



JAMES R. MORRIS, VICE PRESIDENT

Duke Energy Carolinas, LLC  
Catawba Nuclear Station  
4800 Concord Road / CN01VP  
York, SC 29745

803-701-4251  
803-701-3221 fax

September 3, 2009

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 and 50-414

"Request to Amend Technical Specification (TS) 3.7.10: Control Room Area Ventilation System"

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 changes to Catawba Nuclear Station (CNS), Units 1 and 2 Facility Operating Licenses, NPF-35 and NPF-52. The proposed changes would revise the Technical Specification (TS) Section 3.7.10, "Control Room Area Ventilation System (CRAVS)," to allow movement of irradiated fuel with only one CRAVS train OPERABLE. The requested amendment would revise CNS TS 3.7.10 to be consistent with the NRC approved Standard Technical Specifications (STS).

Enclosure 1 provides a description and assessment of the proposed changes.

Additional contents of the proposal include the following:

- Attachment 1: CNS TS Changes (Mark-Up)
- Attachment 2: CNS TS Bases Changes (Mark Up)

Supporting changes will be made to the TS Bases in accordance with TS 5.5.14, "Technical Specifications Bases Control Program." The affected TS Bases mark up is included in Attachment 2. These pages are being submitted for information only.

Duke Energy requests approval of the proposed license amendment within one calendar year of the License Amendment Request (LAR) submittal date. Duke Energy is requesting a standard 30-day implementation grace period for this license amendment.

U.S. Nuclear Regulatory Commission  
September 3, 2009  
Page 2


Implementation of this proposed amendment to the CNS TS will not impact the CNS Updated Final Safety Analysis Report (UFSAR).

This LAR has been reviewed and approved by the CNS Plant Operations Review Committee, and the Duke Energy Corporate Nuclear Safety Review Board.

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

There are no new regulatory commitments contained in this submittal. Inquiries regarding this submittal should be directed to Adrienne F. Driver, Catawba Regulatory Compliance at 803-701-3445.

Sincerely,

A handwritten signature in cursive script that reads "James R. Morris". The signature is written in black ink and includes a long horizontal flourish at the end.

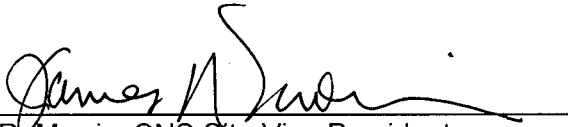
James R. Morris  
Site Vice President, Catawba Nuclear Station

Enclosure with Attachments

U.S. Nuclear Regulatory Commission  
September 3, 2009


Page 3

Mr. James R. Morris 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.



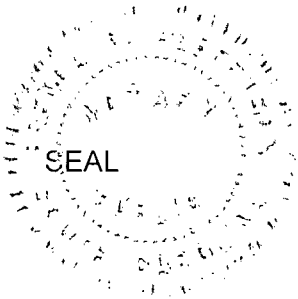
James R. Morris, CNS Site Vice President

Subscribed and sworn to me: Sept. 3, 2009  
Date



Brenda C. Albertson  
Notary Public

My Commission Expires: Notary Public, South Carolina, State at Large  
My Commission Expires March 6, 2018  
Date



U.S. Nuclear Regulatory Commission  
September 3, 2009  
Page 4

xc w/Enclosures and Attachments:

U.S. Nuclear Regulatory Commission  
Mr. Luis A. Reyes, NRC Region II Administrator  
U.S. Nuclear Regulatory Commission - Region II  
Atlanta Federal Center  
61 Forsyth St., SW, Suite 23T85  
Atlanta, Georgia 30303

Mr. Jon Thompson, NRC Project Manager  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Mail Stop O-8 G9A  
Washington, D.C. 20555

Mr. A. Hutto, NRC Senior Resident Inspector  
U.S. Nuclear Regulatory Commission  
Catawba Nuclear Station

State of South Carolina Official  
S.E. Jenkins, Section Manager  
Division of Waste Management  
S.C. Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

U.S. Nuclear Regulatory Commission  
September 3, 2009

Page 5

bxw/Enclosures and Attachments:

Lisa F. Vaughn  
A. Driver, CNS RGC  
R.D. Hart, CNS RGC Manager  
Geoff G. Pihl, NGO/REN  
K.L. Ashe (MG01RC)  
Robert Meixell (ON03RC)  
NCMPA-1, CNS Owner  
NCEMC, CNS Owner  
PMPA, CNS Owner  
R.L. Gill, NRI&IA Manager (EC05P)  
ELL-EC050  
RGC Date File  
Document Control File 801.01

Duke  
Energy

2009

---

The proposed change would revise Technical Specification (TS) 3.7.10, "Control Room Area Ventilation System (CRAVS)" along with the corresponding Bases section of TS 3.7.10. This amendment requests that only one train of CRAVS be required OPERABLE during movement of irradiated fuel assemblies.

Catawba  
Nuclear  
Station,  
Regulatory  
Compliance

## Basis for Proposed Changes

### 1.0 DESCRIPTION

This is a request to amend Operating License NPF-35 and NPF-52 for Catawba Nuclear Station Units 1 and 2. The proposed changes would revise Technical Specification (TS) 3.7.10, "Control Room Area Ventilation System (CRAVS)" along with the corresponding Bases section of TS 3.7.10. This amendment requests that only one train of CRAVS be required OPERABLE during movement of irradiated fuel assemblies. The proposed changes to TS 3.7.10 would conform to the Industry Standard Technical Specification (STS) and achieve a higher degree of standardization and consistency with Duke's other nuclear sites and the industry (Reference 1).

### 2.0 PROPOSED CHANGES

The following changes are proposed:

TS 3.7.10 Control Room Area Ventilation System (CRAVS)

- Condition D is revised by adding "or during movement of irradiated fuel assemblies" to the end of the Condition D.
- The required action of Condition D is revised by adding "OR" after Required Action D.1 and adding a new Required Action D.2 which states "Suspend movement of irradiated fuel assemblies."
- Condition E is revised from "Two CRAVS trains inoperable in MODE 5 or 6, or one or more CRAVS trains inoperable during movement of irradiated fuel assemblies" to "Two CRAVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies."

### 3.0 BACKGROUND

On April 23, 2002 the Nuclear Regulatory Commission amended the Facility Operating Licenses at CNS for partial scope implementation of the alternative source term (AST) (Reference 4). As part of the license amendment for partial scope implementation of AST, TS 3.7.10 was revised to require suspension of movement of irradiated fuel should one train of CRAVS become inoperable. As stated in the submittal dated March 26, 2002, the allowed outage time for Condition A of TS 3.7.10 of the STS "appears to be inappropriate for the case of movement of irradiated fuel assemblies (Reference 2)." After further assessment, the LCO conditions, required actions and completion times of TS 3.7.10 of the STS are appropriate.

The current requirement of TS 3.7.10 to suspend movement of irradiated fuel should one train of CRAVS become inoperable as implemented with AST approval is more restrictive than TS 3.7.10 of the STS (Reference 1). The additional conservatism of TS 3.7.10 that was implemented with the AST submittal has resulted in unnecessary constraints on plant operation. The changes being proposed within this license amendment request would revise TS 3.7.10 to be consistent with the STS and improve operational flexibility while still ensuring sufficient protection of the health and safety of the public.

## Basis for Proposed Changes

### 4.0 TECHNICAL EVALUTION

#### 4.1 SYSTEM DESCRIPTION

Control Room Area Ventilation System (CRAVS) and the Control Room Area Chill Water System (CRAWS) are shared systems at CNS. These two systems provide the normal and emergency ventilation requirements to the Control Room and Control Room Area. The Control Room is maintained at a positive pressure with respect to all adjacent areas. Outside air for pressurization and a portion of the return air from the Control Room pass through a carbon filter train to limit operator radiation exposure during all plant modes. The CRAVS is required to be OPERABLE during all plant modes and during movement of irradiated fuel assemblies.

#### 4.2 JUSTIFICATION

As part of the issued license amendment for partial scope implementation of AST, TS 3.7.10 was revised to require during movement of irradiated fuel assemblies two CRAVS trains be required OPERABLE. In the submittal dated March 26, 2002, Attachment 3 Duke Energy states

*"For Condition A of this LCO, one CRAVS train inoperable, the required action is to restore the CRAVS train to operable status with a Completion Time of seven days. This Allowed Outage Time appears to be inappropriate for the case of movement of irradiated fuel assemblies. During the refueling outages, reactor core unloading and reloading typically require two to three days each. The current TS LCO would permit one train of CRAVS to be inoperable during these fuel handling operations. Consequently, changes to the Conditions and Required Actions associated with this LCO are being proposed."*

Upon further review of plant operation and system design, it has been concluded that the requirement for both CRAVS trains to be OPERABLE during movement of irradiated fuel assemblies is not necessary. Requiring two CRAVS trains OPERABLE added unnecessary conservatism and more restrictive operational practices with respect to movement of irradiated fuel during refueling outages and dry cask storage. In addition, the credited single failure of one CRAVS train is acceptable and meets the requirements for GDC 22. There are no fuel types, operational practices, or unique design features that should require Catawba to have more restrictive TS for the Control Room Ventilation System than the industry standard. This amendment requests that during movement of irradiated fuel assemblies, only one train of CRAVS be required OPERABLE and in operation.

Current standard operational practices require one filter train in operation during movement of irradiated fuel assemblies. If the online filter train fails to run, the redundant filter train is available. Equipment such as the CRAVS that is credited with post accident functions is Class 1E and capable of performing these functions with a single active failure.

Currently Condition D of TS 3.7.10 requires both CRAVS trains OPERABLE during movement of irradiated fuel assemblies. This License Amendment Request (LAR) proposes changing Condition D to add the statement "or during movement of irradiated fuel assemblies" to the end of Condition D. This change is coupled with an additional change to Condition D to add an "OR" after Required Action D.1 and a new Required Action D.2 which states "Suspend movement of irradiated fuel assemblies." As a result, the requirement to suspend movement of irradiated fuel if one CRAVS train is inoperable will be removed from Condition E. The proposed revision of



## Basis for Proposed Changes

Condition D provides an option in TS 3.7.10 to immediately place the operable CRAVS train in operation or suspend movement of irradiated fuel should the other CRAVS train be inoperable. This proposed revision will change Condition D to be consistent with the STS.

Condition E is revised to state "Two CRAVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies." This change will effectively move the Required Action of suspending fuel movement from Condition E to Condition D.

### 4.3 TECHNICAL EVALUATION CONCLUSION

Movement of irradiated fuel assemblies with one train of CRAVS OPERABLE does not invalidate nor change the current analysis of radiological consequences for the fuel handling accident (Reference 2, 3, and 4). In review of the single failure criteria for the postulated fuel handling accident, industry plant operation, site system design and current radiological analysis, the proposed changes to TS 3.7.10 continue to ensure the protection of the health and safety of the public.

It has been determined for Condition D of TS 3.7.10 for the allowed outage time associated with movement of irradiated fuel assemblies, the STS LCO, the Required Action and Completion Times are appropriate and applicable to CNS.

### 5.0 REGULATORY ANALYSIS

#### 5.1 APPLICABLE REGULATORY REQUIREMENTS

10 CFR 50, Appendix A, Criterion 16 "Containment Design," in part states that Reactor containment and associated systems shall be provided to establish an essential leak-tight barrier against the uncontrolled release of radioactivity to the environment, and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

10 CFR 50, Appendix A, Criterion 19, "Control Room," in part states that a control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents.

10 CFR 50, Appendix A, Criterion 22," in part states that the protection system shall be designed to assure that the effects of natural phenomena, and of normal operating, maintenance, testing and postulated accident conditions on redundant channels do not result in loss of protection function, or shall be demonstrated to be acceptable on some other defined basis.

10 CFR 50, Appendix A, Criterion 41, "Containment Atmosphere Cleanup," in part states that... "Systems to control fission products, hydrogen, oxygen, and other substances which may be released into the reactor containment shall be provided as necessary to reduce, consistent with the functioning of other associated systems, the concentration and quality of fission products released to the environment following postulated accidents, and to control the concentration of hydrogen or oxygen and other substances in the containment atmosphere following postulated accidents to assure that containment integrity is maintained."

In review of the GDCs the proposed amendment to TS 3.7.10 does not impact the conformance to the above applicable design criteria.

## Basis for Proposed Changes

### 5.2 SIGNIFICANT HAZARDS CONSIDERATION

#### **Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?**

The proposed changes do not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, or configurations of the facility. The proposed changes do not alter or prevent the ability of structure, systems and components (SSCS) to perform their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. This is a revision to the TS for the control room ventilation system which is a mitigation system designed to minimize unfiltered air leakage into the control room and to filter the Control Room atmosphere to protect occupants following an accident previously analyzed. The Control Room ventilation system is not an initiator or precursor to any accident previously evaluated. Therefore, the probability or consequences of any accident previously evaluated are not increased.

#### **Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?**

This revision will not impact the accident analysis. The change will not alter the requirements of the Control Room ventilation system or its function during accident conditions. No new or different accidents result from the changes proposed. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or significant changes in methods governing normal plant operation. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analyses assumptions. Therefore, it is concluded that these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

#### **Does the proposed change involve a significant reduction in margin of safety?**

The proposed changes do not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operations are determined. The safety analysis acceptance criteria are not affected by these changes. The proposed changes will not result in plant operation in a configuration outside the design basis for an acceptable period of time without compensatory measures. The proposed changes do not adversely affect systems that respond to safely shutdown the plant and to maintain the plant in a safe shutdown condition. It is therefore concluded that the proposed changes do not involve a significant reduction in the margin of safety.

### 5.3 REGULATORY ANALYSIS CONCLUSION

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

## Basis for Proposed Changes

### 6.0 ENVIRONMENTAL EVALUATION

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c) (9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## Basis for Proposed Changes

### 7.0 REFERENCES

1. U.S. Nuclear Regulatory Commission, NUREG-1431, "Standard Technical Specifications Westinghouse Plants," Volumes 1 and 3, Revision 3, March 2004.
2. Gary R. Peterson (CNS) to U.S. Nuclear Regulatory Commission, "Duke Energy Corporation, Catawba Nuclear Station Units 1 and 2, Docket Numbers 50-416 and 50-414, Proposed Amendment to Technical Specifications (TS) 3.7.10, Control Room Area Ventilation System, TS 3.7.11, Control Room Area Chilled Water System, TS 3.7.13, Fuel Handling Ventilation Exhaust System, and TS 3.9.3, Containment Penetrations," December 20, 2001.
3. Gary R. Peterson (CNS) to U.S. Nuclear Regulatory Commission, "Duke Energy Corporation, Catawba Nuclear Station Units 1 and 2, Docket Numbers 50-416 and 50-414, Proposed Amendment to Technical Specifications (TS) 3.7.10, Control Room Area Ventilation System, TS 3.7.11, Control Room Area Chilled Water System, TS 3.7.13, Fuel Handling Ventilation Exhaust System, and TS 3.9.3, Containment Penetrations," March 26, 2002.
4. Chandu P. Patel (U.S. Nuclear Regulatory Commission) to G.R. Peterson (CNS), "Catawba Nuclear Station, Units 1 and 2 Re: Issuance of Amendments (TAC Nos. MB3758 and MB3759)," April 23, 2002.

Attachment 1:  
Technical Specification (Mark Up)

Attachment 2:

Technical Specification Bases (Mark Up)

REQUIRED ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.</p>	<p>C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.</p>	<p>6 hours  36 hours</p>
<p>D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6- <u>or during movement of irradiated fuel assemblies.</u></p>	<p>D.1 Place OPERABLE CRAVS train in operation. <u>OR</u> D.2 <u>Suspend movement of irradiated fuel assemblies.</u></p>	<p>Immediately</p>
<p>E. Two CRAVS trains inoperable in MODE 5 or 6, or <del>one or more</del> CRAVS trains inoperable during movement of irradiated fuel assemblies.  <u>OR</u>  One or more CRAVS trains inoperable due to an inoperable CRE boundary in MODE 5 or 6, or during movement of irradiated fuel assemblies.</p>	<p>E.1 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
<p>F. Two CRAVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.</p>	<p>F.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

(continued)

BASES

---

## 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, or during movement of irradiated fuel assemblies, 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.

---

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

E.1

In MODE 5 or 6, or during movement of irradiated fuel assemblies, 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 require isolation of the 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%