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Carolinas

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July 14, 2008

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC (Duke)
Catawba Nuclear Station, Units 1, and 2
Docket Nos. 50-413, 50-414
Technical Specifications Revision Request to Adopt
TSTF-448, Rev. 3 "Control Room Habitability Program"

In accordance with the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations, Duke Energy Carolinas, LLC is submitting a request for amendment to the Technical Specifications (TS) for Catawba Nuclear Station, Units 1 and 2. The proposed changes would revise T.S. Section 3.7.10, "Control Room Area Ventilation," its associated Bases, and T.S. Section 5.5 "Programs and Manuals." This LAR institutes the Control Room Habitability Program.

The changes are consistent with NRC approved Industry Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-448, Revision 3, "Control Room Habitability Program." The availability of this T.S. improvement was announced in the Federal Register on January 17, 2007 as part of the Consolidated Line Item Improvement Process (CLIIP).

Enclosure 1 provides a description and assessment of the proposed changes, as well as confirmation of applicability. Additional contents of the proposal package include the following:

Attachment 1: Proposed Technical Specification Changes (Mark-Up)
Attachment 2: Technical Specification Bases Changes (Mark-Up)

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Supporting changes will be made to the Technical Specification Bases in accordance with TS 5.5.14, "Technical Specifications (TS) Bases Control Program." The affected TS Bases markup is included in Attachment 2. These pages are being submitted for information only and do not require issuance by the NRC.

Duke Energy requests approval of the proposed license amendment within one calendar year of the submittal date. 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 Catawba Technical Specifications will impact the Catawba Updated Final Safety Analysis Report (UFSAR). As a result, it will be necessary to revise various sections of the Catawba UFSAR in accordance with 10 CFR 50.71(e).

This LAR has been reviewed and approved by the Catawba Nuclear Station Plant Operations Review Committee and Duke Energy Nuclear Safety Review Board.

In accordance with 10 CFR 50.91; a copy of this application with enclosures and attachments, is being provided to the designated South Carolina state official.

There are no new regulatory commitments contained in this LAR. Inquiries on this matter should be directed to Adrienne F. Driver at 803.701.3445.

Sincerely,

James R. Morris
Site Vice President, Catawba Nuclear Station

Enclosures:
1. Basis for Proposed Changes

Attachments:
1. Proposed Technical Specification Changes (Mark-up)
2. Technical Specification Bases Pages (Mark-up)

NOTARIZED AFFIDAVIT

Mr. James R. Morris affirms that he is the Site Vice President at the Catawba Nuclear Station of Duke Energy Carolinas, LLC, is authorized to execute this oath on behalf of Duke Energy Carolinas, LLC and is the person who subscribed his name to the foregoing statement that all the matters and facts set forth herein are true and correct to the best of his knowledge.

James R. Morris

Subscribed and sworn to me: July 14, 2008
Date

Notary Public

My Commission Expires: 01/31/2018
Date

SEAL

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Catawba Nuclear Station

Enclosure 1

Basis for Proposed Changes

Basis for Proposed Changes

1.0 DESCRIPTION

This is a request to amend Operating Licenses 50-413 and 50-414 for Catawba Nuclear Station Units 1 and 2, respectively. The proposed changes would revise the Bases section of Technical Specification 3.7.10, "Control Room Area Ventilation System (CRAVS)" along with T.S. section 3.7.10 and section 5.5, "Programs and Manuals."

Upon review of the changes proposed in TSTF-448, Revision 3, its supporting material(s), and the NRC Safety Evaluation Report, it has been determined and documented that the proposed changes are applicable to Catawba Nuclear Station.

The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry Technical Specification Task Force (TSTF) change traveler TSTF-448, Revision 3, "Control Room Habitability Program." The availability of this T.S. improvement was published in the Federal Register on January 17, 2007 as part of the Consolidated Line Item Improvement Process (CLIIP). As written in response to GL 2003-01, December 9, 2003, upon approval and availability of TSTF-448, Rev. 3 CNS requests the proposed changes within the LAR.

One additional administrative change has been incorporated within the proposed LAR, but is not associated with TSTF-448. On November 17, 2005, Catawba proposed to modify the Catawba T.S. on a one-time basis to allow the nuclear service water system headers for each unit to be taken out of service for up to 14 days each for system upgrades. These system upgrades are complete; therefore, this footnote is no longer applicable and is being deleted.

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 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

Basis for Proposed Changes

applicable to Catawba Nuclear Station, Units 1 and 2 and justify this amendment for the incorporation of the changes to the Catawba T.S.

2.2 Optional Changes and Variations

Duke is not proposing any variations or deviations from the T.S. 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 following section of the model SE, Evaluation 1 was determined to be most similar, with the exception of plant specific design differences discussed below for the applicable sections.

- *Model Safety Evaluation Section 2.3*

  At Catawba the current CRE pressurization requirements are as follows: "The CRAVS is designed to pressurize the control room ≥ 0.125 inches of water gauge relative to the adjacent areas with a makeup flow rate of ≤ 4000cfm."

- *Model Safety Evaluation Section 3.2*

  Regarding the typographical error "irradiate", this error does not exist in Catawba's T.S. 3.7.10.

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, Rev. 3, the determination of CRE unfiltered air inleakage as required by SR 3.7.10.4, in accordance with T.S. 5.5.16.c(i), the assessment of CRE habitability as required by T.S. 5.5.16.c.(ii), and the measurement of CRE pressure as required by T.S. 5.5.16.d, shall be met. Following implementation:

Basis for Proposed Changes

(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 November 12, 2002, the date of the most recent successful tracer gas test, as stated in the December 9, 2003 letter response to Generic Letter (GL) 2003-1, 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, T.S. 5.5.16.c (ii), shall be within 3 years, plus the 9 month allowance of SR 3.0.2 as measured from November 12, 2002, the date of the most recent successful tracer gas test, as stated in the December 9, 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, T.S. 5.5.16.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from September 1, 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

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

Basis for Proposed Changes

3.2 Commitments

There are no new regulatory commitments contained in this LAR.

4.0 ENVIRONMENTAL EVALUATION

Duke Energy has reviewed the environmental consideration included in the model SE published on January 17, 2007 as part of the CLIIP. Duke Energy has concluded that the staff's findings presented therein are applicable to Catawba Nuclear Station and the determination is hereby incorporated by reference for this application.

5.0 REFERENCES

1. Federal Register, Volume 72, No. 10 published on January 17, 2007

2. Technical Specification Task Force (TSTF) Improved Standard Technical Specification Change Traveler, TSTF-448, Revision 3, "Control Room Habitability Program"

3.7 PLANT SYSTEMS

3.7.10 Control Room Area Ventilation System (CRAVS)

LCO 3.7.10 Two CRAVS trains shall be OPERABLE*.

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

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRAVS train inoperable ~~in MODES 1,2,3,4,5, and 6.~~ for reasons other than Condition B.	A.1 Restore CRAVS train to OPERABLE status.	7 days*
B. ~~Two~~ One or more CRAVS trains inoperable due to inoperable ~~control room pressure~~ CRE boundary in MODES 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 ~~control room pressure~~ CRE boundary to OPERABLE status.	Immediately ~~24 hours~~ 24 Hours 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. AND C.2 Be in MODE 5.	6 hours 36 hours

(continued)

~~*For each CRAVS train, the Completion Time that one CRAVS train can be inoperable as specified by Required Action A.1 may be extended beyond the 168 hours up to 336 hours as part of the NSWS system upgrades. System upgrades include maintenance activities associated with cleaning of NSWS piping; weld coating, and necessary repairs and/or replacement. Upon completion of the system upgrades and system restoration, this footnote is no longer applicable and if not used, will expire at midnight on December 31, 2006.~~

FINAL

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6.	D.1 Place OPERABLE CRAVS train in operation.	Immediately
E. Two CRAVS trains inoperable in MODE 5 or 6, or one or more CRAVS trains inoperable during movement of irradiated fuel assemblies. 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.	E.1 Suspend movement of irradiated fuel assemblies.	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)

FINAL

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 3.7.10.1	Operate each CRAVS train for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.10.2	Perform required CRAVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.10.3	Verify each CRAVS train actuates on an actual or simulated actuation signal.	18 months
SR 3.7.10.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program. ~~Verify one CRAVS train can maintain a positive pressure of ≥ 0.125 inches water gauge, relative to the adjacent areas during the pressurization mode of operation at a makeup flow rate of ≤ 4000 cfm.~~	In accordance with the Control Room Envelope Habitability Program ~~18 months on a STAGGERED TEST BASIS~~

5.5 Programs and Manuals (continued)

5.5.15 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate actions may be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

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 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 Reglatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one train of the CRAVS, operating at a makeup flow rate of ≤ 4000cfm, at a Frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 18 month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

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.

Catawba Nuclear Station

Attachment 2

Technical Specification Bases Pages

(Mark-Up)

CRAVS
B 3.7.10

B 3.7 PLANT SYSTEMS

B 3.7.10 Control Room Area Ventilation System (CRAVS)

BASES

BACKGROUND

The CRAVS ensures that the Control Room Envelope (CRE) will remain habitable for ~~personnel~~ occupants during and following all credible accident conditions. This function is accomplished by pressurizing the ~~control room~~ CRE to $\geq$ 1/8 (0.125) inch water gauge with respect to all surrounding areas, filtering the outside air used for pressurization, and filtering a portion of the return air from the ~~control room~~ CRE to clean up the control room environment.

The CRAVS consists of two independent, redundant trains of equipment. Each train consists of:

- a pressurizing filter train fan (1CRA-PFTF-1 or 2CRA-PFTF-1)
- a filter unit (1CRA-PFT-1 or 2CRA-PFT-1) which includes moisture separator/prefilters, HEPA filters, and carbon adsorbers
- the associated ductwork, dampers/valves, ~~and~~ controls, doors, and barriers

Inherent in the CRAVS ability to pressurize the control room is the control room ~~pressure~~ envelope boundary. The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and may encompass the non-critical areas to which frequent personnel access or continuous occupany is not necessary in the event of an accident. The CRE is protected during the 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. ~~This pressure boundary includes: (1) the control room walls, floor, roof, doors, and all penetrations of those, (2) any piping or ductwork which penetrates into the control room, and (3) the control room ventilation~~

~~system proper consisting of ductwork, filter units, dampers, and fans.~~ These boundaries must be intact or properly isolated for the CRAVS to function properly.

The CRAVS can be operated either manually or automatically. Key operated selector switches located in the ~~control room~~ CRE initiate operation of all train related CRAVS equipment. The selected train is in continuous operation. Outside air for pressurization and makeup to the ~~control room~~ CRE is supplied from two independent intakes. This outside air is mixed with return air from the ~~control room~~ CRE before being passed through the filter unit. In the filter unit, moisture separator/prefilters remove any large particles in the air, and any entrained water droplets present. A HEPA filter bank upstream of the carbon adsorber filter bank functions to remove particulates and a second bank of HEPA filters follow the carbon adsorber to collect carbon fines. Only the upstream HEPA filters and carbon adsorber bank are credited in the analysis. A heater is included within each filter train to reduce the relative humidity of the airstream, although no credit is taken in the safety analysis. The heaters are not required for OPERABILITY since the carbon laboratory tests are performed at 95% relative humidity, but have been maintained in the

BACKGROUND (continued)

system to provide additional margin (Ref. 9). 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.

Upon receipt of an Engineered Safety Feature (ESF) signal, the selected CRAVS train continues to operate and the pressurizing filter train fan of the non-selected train is started. This assures control room pressurization, assuming an active failure of one of the pressurizing filter train fans.

The outside air for pressurization is continuously monitored for the presence of smoke, radiation, or chlorine by non-safety related detectors. If smoke, radiation, or chlorine is detected in an outside air intake, an alarm is received ~~in the control room~~ within the CRE, alerting the operators of this condition. The operator will take the required action to close the affected intake, if necessary, per the guidance of the Annunciator Response Procedures.

A single CRAVS train is capable of pressurizing the ~~control room~~ CRE to greater than or equal to 0.125 inches water gauge. The CRAVS is designed in accordance with Seismic Category 1 requirements. The CRAVS operation in maintaining the ~~control room~~ CRE habitable is discussed in the UFSAR, Sections 6.4 and 9.4.1 (Refs. 1 and 2).

BASES

The CRAVS 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 CRAVS components are arranged in redundant, safety related ventilation trains. The CRAVS provides airborne radiological protection for the ~~control room operators~~CRE occupants, as demonstrated by the ~~control room accident dose~~ CRE occupant dose analyses for the most limiting design basis loss of coolant accident, fission product release presented in the UFSAR, Chapter 15 (Ref. 3).

~~The analysis of toxic gas releases demonstrates that the toxicity limits are not exceeded in the control room following a toxic chemical release, as presented in Reference 1.~~

The CRAVS provides protection from smoke and hazardous chemicals to 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 remote shutdown panels (Ref. 9).

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.

APPLICABLE SAFETY ANALYSES (continued)

The CRAVS satisfies Criterion 3 of 10 CFR 50.36 (Ref. 4).

LCO

Two independent and redundant CRAVS trains are required to be OPERABLE to ensure that at least one is available assuming 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 to the ~~control room~~ CRE occupants in the event of a large radioactive release.

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

a. Pressurizing filter train fan is OPERABLE;

b. HEPA filters and carbon 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 pressure boundary must be maintained, including the integrity of the walls, floors, roof, ductwork, and access doors.~~

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 the CRE occupants are protected from hazardous chemicals and smoke.

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.

The LCO is modified by a Note allowing the ~~control room pressure~~ CRE boundary to be opened intermittently under administrative controls. This Note only applies to opening 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 ~~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 pressure~~ CRE ~~boundary~~ isolation is indicated.

BASES

APPLICABILITY

In MODES 1, 2, 3, 4, 5, and 6 the CRAVS must be OPERABLE to ensure that the CRE will remain habitable ~~control operator exposure~~ during and following a DBA.

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

ACTIONS

A.1

When one CRAVS train is inoperable ~~in MODES 1,2,3,4,5,or 6~~ 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 CRAVS train is adequate to perform the CRE ~~control room~~ 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

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 form hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement

protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

~~If the control room pressure boundary is inoperable in MODES 1, 2, 3, or 4 such that the CRAVS trains cannot establish or maintain the required pressure, action must be taken to restore an OPERABLE control room pressure boundary within 24 hours. During the period that the control room pressure boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. 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 pressure boundary.~~

C.1 and C.2

In MODE 1, 2, 3, or 4, if the inoperable CRAVS or ~~control room pressure~~ CRE boundary 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.

ACTIONS (continued)

D.1

In MODE 5 or 6, 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 operation. This action ensures that the operating (or running) train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected.

E.1

In MODE 5 or 6, with two CRAVS trains inoperable, or during movement of irradiated fuel assemblies with one or more CRAVS trains inoperable due to an 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.

F.1

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

G.1 and G.2

With one or more CRAVS heaters inoperable, the heater must be restored to OPERABLE status within 7 days. Alternatively, a report must 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 trains because carbon adsorber efficiency testing is performed at 30°C and 95% relative humidity. The accident analysis shows that site boundary and control room operator radiation doses are within 10 CFR 50.67 limits during a DBA LOCA under these conditions.

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 month provides an adequate check of this system. Monthly heater operations dry out any moisture accumulated in the carbon 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 carbon adsorbers. The 31 day Frequency is based on the reliability of the equipment and the two train redundancy ~~availability~~.

SR 3.7.10.2

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). The VFTP includes testing the performance of the HEPA filter and carbon adsorber efficiencies and the physical properties of the activated carbon. Specific test Frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.10.3

This SR verifies that each CRAVS train starts and operates on an actual or simulated actuation signal. The Frequency of 18 months is based on industry operating experience and is consistent with the typical refueling cycle. ~~The Frequency of 18 months is specified in Regulatory Guide 1.52 (Ref. 5).~~

SR 3.7.10.4

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 TEDE 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.9) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref.7). 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. 8). 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.

~~This SR verifies the integrity of the control room enclosure, and the assumed inleakage rate (or makeup rate) assumed in the dose analysis. The control room positive pressure, with respect to potentially contaminated adjacent areas, is periodically tested to verify proper functioning of the CRAVS. The CRAVS is designed to pressurize the control room $\geq$ 0.125 inches water gauge positive pressure with respect to adjacent areas in order to prevent unfiltered inleakage. The CRAVS is designed to maintain this positive pressure with one train at a makeup flow rate of $\leq$ 4000 cfm. The Frequency of 18 months on a STAGGERED TEST BASIS is consistent with the guidance provided in NUREG-0800 (Ref. 6).~~

REFERENCES

1. UFSAR, Section 6.4.
2. UFSAR, Section 9.4.1
3. UFSAR, Chapter 15.
4. 10 CFR 50.36, Technical Specifications, (c)(2)(ii).
5. Regulatory Guide 1.52, Rev. 2.
6. atawba Nuclear Station License Amendments 90/84 for Units 1/2, August 23, 1991.
7. NEI 99-03, "Control Room Habitability Assessment," June 2001.
8. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).
9. Regulatory Guide 1.196, Rev. 1