

June 10, 2005

Mr. D. M. Jamil  
Vice President  
Catawba Nuclear Station  
Duke Energy Corporation  
4800 Concord Road  
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 RE: ISSUANCE OF  
AMENDMENTS (TAC NOS. MC3630 AND MC3631)

Dear Mr. Jamil:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 225 to Renewed Facility Operating License NPF-35 and Amendment No. 220 to Renewed Facility Operating License NPF-52 for the Catawba Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application dated June 10, 2004, as supplemented by letter dated January 31, 2005.

The amendments extend the interval between local leakage rate tests of the containment purge and vent valves with resilient seals (that is, in the containment purge system, hydrogen purge system, and containment air release and addition system).

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

*/RA/*

Sean E. Peters, Project Manager, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:

1. Amendment No. 225 to NPF-35
2. Amendment No. 220 to NPF-52
3. Safety Evaluation

cc w/encls: See next page

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Package No.: ML051730234

Amendment No.: ML051590203

\*No Significant Changes to SE

Tech Spec No.: ML051670551

NRR-058

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SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 RE: ISSUANCE OF  
AMENDMENTS (TAC NOS. MC3630 AND MC3631)

Date: June 10, 2005

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DUKE ENERGY CORPORATION  
NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION  
SALUDA RIVER ELECTRIC COOPERATIVE, INC.  
DOCKET NO. 50-413  
CATAWBA NUCLEAR STATION, UNIT 1  
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 225  
Renewed License No. NPF-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Catawba Nuclear Station, Unit 1 (the facility) Renewed Facility Operating License No. NPF-35 filed by the Duke Energy Corporation, acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc. (licensees), dated June 10, 2004, as supplemented by letter dated January 31, 2005, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-35 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 225, which are attached hereto, are hereby incorporated into this license. Duke Energy Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Evangelos C. Marinos, Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: June 10, 2005

DUKE ENERGY CORPORATION  
NORTH CAROLINA MUNICIPAL POWER AGENCY NO. 1  
PIEDMONT MUNICIPAL POWER AGENCY  
DOCKET NO. 50-414  
CATAWBA NUCLEAR STATION, UNIT 2  
AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 220  
Renewed License No. NPF-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Catawba Nuclear Station, Unit 2 (the facility) Renewed Facility Operating License No. NPF-52 filed by the Duke Energy Corporation, acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency (licensees), dated June 10, 2004, as supplemented by letter dated January 31, 2005, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 220, which are attached hereto, are hereby incorporated into this license. Duke Energy Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Evangelos C. Marinos, Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: June 10, 2005

ATTACHMENT TO LICENSE AMENDMENT NO. 225

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND LICENSE AMENDMENT NO. 220

RENEWED FACILITY OPERATING LICENSE NO. NPF-52

DOCKET NO. 50-414

Replace the following page of the Appendix A Technical Specifications and the associated Bases page with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3.6.3-6

B 3.6.3-13

Insert

3.6.3-6

B 3.6.3-13



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 225 TO RENEWED FACILITY OPERATING  
LICENSE NPF-35 AND  
AMENDMENT NO. 220 TO RENEWED FACILITY OPERATING LICENSE NPF-52  
DUKE ENERGY CORPORATION, ET AL.  
CATAWBA NUCLEAR STATION, UNITS 1 AND 2  
DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

By letter dated June 10, 2004 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML041740723), as supplemented by letter dated January 31, 2005 (ADAMS Accession No. ML050600307), Duke Energy Corporation, et al. (the licensee), submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications (TS). The requested changes would extend the interval between local leakage rate tests of the containment purge and vent valves with resilient seals (that is, in the containment purge system, hydrogen purge system, and containment air release and addition system).

Currently, the TS Surveillance Requirement (SR) 3.6.3.6, of TS 3.6.3, "Containment Isolation Valves," states:

Perform leakage rate testing for Containment Purge System, Hydrogen Purge System, and Containment Air Release and Addition System valves with resilient seals.

The frequency for this SR is:

184 days *and* within 92 days after opening the valve

The licensee's proposal is to change the frequency to:

In accordance with the Containment Leakage Rate Testing Program.

The Containment Leakage Rate Testing Program (TS 5.5.2) requires that testing be performed in accordance with Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995. Regulatory Guide 1.163 allows a nominal test interval of 30 months for containment purge and vent valves.

## 2.0 REGULATORY EVALUATION

At the time that Catawba Nuclear Station, Units 1 and 2 received their operating licenses, Title 10 of the *Code of Federal Regulation* (10 CFR) Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," required containment isolation valves, including containment purge and vent valves, to be subjected to local leakage rate tests at every refueling outage, but not to exceed 2-year intervals. Then and now, compliance with Appendix J provides assurance that the leakage rate of the containment, including those systems and components which penetrate the containment, does not exceed the allowable leakage rate specified in the TS and the TS Bases. The allowable leakage rate is determined so that the leakage rate assumed in the safety analyses is not exceeded.

However, in the 1970s, the Nuclear Regulatory Commission (NRC) staff had determined that containment purge and vent valves were, as a class, a special problem in terms of leakage rate. Experience had shown that containment purge and vent valves with resilient seals were more susceptible than other containment isolation valves to degradation caused by environmental factors (such as temperature extremes and changes in humidity and barometric pressure) and mechanical factors (such as wear and tear and hardening of resilient seals due to aging and exposure to radiation). This degradation not only could cause high and rapidly increasing leakage rates, but the radiological consequences of such leaks were more significant than for other valves because of the typically large diameters of the containment purge and vent valves and the direct connection they provided between the containment atmosphere and the outside environment.

As part of the resolution of Generic Issue B-20 (also known as Multi-Plant Action MPA-B020), "Containment Leakage Due to Seal Deterioration," the NRC staff decided to increase the frequency of local leakage rate testing of containment purge and vent valves, beyond the frequency required by Appendix J (additional background may be found in IE Circular 77-11, "Leakage of Containment Isolation Valves with Resilient Seals," issued September 6, 1977). This change would limit the time during which the valves might be inoperable due to excessive leakage and make it more likely that a licensee would catch and correct advancing degradation before it became extreme. Although there was some variation, a typical testing arrangement was to have "passive" valves (those not opened during plant operation) tested every 6 months, and "active" valves (those opened during plant operation) tested every 3 months. These frequencies are essentially the current testing arrangement at Catawba, where the test interval is 184 days if the valves have not been opened and 92 days for valves that have been opened.

However, the NRC staff did not implement the increased testing frequencies through regulations but rather through plant TS. Appendix J does not contain any special requirements for containment purge and vent valves, and the 3- and 6-month tests are not Appendix J tests *per se*, although the same tests are usually used to fulfill Appendix J requirements when they come due.

In 1995, the NRC revised Appendix J to add a new, performance-based option for testing, called Option B. The NRC staff also published RG 1.163, "Performance-Based Containment Leak Test Program," dated September 1995, which was developed as a method acceptable to the NRC staff for implementing Option B. This regulatory guide states that the Nuclear Energy Institute (NEI) guidance document NEI 94-01, Rev. 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 26, 1995, provides

methods acceptable to the NRC staff for complying with Option B, with four exceptions which are described therein. Virtually all of the plants that have adopted Option B, including Catawba, have adopted TS which require compliance with the provisions of RG 1.163.

RG 1.163 allows an extension in the Type A (integrated leakage rate) test interval to 10 years based upon two consecutive successful tests. Type B tests (local leakage rate tests of containment penetrations such as electrical penetrations) may be extended up to a maximum interval of 10 years based upon completion of two consecutive successful tests. Type C tests (local leakage rate tests of containment isolation valves) may have intervals extended to 5 years based on two consecutive successful tests.

However, despite the fact that most other containment isolation valves may have test intervals of up to 5 years, RG 1.163 does not allow for the containment purge and vent valves to go onto an extended interval; they must remain on the nominal 30-month interval. This interval takes into consideration the past poor operating experience and the safety significance of the large diameter and direct connection between the containment atmosphere and the outside environment. Also, although RG 1.163 discusses a 30-month interval, it still does not directly affect the more frequent (3- and 6-month) tests contained in plant TS, which, as mentioned before, go beyond the requirements of Appendix J.

Subsequent to the problems observed in the 1970s, the industry has made considerable strides in correcting the deficiencies of containment purge and vent valves with resilient seals. Improved seal materials, quality control, and modifications of equipment and environmental conditions have largely corrected valve deficiencies in many plants. Several plants have requested, and the NRC staff has granted, TS changes to eliminate the more frequent testing requirements, allowing testing at what is essentially a refueling outage interval (e.g., see References 1 through 4). The NRC staff has granted these reliefs on the basis of good valve performance demonstrated by plant-specific historical leakage rate testing results. Each plant must show that their containment purge and vent valves have had consistently good performance and are thus unlikely to experience significant degradation between tests when the test interval is lengthened.

### 3.0 TECHNICAL EVALUATION

The licensee has provided information on purge and vent valve test results since 1999. This information encompasses approximately 480 individual tests. The licensee provided the leakage rate results of each test of each valve. The NRC staff has reviewed the results and finds that there have been no test failures for any of the valves during this period.

Considering that there have been no failures in approximately 480 tests, the NRC staff finds it acceptable to extend the nominal interval between leakage rate tests of the containment purge and vent valves to 30 months, in accordance with RG 1.163.

Based on the evaluation above, the NRC staff finds that the proposed TS changes are acceptable.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official was notified of the proposed issuance of the amendments. The State official had no comments.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (69 FR 76487). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

#### 6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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.

#### 7.0 REFERENCES

1. Letter to Robert E. Link (Point Beach) from Allen G. Hansen (NRC), "Amendment Nos. 169 and 173 to Facility Operating License Nos. DPR-24 and DPR-27 - Point Beach Nuclear Plant, Unit Nos. 1 and 2 (TAC Nos. M95668 and M95669)," October 9, 1996.
2. Letter to Ted C. Feigenbaum (Seabrook) from Albert W. De Agazio (NRC), "Amendment No. 49 to Facility Operating License NPF-86: Implementation of 10 CFR 50 Appendix J, Option B - License Amendment Request 96-05 (TAC No. M95312)," February 24, 1997 (ADAMS Accession No. ML011830237).
3. Letter to H. B. Barron (McGuire) from Robert E. Martin (NRC), "McGuire Nuclear Station, Units 1 and 2 Re: Issuance of Amendments Regarding Option B of Appendix J for Local Leakage Rate Testing (TAC Nos. MB3565 and MB3566)," September 4, 2002 (ADAMS Accession No. ML022540005).

4. Letter to William T. Cottle (South Texas) from Mohan Thadani (NRC), "South Texas Project, Units 1 and 2 - Issuance of Amendments Re: Extension of the Intervals Between Operability Tests of the Normal and Supplementary Containment Purge Valves (TAC Nos. MB4048 and MB4049)," January 7, 2003 (ADAMS Accession No. ML030140325).

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Date: June 10, 2005

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