator exposure~~ during and following a DBA.

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

ensure that the CRE will remain habitable

BASES

ACTIONS

A.1 (for reasons other than an inoperable CRE boundary)

When one CRAVS train is inoperable, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRAVS train is adequate to perform the ~~control room~~ CRE occupant protection function. However, the overall reliability is reduced because a ~~single~~ failure in the OPERABLE CRAVS train could result in loss of CRAVS 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

INSERT 6

~~B.1 and B.2~~

or the CRE boundary

In MODE 1, 2, 3, or 4, if the inoperable CRAVS train 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.

D D D

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

In MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS, if the inoperable CRAVS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CRAVS train in the emergency mode. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected. An alternative to Required Action ~~D~~.1 is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the ~~control room~~ CRE. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.

D

the accident

E E

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

In MODE 5 or 6, or during movement of irradiated fuel assemblies, or during CORE ALTERATIONS, with two CRAVS trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room. This places the

(or with one or more CRAVS trains inoperable due to an inoperable CRE boundary)

BASES

ACTIONS (Continued)

unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

F.1 an inoperable CRE boundary (i.e., Condition B),

If both CRAVS trains are inoperable in MODE 1, 2, 3, or 4 for reasons other than ~~Condition G~~, the CRAVS 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.

E.1 and E.2

Action E.1 allows one or more CRAVS heater inoperable, with the heater restored to OPERABLE status within 7 days. Alternatively, Action E.2 requires if the heater is not returned to OPERABLE within the 7 days, a report to be initiated per Specification 5.6.6, which details the reason for the heater's inoperability and the corrective action required to return the heater to OPERABLE status.

The heaters do not affect OPERABILITY of the CRAVS filter train because charcoal absorber efficiency testing is performed at 30°C and 90 % relative humidity. The accident analysis shows that control room radiation doses are within 10 CFR 100 limits during a DBA LOCA under these conditions.

G.1

If the control room boundary is inoperable in MODES 1, 2, 3, or 4 such that the CRAVS trains can not establish or maintain the required pressure, action must be taken to restore an OPERABLE control room boundary within 24 hours. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, the availability of the CRAVS to provide a filtered environment (albeit with potential control room inleakage), and compensatory measures available to the operator to minimize doses (e.g. self contained breathing apparatus and alternate control room air intakes).

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.9.1

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 month provides an adequate check of this system. Monthly heater operations dry out any moisture accumulated in the charcoal from humidity in the ambient air. Systems with heaters must be operated from the control room for ≥ 10 continuous hours with the heaters energized and flow through the HEPA filters and charcoal adsorbers. Inoperable heaters are addressed by Required Actions A.1 and A.2. The inoperability of heaters between required performances of this surveillance does not affect OPERABILITY of each CRAVS train. The 31 day Frequency is based on the reliability of the equipment and the two train redundancy ~~availability~~.

G

SR 3.7.9.2

This SR verifies that the required CRAVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CRAVS filter tests are in accordance with Regulatory Guide 1.52 (Ref. 4). The VFTP includes testing the performance of the HEPA filter, charcoal adsorber efficiency, minimum flow rate, and the physical properties of the activated charcoal. Specific test Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.9.3

This SR verifies that each CRAVS train starts and operates with flow through the HEPA filters and charcoal adsorbers on an actual or simulated actuation signal. The Frequency of 18 months is ~~specified in Regulatory Guide 1.52 (Ref. 4)~~ based on industry operating experience.

SR 3.7.9.4

INSERT 7

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 CRAVS. During the emergency mode of operation, the CRAVS is designed to pressurize the control room ≥ 0.125 inches water gauge positive pressure with respect to atmospheric pressure in order to prevent unfiltered inleakage. The CRAVS is designed to maintain this positive pressure with one train at a makeup flow rate of ≤ 2200 cfm. The Frequency of 18 months on a STAGGERED TEST BASIS is consistent with the guidance provided in NUREG-0800 (Ref. 5).

BASES

REFERENCES

1. UFSAR, Section 6.4.
2. UFSAR, Chapter 15.
3. ~~10 CFR 50.37, Technical Specifications, (c)(2)(ii).~~
4. ~~Regulatory Guide 1.52, Rev. 2.~~
5. ~~NUREG-0800, Section 6.4, Rev. 2, July 1981.~~

3. UFSAR, Section 9.5.
4. Regulatory Guide 1.52, Rev.2.
5. Regulatory Guide 1.196, Rev.1.
6. NEI 99-03, June 2001, "Control Room Habitability Assessment Guidance."
7. Letter from Eric Leeds (NRC) to James Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of GL 91-18 Process and Alternate Source Terms in the Context of Control Room Habitability."

REVISION TO TS BASES 3.7.9 IN ACCORDANCE WITH TSTF-448 R.3 CLIIP

INSERT 1: BACKGROUND

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

INSERT 2: APPLICABLE SAFETY ANALYSIS

The CRAVS 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. 1). 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 safe shutdown facility (Ref. 3).

INSERT 3: LCO

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 whole body or its equivalent to any part of the body to the CRE occupants in the event of a large radioactive release.

REVISION TO TS BASES 3.7.9 IN ACCORDANCE WITH TSTF-448 R.3 CLIIP

INSERT 4: LCO

In order for the CRAVS trains to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and that CRE occupants are protected from hazardous chemicals and smoke.

INSERT 5: LCO

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area.

For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the CRE. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated.

INSERT 6: ACTIONS B.1, B.2, and B.3

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

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are

REVISION TO TS BASES 3.7.9 IN ACCORDANCE WITH TSTF-448 R.3 CLIIP

INSERT 6 (Cont.)

protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

INSERT 7: SR 3.7.9.4

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

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. 5) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 7). Options for restoring the CRE boundary to OPERABLE status include changing the

REVISION TO TS BASES 3.7.9 IN ACCORDANCE WITH TSTF-448 R.3 CLIIP

INSERT 7 (Cont.)

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.