NRR
Template-058

Mr. G. R. Peterson
Site Vice President
Catawba Nuclear Station
Duke Energy Corporation
4800 Concord Road
York, South Carolina 29745-9635

March 16, 2000

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 RE: ISSUANCE OF AMENDMENTS (TAC NOS. MA6962 AND MA6963)

Dear Mr. Peterson:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 185 to Facility Operating License NPF-35 and Amendment No. 177 to 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 November 3, 1999, as supplemented by letter dated January 14, 2000.

The amendments revise the Surveillance Requirements (SR) 3.8.1.13 and SR 3.8.1.14 for emergency diesel generators at Catawba Nuclear Station. Specifically, these SR may now be performed at any operational power level for Catawba Nuclear Station.

In addition, in your November 3, 1999, application, you requested that the power factor requirements be deleted from SR 3.8.1.9 and 3.8.1.14. However, in response to a request for additional information, you withdrew the power factor deletion part of the request for the Catawba Nuclear Station, Units 1 and 2, in a letter dated January 14, 2000.

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/

Chandu P. Patel, 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. 185 to NPF-35
2. Amendment No. 177 to NPF-52
3. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 16, 2000

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cc w/encls: See next page

Catawba Nuclear Station

cc:

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Catawba Nuclear Station

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUKE ENERGY CORPORATION

NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION

SALUDA RIVER ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-413

CATAWBA NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 185
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) 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 November 3, 1999, as supplemented by letter dated January 14, 2000, 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 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. 185, 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

Richard L. Emch, Jr.

Richard L. Emch, Jr., Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: March 16, 2000

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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 FACILITY OPERATING LICENSE

Amendment No. 177
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) 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 November 3, 1999, as supplemented by letter dated January 14, 2000, 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 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. 177, 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

Richard L. Emch, Jr.

Richard L. Emch, Jr., Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: March 16, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 185

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND LICENSE AMENDMENT NO. 177

FACILITY OPERATING LICENSE NO. NPF-52

DOCKET NO. 50-414

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

Remove	Insert
3.8.1-11	3.8.1-11
B3.8.1-22	B3.8.1-22
B3.8.1-23	B3.8.1-23

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal except: a. Engine overspeed; b. Generator differential current; c. Low - low lube oil pressure; and d. Voltage control overcurrent relay scheme.	18 months
SR 3.8.1.14	----------NOTE---------- Momentary transients outside the load and power factor ranges do not invalidate this test. ---------- Verify each DG operating at a power factor ≤ 0.9 operates for ≥ 24 hours loaded ≥ 5600 kW and ≤ 5750 kW.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

The Frequency of 18 months takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. This SR is modified by a Note. The reason for the Note is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations.

SR 3.8.1.13

This Surveillance demonstrates that DG noncritical protective functions (e.g., high jacket water temperature) are bypassed on a loss of voltage signal concurrent with an ESF actuation test signal, and critical protective functions (engine overspeed, generator differential current, low-low lube oil pressure, voltage control overcurrent relay scheme) trip the DG to avert substantial damage to the DG unit. The noncritical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

The 18 month Frequency is based on engineering judgment, taking into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.8.1.14

Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(3), requires demonstration once per 18 months that the DGs can start and run

SURVEILLANCE REQUIREMENTS (continued)

continuously at full load capability for an interval of not less than 24 hours. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelubricating and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor of ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(3), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This Surveillance is modified by a Note. The Note states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the power factor limit will not invalidate the test.

SR 3.8.1.15

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 11 seconds. The 11 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 10), paragraph 2.a.(5).

This SR is modified by two Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The load band is provided to

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 185 TO FACILITY OPERATING LICENSE NPF-35

AND AMENDMENT NO. 177 TO 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 November 3, 1999, as supplemented by letter dated January 14, 2000, Duke Energy Corporation, et al. (DEC, the licensee), submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications (TS). The requested changes would modify the Surveillance Requirements (SR) for the emergency diesel generators (DG). Specifically, the licensee proposed to (1) delete the $\leq$0.9 power factor requirements in SR 3.8.1.9 and SR 3.8.1.14, and (2) perform SR 3.8.1.13 and SR 3.8.1.14 at any operational power level. On January 6, 2000, we held a telephone conference call with the representatives of DEC regarding the amendment request. In a letter dated January 14, 2000, the licensee provided additional information in response to the staff's questions of January 6, 2000, and withdrew its request to delete the power factor requirements in SR 3.8.1.9 and 3.8.1.14.

The January 14, 2000, letter provided additional clarifications that did not enlarge the scope of the previous no significant hazard consideration determination.

2.0 BACKGROUND

The onsite standby power source for each 4.16 kV Engineered Safety Features (ESF) bus at Catawba is a dedicated DG. Catawba station has two independent and redundant 4.16 kV buses. In the event of the loss of the normal offsite power source, the safety loads are automatically connected to the DGs in sufficient time to ensure safe shutdown and mitigate the consequences of a design basis accident.

3.0 EVALUATION

3.1 SR 3.8.1.13

SR 3.8.1.13 currently requires verification that each DG's automatic trips are bypassed on actual or simulated loss of a voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation. It includes a note that states that this surveillance shall not be performed in Modes 1 or 2. The basis for this SR note is to prevent unnecessary perturbation

to the electrical distribution systems, which could challenge steady state operation if the reactor is in Mode 1 or 2. The licensee has proposed to perform this surveillance during power operation and delete the note.

The licensee states that performing this surveillance during power operation will result in greater flexibility to schedule other critical outage-related work and allow this surveillance to be scheduled during periods when there are fewer activities occurring.

The licensee states that since the test is conducted with the DG unloaded and isolated from its respective emergency bus, there is no impact on the electrical distribution system that could result from performing this surveillance during power operation. Therefore, there is no mechanism for challenging continued steady state operation. This test is performed by jumpering out the non-emergency automatic trips and verifying that they do not trip the DG.

Additionally, the licensee states that performance of this surveillance while at power has minimal effect on the availability of the DG because the DG is not paralleled with the offsite power system during this test. The unavailability of the DG during the conduct of this test is also minimal. The only DG unavailability that occurs is following verification that each emergency trip actually trips the DG. Manual action is required to reset the emergency trip sensors so that the DG can then be available to start in an actual emergency situation.

Based on the above, we conclude that the licensee has provided assurance that performing this test while at power will not create a transient that could disrupt power operation and challenge the safety systems because this surveillance is performed with the DG unloaded and isolated from its respective emergency bus. Therefore, the proposed change is acceptable.

3.2 <u>SR 3.8.1.14</u>

SR 3.8.1.14 currently requires verification that each DG operating at a power factor ≤ 0.9 operates for ≥ 24 hours loaded between 5600 kW and 5750 kW. It includes a note that states that this surveillance shall not be performed in Modes 1 or 2. The basis for this SR note is to prevent unnecessary perturbation to the electrical distribution systems, which could challenge steady state operation if the reactor is in Mode 1 or 2. The licensee has proposed to perform this surveillance during power operation and to delete the note referencing Modes 1 and 2.

The licensee states that performing this surveillance during power operation will result in greater flexibility to schedule other critical outage-related work and allow this surveillance to be scheduled during periods when there are fewer activities occurring.

The staff expressed concern regarding performance of the 24-hour DG endurance with the unit at power. When the DG is operated while it is connected to offsite power, the emergency power system (i.e., DG) is not independent of disturbances on the offsite power systems that can adversely affect emergency power availability. In this condition, a disturbance in the non-emergency power system (offsite power system) could result in loss of offsite power and disabling of the emergency power source. Further, if a fault develops while the DG is connected to non-emergency buses, DG availability for subsequent emergency demands may be affected. In some design configurations, the DG would trip as a result of overcurrent or reverse power, actuate a lockout device, and require local operator actions to reset the lockout.

In such cases, the DG is recoverable, but the timeliness of its availability is not comparable to that of having the DG in its normal standby.

The licensee states that at Catawba, the design of the DG incorporates features that enable the DG to automatically switch from the test mode to the emergency mode. As such, if a DG is running in the test mode and a LOCA signal was to occur, the LOCA signal would override the test mode of the DG, the DG would be returned to standby operation, and the emergency loads would be automatically energized from the offsite power. Thus, the performance of this surveillance at power has minimal effect on the availability of the DG. Also, the licensee indicated that if a loss of offsite power were to occur while surveillance is being conducted, the tested DG will remain available. If the DG is being tested and a loss of offsite power should occur, the DG will attempt to pick up the load until the DG instantaneous overcurrent relay trips the DG breaker. In this scenario, the DG output breaker is not locked out and the DG will continue to run in a standby mode. The load sequencer will initiate load shedding and appropriate loads will automatically be sequenced on the safety bus. Additionally, during the conduct of this test, the other train's DG will be fully operable. Since the DG is in test and its support systems remain available during the 24-hour test. Even if this surveillance is conducted with the reactor critical, capability exists to mitigate the consequences of any design basis accident assuming a single failure.

In our discussion with the licensee, we asked the licensee if there are any administrative controls in place to (1) preclude performing this surveillance during unstable grid conditions or during other maintenance and test conditions that could have adverse effects on the offsite power system, and (2) restrict additional maintenance and testing of required safety systems that depend on the remaining diesel generator as source of emergency power. In response, the licensee stated that normal risk management practices would ensure that this surveillance would not be scheduled during severe weather conditions. Controls are in place to avoid high-risk combinations of equipment being taken out of service at the same time. Also, the overall Probabilistic Risk Analysis results for Catawba are not sensitive to whether this surveillance is performed during power operations or not.

Based on the above, we conclude that the licensee has adequately addressed our concerns and has provided assurance that performing the 24-hour test while at power will not adversely impact the availability of DG when it is most needed. Therefore, the proposed change to perform this SR at power and deletion of the associated note is 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 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 (64 FR 67332). 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: Om Chopra

Date: March 16, 2000