Docket File

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

December 29, 1995

Mr. William R. McCollum
Site Vice President
Catawba Nuclear Station
Duke Power Company
4800 Concord Road
York, South Carolina 29745-9635

SUBJECT: ISSUANCE OF AMENDMENTS - CATAWBA NUCLEAR STATION, UNITS 1 AND 2, SEISMIC CLASSIFICATION OF CONTAINMENT AIRBORNE PARTICULATE RADIATION MONITOR (TAC NOS. M90439 AND M90440)

Dear Mr. McCollum:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 140 to Facility Operating License NPF-35 and Amendment No. 134 to Facility Operating License NPF-52 for the Catawba Nuclear Station, Units 1 and 2. The amendments consist of changes to the Updated Final Safety Analysis Report in response to your application dated September 5, 1995.

In Section 5.2.5 of the Catawba Safety Evaluation Report (SER, NUREG-0954), the staff identified that the air particulate monitors, EMF38, at both Units 1 and 2, are designed to seismic Category I requirements. A recent engineering review by the licensee determined that documentation did not exist to show these monitors are designed to seismic Category I requirements. As a result, the licensee declared these monitors inoperable at both units. In a submittal dated September 8, 1994, the licensee proposed a technical justification for not requiring the subject monitors to be seismic Category I. By letter dated March 3, 1995, the staff requested further justification. The licensee, by letter dated September, 5, 1995, provided the additional justification requested by the staff and requested amendments to the licenses for both Units 1 and 2. The NRC staff has reviewed the licensee's justification and concludes that the containment air particulate monitors at both Catawba units do not have to meet seismic Category I requirements. The bases for our conclusion that the subject monitors do not have to be seismic Category I are included in the enclosed Safety Evaluation.

These amendments are being issued pursuant to the requirements of 10 CFR 50.59(c) because Duke Power Company's review identified the change as an unreviewed safety question. No changes to the Technical Specifications are required by these amendments.

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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,

Original signed by:

Robert E. Martin, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:
1. Amendment No. 140 to NPF-35
2. Amendment No. 134 to NPF-52
3. Safety Evaluation

cc w/encl: See next page

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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,

Robert Martin

Robert E. Martin, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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3. Safety Evaluation

cc w/encl: See next page

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Catawba Nuclear Station

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

DUKE POWER COMPANY

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. 140
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 Power Company, acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc. (licensees), dated September 5, 1995, 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.

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2. Accordingly, by Amendment No. 140 , the license is amended to authorize revision of the Updated Final Safety Analysis Report (UFSAR) as set forth in the application for amendment by the licensee dated September 5, 1995. The licensee shall update the UFSAR to reflect that the containment air particulate monitors are not required to meet seismic Category I design requirements, as authorized by this amendment, in accordance with 10 CFR 50.71(e).

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

FOR THE NUCLEAR REGULATORY COMMISSION

Leonard A. Wiens, Acting Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Date of Issuance: December 29, 1995

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

DUKE POWER COMPANY

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. 134
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 Power Company, acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency (licensees), dated September 5, 1995, 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, by Amendment No. 134, the license is amended to authorize revision of the Updated Final Safety Analysis Report (UFSAR) as set forth in the application for amendment by the licensee dated September 5, 1995. The licensee shall update the UFSAR to reflect that the containment air particulate monitors are not required to meet seismic Category I design requirements, as authorized by this amendment, in accordance with 10 CFR 50.71(e).

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

FOR THE NUCLEAR REGULATORY COMMISSION

Leonard A. Wiens, Acting Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Date of Issuance: December 29, 1995

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 140 TO FACILITY OPERATING LICENSE NPF-35

AND AMENDMENT NO. 134 TO FACILITY OPERATING LICENSE NPF-52

DUKE POWER COMPANY, ET AL.

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

By letter dated September 5, 1995, Duke Power Company, et al. (the licensee), submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Updated Final Safety Analysis Report (UFSAR).

In Section 5.2.5 of the February 1983 Catawba Safety Evaluation Report (SER), NUREG-0954, the staff identified that the containment airborne particulate radiation monitors (CAPRMs) are designed to seismic Category I requirements. The staff's basis for this seismic determination was Section 5.2.5 of the Catawba Final Safety Analysis Report (FSAR) where the licensee stated that the subject monitors would remain functional during and following a safe shutdown earthquake (SSE) as recommended in Position C.6 of Regulatory Guide (RG) 1.45 "Reactor Coolant Pressure Boundary Leakage Detection Systems." Therefore, the staff's conclusion in the SER that the reactor coolant system pressure boundary (RCPB) leakage detection systems are acceptable was based in part on the assumption that the CAPRMs were seismic Category I.

By letter dated September 8, 1994, the licensee informed the staff that an engineering review (performed by Duke) of the seismic classification of the CAPRMs (EMF38 at both units) determined that these monitors are not seismic Category I monitors. This determination was made when the licensee concluded that sufficient documentation did not exist to show that the subject monitors were designed to withstand the SSE. As a result of that determination, both monitors were declared inoperable. That same letter requested the staff to evaluate the acceptability of those monitors not being designed to seismic Category I requirements. An acceptable conclusion by the staff in this regard would allow the monitors to be declared operable again.

As a result of its review of the licensee's request, the staff concluded that the licensee did not include sufficient justification for the staff to reach a conclusion about the acceptability of the licensee's request. By letter dated March 3, 1995, the staff requested the licensee to provide further justification and to address specifically the basis provided in Position C.6

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of RG 1.45. The basis for the CAPRMs to be designed to withstand the SSE, according to RG 1.45, is that it is important for an operator to quickly assess the conditions within the containment following an earthquake comparable to an SSE.

After further review, and consideration of the staff's request, the licensee determined that the requested change involved an unreviewed safety question as defined in Section 50.59 of Title 10 of the Code of Federal Regulations (10 CFR). Therefore, in accordance with 10 CFR 50.59(c)(2), the licensee, by letter dated September 5, 1995, requested an amendment to its Facility Operating Licenses (Nos. NPF-35 and NPF-52 for Units 1 and 2, respectively) pursuant to 10 CFR 50.90. As part of that amendment request, the licensee provided the additional justification requested by the staff and identified proposed changes to the UFSAR which would clarify that the CAPRMs are not designed to remain functional following the SSE.

2.0 EVALUATION

Although Position C.6 of RG 1.45 recommends that the CAPRM should remain functional when subjected to an earthquake comparable to the SSE, there are no regulations that require a seismic Category I reactor coolant system (RCS) leakage detection system. This is primarily because the leakage detection systems are not required to mitigate the effects of any accidents, nor are they required to ensure a safe plant shutdown. The leakage detection systems are provided to meet the requirements of General Design Criterion (GDC) 30, "Quality of Reactor Coolant Pressure Boundary," of Appendix A to 10 CFR Part 50. GDC 30 requires that means be provided for detecting and, to the extent practical, locating the source of reactor coolant leakage. The primary function of the systems is to detect reactor coolant system degradation before minor flaws can develop into a pipe break or component rupture. This is made clear in Generic Letter 84-04, "Safety Evaluation of Westinghouse Topical Reports Dealing with the Elimination of Postulated Pipe Breaks in PWR Primary Coolant Loops." In Generic Letter 84-04, the staff identified that leakage detection systems (when relied upon for leak before break analyses) should follow the guidance of RG 1.45 with the exception that the CAPRM does not have to be seismically qualified. Therefore, plants that have non-seismically qualified CAPRMs (plants not already committed to RG 1.45) do not have to upgrade them to take credit for leak before break analyses. The licensee has committed to RG 1.45; therefore, the staff would consider non-seismic Category I CAPRMs acceptable if the licensee had alternative methods of addressing Position C.6 of RG 1.45 (i.e., means for quickly assessing the conditions inside containment) in lieu of requiring a compliance backfit to upgrade the instrument to seismic Category I requirements.

The licensee identified several means of assessing conditions inside the containment which would remain available following a postulated SSE. Those identified by the licensee are the following:

- narrow range containment pressure instrumentation,
- wide range containment pressure instrumentation,
- wide range containment sump level instrumentation,
- high range containment radiation monitors, and
- acquisition and analysis of grab samples of containment atmosphere.

In the event of an actual SSE, the plant would be brought to a mode where the leakage detection systems are not required by the technical specifications to be operable. This is specified by procedure at Catawba (RP/0/A/5000/07, "Procedure for Natural Disaster and Earthquake"). In addition, an inspection of the plant would be conducted following an earthquake pursuant to that same procedure. The condition of the RCS (among other plant systems) would be assessed in the walkdown, which is part of the inspection. Based on the above instrumentation and referenced procedure, the licensee has concluded that the operators can adequately assess the containment conditions following a postulated SSE.

The licensee has also committed to revise the plant response procedure for earthquakes and natural disasters such that following any earthquake (including one smaller than the operating basis earthquake [OBE]), it will be assumed that none of the four leakage detection systems identified in the technical specifications are operable and to determine the status of EMF38 and EMF39. EMF39 is the containment atmosphere gaseous radioactivity monitoring system. The status of both EMF38 and EMF39 is determined by performing a source check from the control room and verifying the proper operation of the monitors in the auxiliary building. Access from the control room to the monitor skid inside the auxiliary building is located within seismic Category I structures and in a "mild" environment.

The staff agrees with the licensee that, at Catawba, adequate measures are available to assess conditions inside containment following a seismic event comparable to an SSE. Assuming that a seismic Category I CAPRM was available following a seismic event, operators would still have to take containment samples to verify the validity of an increased reading and determine the potential source of that increase. A seismic event comparable to an SSE could result in the CAPRM indicating an increase in radioactivity levels from a number of different sources. Some of these sources may provide false indications that RCS leakage has increased and actions would have to be taken to determine the reason for the increased radioactivity level. The reactor coolant activity levels would likely be affected (crud bursts) by an earthquake comparable to an SSE. The CAPRMs are sensitive to such increases in coolant activity (the sensitivity of the instrument is dependent upon the presence of corrosion product activity) and are sometimes the cause of false alarms during normal operation. Air particulate radioactivity inside the containment is also likely to be increased due to surface contamination being shaken loose during a high magnitude seismic event. Generally, CAPRMs are very sensitive to changes in both reactor coolant activity level and background activity level, and they have a relatively low range since they are designed to detect small amounts of RCS leakage. There is also a 15 to 20 minute time lag (depending upon the filter paper speed) to measure any increase in particulate radioactivity because it must build up on the filter paper. Because of this relatively low range or saturation point, high

sensitivity, and inherent time lag, the operators cannot rely solely on these instruments to assess conditions inside the containment following an SSE. Other measures, such as those proposed by the licensee must also be used to adequately assess post-SSE conditions inside containment. Therefore, the staff concludes that the licensee, through the use of other plant instrumentation, sampling capability, and plant procedures, has adequately addressed Position C.6 of RG 1.45 with regards to the capability to assess conditions inside containment following an earthquake comparable to an SSE. Also, the seismic qualification of the CAPRMs would not provide any significant increase in safety nor would it provide any measurable decrease in overall plant risk.

3.0 SUMMARY

Based on its evaluation, the staff concludes that the licensee has demonstrated an acceptable alternative to Position C.6 of RG 1.45 by showing that adequate instrumentation and procedures will be available to assess conditions inside containment following a seismic event comparable to an SSE. Therefore, the licensee's proposed UFSAR change to delete the seismic qualification requirement for the CAPRMs is acceptable and should be approved.

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

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an Environmental Assessment and Finding of No Significant Impact has been prepared and was published in the Federal Register (60 FR 66567) on December 22 ,1995.

Accordingly, based upon the Environmental Assessment, the Commission has determined that issuance of this amendment will not have a significant effect on the quality of the human environment.

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: William LeFave

Date: December 29, 1995