May 27, 2010

Mr. J. R. Morris
Site Vice President
Catawba Nuclear Station
Duke Energy Carolinas, LLC
4800 Concord Road
York, SC 29745

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2, ISSUANCE OF AMENDMENTS REGARDING CHANGES TO TECHNICAL SPECIFICATION 3.8.1, "AC SOURCES-OPERATING" (TAC NOS. ME1456 AND ME1457)

Dear Mr. Morris:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 255 to Renewed Facility Operating License NPF-35 and Amendment No. 250 to Renewed Facility Operating License NPF-52 for the Catawba Nuclear Station, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated May 28, 2009, as supplemented by letter dated April 5, 2010.

The amendments revise TS 3.8.1, "AC Sources-Operating," to restrict voltage limits for the applicable TS 3.8.1 surveillances governing the Emergency Diesel Generators.

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.

If you have any questions, please call me at 301-415-1119.

Sincerely,

/RA/

Jon Thompson, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:
1. Amendment No. 255 to NPF-35
2. Amendment No. 250 to NPF-52
3. Safety Evaluation

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DUKE ENERGY CAROLINAS, LLC

NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION

DOCKET NO. 50-413

CATAWBA NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 255
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 Carolinas, LLC, acting for itself, and North Carolina Electric Membership Corporation (licensees), dated May 28, 2009, as supplemented by letter dated April 5, 2010, 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. 255, which are attached hereto, are hereby incorporated into this license. Duke Energy Carolinas, LLC, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Gloria Kulesa, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. NPF-35
and the Technical Specifications

Date of Issuance: May 27, 2010

DUKE ENERGY CAROLINAS, LLC

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. 250
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 Carolinas, LLC, acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency (licensees), dated May 28, 2009, as supplemented by letter dated April 5, 2010, 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. 250, which are attached hereto, are hereby incorporated into this license. Duke Energy Carolinas, LLC, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Gloria Kulesa, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to License No. NPF-52
and the Technical Specifications

Date of Issuance: May 27, 2010

ATTACHMENT TO

LICENSE AMENDMENT NO. 255

RENEWED FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND LICENSE AMENDMENT NO. 250

RENEWED FACILITY OPERATING LICENSE NO. NPF-52

DOCKET NO. 50-414

Replace the following pages of the Renewed Facility Operating Licenses and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
Licenses	Licenses
NPF-35, page 4	NPF-35, page 4
NPF-52, page 4	NPF-52, page 4
TSs	TSs
3.8.1-5	3.8.1-5
3.8.1-7	3.8.1-7
3.8.1-8	3.8.1-8
3.8.1-9	3.8.1-9
3.8.1-10	3.8.1-10
3.8.1-12	3.8.1-12
3.8.1-14	3.8.1-14
3.8.1-15	3.8.1-15

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 255 TO RENEWED FACILITY OPERATING LICENSE NPF-35

AND

AMENDMENT NO. 250 TO RENEWED FACILITY OPERATING LICENSE NPF-52

DUKE ENERGY CAROLINAS, LLC

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

By application dated May 28, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091540013), as supplemented by letter dated April 5, 2010 (ADAMS Accession No. ML100980044), Duke Energy Carolinas, LLC (Duke, the licensee), requested changes to the Technical Specifications (TSs) for the Catawba Nuclear Station, Units 1 and 2 (Catawba 1 and 2). The supplement dated April 5, 2010, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published the *Federal Register* on March 9, 2010 (75 FR 10825).

The proposed changes would revise Technical Specification (TS) 3.8.1, "AC Sources-Operating," to restrict voltage limits for the applicable TS 3.8.1 surveillances governing the Emergency Diesel Generators (EDGs).

The proposed amendment is related to the TS Surveillance Requirements (SRs) 3.8.1.2, 3.8.1.7, 3.8.1.9, 3.8.1.11, 3.8.1.12, 3.8.1.15, 3.8.1.19, and 3.8.1.20 for the EDGs minimum voltage values. This amendment proposes more conservative minimum voltage requirements for applicable TS 3.8.1 surveillances governing the EDGs. The current TS 3.8.1 requires a minimum EDG voltage of 3740 Volt (V). This amendment proposes a change in the EDG's minimum required voltage to 3950 V for surveillance tests. Specifically, the proposed change would revise the EDG transient and steady state minimum voltage values in the SRs discussed in Section 3.0 below.

2.0 REGULATORY EVALUATION

The regulatory framework which the NRC staff applied in the review of the amendment included from Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix A, “General Design Criteria for Nuclear Power Plants,”:

General Design Criterion (GDC)-17, "Electric power systems." GDC-17 requires that “an onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety.” GDC-17 further requires that “The onsite electric power supplies … shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.” Moreover, it states that “Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits … designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions.” GDC-17 also adds that “Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of loss of, or coincident with, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies.”

GDC-18, "Inspection and testing of electric power systems," requires that “Electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing....”

Section 10 CFR 50.36, "Technical Specifications," paragraph (b) states that a licensee’s TS “will be derived from the analyses and evaluation included in the safety analysis report.…”

Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. Section 50.36(c)(3) also requires TSs to include SRs which are defined as “requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.”

Regulatory Guide (RG) 1.9, Rev. 2, "Selection, Design, Qualification of Diesel-Generator Units Used as Standby (Onsite) Electric Power Systems at Nuclear Power Plants," Regulatory Position C.4 states in part that “each diesel generator unit should be capable of starting and accelerating to rated speed, in the required sequence, all the needed engineered safety features and emergency shutdown loads. The diesel generator unit design should be such that at no time during the loading sequence should the frequency decrease to less than 95 percent of nominal nor the voltage decrease to less than 75 percent of nominal (a larger decrease in voltage and frequency may be justified for a diesel generator unit that carries only one large connected load). Frequency should be restored to within two percent of nominal and voltage should be restored to within 10 percent of nominal within 60 percent of each load-sequence time interval….”

3.0 TECHNICAL EVALUATION

The Catawba 1 and 2 "Updated Final Safety Analysis Report" (UFSAR), Section 8.3.1.1.2.1 and 8.3.1.1.3 state, in part, that the standby AC power system for Catawba 1 and 2 consists of one EDG unit per train to supply power to the Class 1E loads required to safely shutdown the unit following a design-basis accident. Additionally, each diesel generator is capable of supplying its associated 4160 V switchgear through a connection with the 4160 V essential switchgear.

The licensee proposed to revise the TS EDG transient and steady state minimum voltage acceptance values for SRs 3.8.1.2, 3.8.1.7, 3.8.1.9, 3.8.1.11, 3.8.1.12, 3.8.1.15, 3.8.1.19, and 3.8.1.20 and provided TS marked-up pages.

The licensee stated in its application dated May 28, 2009, that the EDG minimum voltage limit change was the result of an industry concern where the generic values provided in RG 1.9, Rev. 2 were used to support plant design. Catawba 1 and 2 TS voltage limits for EDGs were based on RG 1.9, Rev. 2 recommendations. Design-basis calculations were not developed for plant-specific limits for all conditions and events. The licensee performed plant-specific calculations based on TS allowable frequency and voltage variations and the EDG loading and concluded that a minimum voltage of 3950 V was needed. This is higher and more conservative than the existing TS EDG minimum voltage of 3740 V. As such, the licensee determined that the current EDG minimum voltage value of 3740 V in TS 3.8.1 was non-conservative.

The licensee's evaluation also demonstrated that a two-percent decrease in EDG frequency (58.8 Hz) would not prevent the safety-related pumps and the motor-operated valves (MOVs) from performing their design functions. In addition, the licensee determined that a two-percent increase in EDG frequency (61.2 Hz) and a five-percent decrease in EDG minimum voltage (3950 V), was acceptable for all safety-related MOVs. In the application, the licensee stated that their review of the EDG loading calculation ensures adequate margin exists between the various EDG ratings and worst-case loading profiles.

In the application, the licensee stated that EDG voltage limit of 3950 V has been implemented using Administrative Controls under the provisions of NRC Administrative Letter 98-10. The licensee further stated that the EDG operability was validated at a higher and more conservative minimum voltage of greater than or equal to 3950 V. The licensee also performed a historical review of the EDG surveillance test results for the minimum voltage and concluded that the administrative minimum voltage requirement was satisfied for each test.

The NRC staff requested the licensee to explain how drift, measurement uncertainty, and margin were accounted for in the calculations or analyses that support that the proposed minimum EDG voltage would be sufficient for the required loads. In its response dated April 5, 2010, the licensee stated that the drift, measurement uncertainty and margin have been applied for the degraded grid voltage relay setpoints to ensure that the sufficient voltage exists for the required loads. The licensee used the instrument accuracy and periodic calibrations required by the station preventive maintenance program procedures to verify TS EDG voltages. Based on the above information, the NRC staff finds the licensee's response acceptable.

In the application, the licensee stated that two valves, 1RN225B Containment Spray Heat Exchange Inlet Isolation Valve and 2VI77B Containment Isolation Valve, did not meet standard conservative criteria for stroke time, but found to be acceptable with current administrative controls. The NRC staff requested the licensee to explain how these valves met the design-basis voltage and frequency requirements. In its response, the licensee stated that both valves 1RN225B and 2VI77B did not meet the stroke time criterion that was part of the original review. The stroke time of an MOV is affected by frequency variation not by voltage variation. The licensee performed an evaluation to review the impact of EDG frequency variation with respect to the MOV actuator stroke time requirements and found that a two-percent decrease in EDG frequency would result in a two-percent decrease in MOV actuator speed and the resultant increase in MOV actuator stroke time exceeded their respective standard conservative stroke time requirements. The licensee conducted further evaluation and concluded that the increase in stroke time was acceptable based on the maximum allowable stroke time criterion. Based on this determination, the licensee processed the change per 10 CFR 50.59 for a change to the UFSAR. In the application, the licensee stated that no safety-related MOV would exceed their maximum allowed stroke time if the EDG frequency was reduced by two percent. The licensee stated in the application that the Catawba 1 and 2 plant-specific calculations support the proposed TS EDG minimum voltage value and are consistent with RG 1.9. Based on the above discussion, the NRC staff finds the licensee's response acceptable.

The NRC staff concurs that the proposed EDG steady state minimum voltage change is more restrictive, and it will continue to verify the capability of the EDGs to provide power at a voltage and frequency adequate to start and operate the safety-related loads and to assure the compliance with the plant design bases.

Based on the above evaluation, the NRC staff finds that the proposed changes to the Catawba 1 and 2 TS 3.8.1 minimum-required voltage value, supported by the plant-specific calculations, provides reasonable assurance of the continued availability of the EDG to shut down the reactors and to maintain the reactors in a safe condition after an anticipated operational occurrence or a postulated event. Furthermore, the NRC staff concludes that the proposed TS changes are in accordance with 10 CFR 50.36, and meet the intent of GDCs 17, 18, and RG 1.9 Rev. 2 dated December 1979. Therefore, the NRC staff finds the proposed changes 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 a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and change the 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 (75 FR 10825). 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.

Principal Contributor: S. Prem

Date: May 27, 2010