

February 7, 2005

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Subject: Duke Energy Corporation  
Catawba Nuclear Station, Unit 2  
Docket Number 50-414  
Supplemental Response to the Proposed Temporary  
Change to Technical Specification (TS) 5.5.11  
Ventilation Filter Testing Program (VFTP)

Pursuant to 10 CFR 50.4, 10 CFR 50.90, and 10 CFR 50.91(a)(5), and by means of a letter submitted on February 5, 2005, Duke Energy has submitted to the NRC a proposed emergency Technical Specification (TS) Amendment for Catawba Nuclear Station Unit 2. The proposed emergency TS change would temporarily revise the acceptance criteria for system bypass leakage for the charcoal adsorber for the 2B Auxiliary Building Filtered Ventilation Exhaust System (ABFVES) train as required in TS 5.5.11, "Ventilation Filter Testing Program" (VFTP).

This proposed emergency TS amendment was discussed on February 7, 2005 during a telephone conference call between NRC officials and Duke Representatives. Based on the discussions that took place during this conference call, Duke is hereby submitting revised pages in Attachment 3. The revisions in this supplement do not change the conclusions reached in the original No Significant Hazards Consideration Determination. The revised pages for Attachment 3 supercede the previous pages of Attachment 3 submitted in our February 5, 2005 letter.

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The Description, Proposed Change, Background, the No Significant Hazard Consideration Determination, Environmental Evaluation, and the other changes as originally contained in the February 5, 2005 submittal are not impacted by this supplement.

Pursuant to 10CFR50.91, a copy of this proposed amendment is being sent to the appropriate State of South Carolina official.

Inquiries on this matter should be directed to R. D. Hart at (803) 831-3622.

Very truly yours,



Henry B. Barron  
Group Vice President  
Chief Nuclear Officer

RDH/s

Attachment

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Henry B. Barron 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.

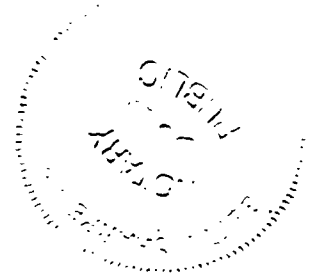
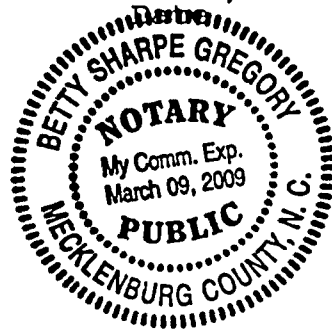
*Henry B Barron*

Henry B. Barron, Group Vice President/Chief Nuclear Officer

Subscribed and sworn to me: February 7, 2005  
Date

*Betty Sharpe Gregory*  
Notary Public

My commission expires: March 9, 2009



SEAL

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xc (with attachment):

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**ATTACHMENT**

The analysis of radiological consequences of the design basis rod ejection accident at Unit 2 accounts for ESF leakage. In this analysis, credit is taken for the ABFVES with the ABFVES filter efficiencies set to 95% for removal of elemental iodine and 80% for organic iodine compounds. The current criterion for the Unit 2 ABFVES penetration and bypass test is 0.05%. Therefore, the above assumptions in the calculation of radiation doses for the Unit 2 design basis rod ejection accident are consistent with the analysis presented in the NRC Safety Evaluation for Facility Operating License Amendment 90/84 (Ref. 5). The rate of ESF leakage was set to 1 gpm.

As seen above, it is assumed in the calculation of radiation doses for the design basis rod ejection accident at Unit 2 that 5% of the elemental iodine in the airflow to the ABFVES filters either penetrates or bypasses the filters. This analysis was reviewed to determine the effect of the proposed increase in the limit for the system penetration and bypass of the Unit 2 ABFVES filters to 0.2%, yielding a relative increase of  $0.2/5$  or 4% in the fraction of elemental iodine assumed to either penetrate or bypass the Unit 2 ABFVES filters. (The current system penetration and bypass criterion of 0.05% is subsumed into the corresponding baseline values assumed in the dose analysis.) This relative increase was also applied to the fraction of organic iodine assumed to penetrate or bypass the Unit 2 ABFVES. Since the baseline value for the organic iodine penetration and bypass fraction is 20%, this assumption is conservative. The change was applied to the constituents of the thyroid radiation doses associated with both ESF and containment leakage following the design basis rod ejection accident at Unit 2. This is conservative since the ABFVES filter efficiencies apply only to post accident ESF leakage. Finally, the relative increase was applied to the constituents of Low Population Zone (denoted as the LPZ) and control room thyroid radiation doses associated with post accident containment release. It was not applied to the corresponding constituent of the Exclusion Area Boundary thyroid radiation dose because the integrated flow from the Emergency Core Cooling System (ECCS) is such that the transfer to cold leg recirculation would not begin before two hours after the initiating event. Thus, not applying the relative increase in the ABFVES penetration and bypass fraction is acceptable.

The baseline values for radiation doses following a design basis rod ejection accident at Unit 2 are 19.3 Rem for the LPZ thyroid radiation doses and 8.7 Rem for the control room thyroid radiation doses. The increases to the LPZ thyroid radiation dose (0.6 Rem) and control room thyroid radiation dose (less than 0.3 Rem) were found to very small compared to the baseline values. The baseline value for the EAB thyroid radiation dose is 30.7 Rem

and is not affected as noted above. The current baseline values are less than the criterion of Standard Review Plan Section 15.4.8.A (offsite thyroid radiation dose within 75 Rem) and 6.4.II (control room thyroid radiation dose within 30 Rem) with significant margin (Ref. 2). Thus, implementation of the proposed amendment will have only a negligible effect on radiation doses of this design basis accident.

The NRC Staff has presented a correlation for determining the safety factor associated with the absorption of organic iodine compounds. The corresponding safety factor for the Unit 2 ABFVES with the proposed amendment is 4.76. This exceeds the lower bound safety factor of 2 endorsed by the NRC Staff for those plants who test their ESF grade carbon bed absorbers in conformance with Generic Letter 99-02. (Ref. 6, cf. Ref. 7).

The analysis of radiological consequences of the design basis rod ejection accident incorporates an additional conservatism that can be used to justify the proposed amendment. Catawba has in place a program to minimize ESF leakage in conformance to TS 5.5.3 (Ref. 1). The criterion for ESF leak rate is 40% less than the ESF leak rate of 1 gpm assumed for the design basis rod ejection accident. The difference more than offsets the effect of the proposed increase in the criterion for system penetration and bypass of the ABFVES filters.

It follows from the above evaluation that the radiological consequences of the design basis LOCA and rod ejection accidents as currently analyzed remain bounding with the proposed amendment. The effects of the proposed amendment on radiological consequences of the design basis accidents at Catawba are negligible.

### Summary

The requested temporary change to the acceptance criterion for penetration and bypass leakage for carbon adsorber in TS 5.5.11.b for the 2B ABFVES train is reasonable considering the redundant capabilities of the system and the radiological consequences evaluated above. Therefore, the requested temporary change to TS 5.5.11.b is acceptable.

## 5.0 Regulatory Evaluation:

### No Significant Hazards Consideration Determination

The following discussion is a summary of the evaluation of the changes contained in this proposed amendment against the 10 CFR 50.92(c) requirements to demonstrate that all three standards are satisfied. A no significant hazards consideration is indicated if operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated, or
2. Create the possibility of a new or different kind of accident from any accident previously evaluated, or
3. Involve a significant reduction in a margin of safety.

### First Standard

*Does operation of the facility in accordance with the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated? No.*

This license amendment request proposes an amendment to the VFTP TS requirements for the 2B ABFVES train. The ABFVES is in operation during normal plant operations. However, the ABFVES is not used in direct support of any phase of power generation or conversion or transmission, shutdown cooling, fuel handling operations, or processing of radioactive fluids. Therefore, it is not an accident initiator. No accident initiators are associated with the change proposed in this license amendment request. For these reasons, operation of the facility in accordance with this proposed amendment does not involve a significant increase in the probability of any accident previously evaluated.

The changes proposed to the VFTP TS for the 2B ABFVES train will not result in a significant increase in any accident consequences. The change to the penetration value for the charcoal adsorber for the 2B ABFVES train is acceptable because the appropriate safety factors as delineated in the applicable regulatory guideline documents are still maintained. Therefore, the proposed amendment is determined to not result in a significant increase in accident consequences.



Operation of the facility in accordance with the proposed amendment does not involve a significant increase in the consequences of an accident previously evaluated.

### Second Standard

*Does operation of the facility in accordance with the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated? No.*

This proposed amendment does not involve addition, removal, or modification of any plant system, structure, or component. This change will not affect the operation of any plant system, structure, or components as directed in plant procedures. Operation of the facility in accordance with this amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

### Third Standard

*Does operation of the facility in accordance with the proposed amendment involve a significant reduction in the margin of safety? No.*

Margin of safety is related to confidence in the ability of fission product barriers to perform their design functions following any of their design basis accidents. These barriers include the fuel cladding, the Reactor Coolant System, and the containment. The performance of these barriers either during normal plant operations or following an accident will not be affected by the changes associated with the license amendment request.

The operation of the ABFVES either during normal plant operations or following an accident will not be affected by implementation of the amendment to its TS.

As described in section 4.0 of Attachment 3, an evaluation of radiological consequences of the design basis LOCA and rod ejection accident at Catawba Nuclear Station has been performed in support of this license amendment request. The input assumptions in the current analyses of record bound this proposed change and the radiological consequences are within the regulatory guideline values with significant margin.

The change proposed to the VFTP TS for the 2B ABFVES train will not result in a significant reduction in the margin of safety. This change is supported by regulatory guidance documents, and is

consistent with existing system operation. Operation of the facility in accordance with the proposed amendment does not involve a significant reduction in the margin of safety.

Based upon the preceding discussion, Duke has concluded that the proposed amendment does not involve a significant hazards consideration.

#### **6.0 Environmental Evaluation:**

Pursuant to 10 CFR 51.22(b), an evaluation of this license amendment request has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) of the regulations.

Implementation of this amendment will have no adverse impact upon the Catawba units; neither will it contribute to any additional quantity or type of effluent being available for adverse environmental impact or personnel exposure.

It has been determined there is:

1. No significant hazards consideration,
2. No significant change in the types, or significant increase in the amounts, of any effluents that may be released offsite, and
3. No significant increase in individual or cumulative occupational radiation exposures involved.

Therefore, this amendment to the Catawba TS meets the criteria of 10 CFR 51.22(c)(9) for categorical exclusion from an environmental impact statement.

## 7.0 REFERENCES

- 1) Catawba Nuclear Station Technical Specifications, with Amendments Through 218/212.
- 2) H.B. Barron to U.S. Nuclear Regulatory Commission, "Duke Energy Corporation Catawba Nuclear Station Units 1 & 2, Dockets Nos. 50-413, 50-414 Proposed Amendments to the Facility Operating License and Technical Specifications to Allow Insertion of Mixed Oxide (MOX) Lead Fuel Assemblies (Revised Dose Calculations)," September 20, 2004.
- 3) W.R. McCollum to U.S. Nuclear Regulatory Commission, "Duke Energy Corporation Catawba Nuclear Station Units 1 & 2, Dockets Nos. 50-413, 50-414 Proposed Amendments to the Facility Operating License and Technical Specifications to Allow Insertion of Mixed Oxide (MOX) Lead Fuel Assemblies (Response to Request for Additional Information on Revised Dose Calculations)," October 29, 2004.
- 4) H.B. Barron to U.S. Nuclear Regulatory Commission, "Duke Energy Corporation Catawba Nuclear Station Units 1 & 2, Dockets Nos. 50-413, 50-414 Proposed Amendments to the Facility Operating License and Technical Specifications to Allow Insertion of Mixed Oxide (MOX) Lead Fuel Assemblies (Additional Information on Revised Dose Calculations)," December 10, 2004.
- 5) R.E. Martin (USNRC) to M.S. Tuckman, "Issuance of Amendment No. 90 to Facility Operating License NPF-35 and Amendment No. 84 to Facility Operating License NPF-52 - Catawba Nuclear Station, Units 1 and 2 (TAC 80122/ 80123)," August 23, 1991.
- 6) NRC Generic Letter 99-02: Laboratory Testing of Nuclear-Grade Activated Charcoal.
- 7) G.R. Peterson to U.S. Nuclear Regulatory Commission, "Duke Energy Corporation Catawba Nuclear Station, Units 1 and 2 (Docket Nos. 50-413 and 50-414, Proposed Technical Specifications and Bases Amendment, Technical Specification and Bases 3.6.10 Annulus Ventilation System (AVS), Technical Specification and Bases 3.6.16 Reactor Building, Technical Specification and Bases 3.7.10 Control Room Area Ventilation System (CRAVS), Technical Specification and Bases 3.7.12 Auxiliary Building Filtered Ventilation Exhaust System (ABFVES), Technical Specification and Bases 3.7.13 Fuel Handling Ventilation Exhaust System (FHVES), Technical

Specification and Bases 3.9.3 Containment Penetrations,  
Technical Specification 5.5.11 Ventilation System Testing  
Program," November 25, 2002.

- 8) M.S. Tuckman to USNRC, "Catawba Nuclear Station Units 1 & 2  
Docket Nos. 50-413, 414 McGuire Nuclear Station Units 1 & 2  
Docket Nos. 50-369, 370 Oconee Nuclear Station Units 1, 2, &  
3 Docket Nos. 50-269, 270, and 287 Response to Generic Letter  
99-02: Laboratory Testing of Nuclear-Grade Activated  
Charcoal," November 30, 1999.