

Docket Nos. 50-369
and 50-370

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Mr. M. S. Tuckman
Vice President -
Nuclear Operations
Duke Power Company
P. O. Box 1007
Charlotte, North Carolina 28201-1007

Dear Mr. Tuckman:

SUBJECT: ISSUANCE OF AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NPF-9 AND
AMENDMENT NO. 109 TO FACILITY OPERATING LICENSE NPF-17 -
MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 (TAC 80308)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 127 to Facility Operating License NPF-9 and Amendment No. 109 to Facility Operating License NPF-17 for the McGuire Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated April 18, 1991.

The amendments revise TS 5.3.1 to enable the use of two demonstration assemblies during McGuire Unit 1 Cycles 8, 9, and 10.

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

Sincerely,

/s/

Timothy A. Reed, Project Manager
Project Directorate II-3
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No.127 to NPF-9
- 2. Amendment No.109 to NPF-17
- 3. Safety Evaluation

cc w/enclosures:
See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
October 31, 1991

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and 50-370

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Sincerely,

A handwritten signature in black ink, appearing to read "Timothy A. Reed".

Timothy A. Reed, Project Manager
Project Directorate II-3
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:

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3. Safety Evaluation

cc w/enclosures:
See next page

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Duke Power Company

McGuire Nuclear Station

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DATED: October 31, 1991

AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NPF-9 - McGuire, Unit 1
AMENDMENT NO. 109 TO FACILITY OPERATING LICENSE NPF-17 - McGuire, Unit 2

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

DUKE POWER COMPANY

DOCKET NO. 50-369

McGUIRE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 127
License No. NPF-9

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the McGuire Nuclear Station, Unit 1 (the facility) Facility Operating License No. NPF-9 filed by the Duke Power Company (the licensee) dated April 18, 1991, 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-9 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 127, are hereby incorporated into the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Deon McKenna for

David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: October 31, 1991



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

DUKE POWER COMPANY

DOCKET NO. 50-370

McGUIRE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 109
License No. NPF-17

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the McGuire Nuclear Station, Unit 2 (the facility) Facility Operating License No. NPF-17 filed by the Duke Power Company (the licensee) dated April 18, 1991, 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-17 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 109, are hereby incorporated into the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Eileen M McKenna for
David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: October 31, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 127

FACILITY OPERATING LICENSE NO. NPF-9

DOCKET NO. 50-369

AND

TO LICENSE AMENDMENT NO. 109

FACILITY OPERATING LICENSE NO. NPF-17

DOCKET NO. 50-370

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contains vertical lines indicating the areas of change.

Remove Page

5-6

Insert Page

5-6

DESIGN FEATURES

5.2.1.2 REACTOR BUILDING

- a. Nominal annular space = 5 feet.
- b. Annulus nominal volume = 427,000 cubic feet.
- c. Nominal outside height (measured from top of foundation base to the top of the dome) = 177 feet.
- d. Nominal inside diameter = 125 feet.
- e. Cylinder wall minimum thickness = 3 feet.
- f. Dome minimum thickness = 2.25 feet.
- g. Dome inside radius = 87 feet.

DESIGN PRESSURE AND TEMPERATURE

5.2.2 The reactor containment is designed and shall be maintained for a maximum internal pressure of 15.0 psig and a temperature of 250°F.

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The core shall contain 193 fuel assemblies with each fuel assembly nominally containing 264 fuel rods clad with Zircaloy-4,* except that substitutions of fuel rods by filler rods consisting of Zircaloy-4 or stainless steel, or by vacancies, may be made in fuel assemblies if justified by cycle-specific reload analyses using NRC-approved methodology. Should more than 30 rods in the core, or 10 rods in any assembly, be replaced per refueling, a special report describing the number of rods replaced will be submitted to the Commission pursuant to Specification 6.9.2 within 30 days after cycle startup. Each fuel rod shall have a nominal active fuel length of 144 inches. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 4.0 weight percent U-235.

CONTROL ROD ASSEMBLIES

5.3.2 The core shall contain 53 full-length and no part-length control rod assemblies. The full-length control rod assemblies shall contain a nominal 142 inches of absorber material. The nominal values of absorber material for Unit 1 control rods shall be 80% silver, 15% indium, and 5% cadmium. The nominal values of absorber material for Unit 2 control rods shall be 100% boron carbide (B₄C) for 102 inches and 80% silver, 15% indium, and 5% cadmium for the 40-inch tip. All control rods shall be clad with stainless steel tubing.

*McGuire Unit 1 will use two demonstration assemblies in cycles 8, 9, and 10. These assemblies will contain \geq 30 fuel rods each which are clad with a zirconium-based alloy other than Zircaloy-4, as described in BAW-2133P.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NPF-9
AND AMENDMENT NO. 109 TO FACILITY OPERATING LICENSE NPF-17
DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION, UNITS 1 AND 2
DOCKET NOS. 50-369 AND 50-370

1.0 INTRODUCTION

By letter dated April 18, 1991, the Duke Power Company (licensee) submitted a request for changes to the McGuire Nuclear Station, Units 1 and 2, Technical Specifications (TS). The requested changes would revise TS 5.3.1 to enable the use of two demonstration assemblies during McGuire Unit 1 Cycles 8, 9, and 10.

2.0 EVALUATION

The licensee analyzed the advanced alloy cladding material properties and performance. The licensee concluded that the results of testing and evaluations support the safety of the planned irradiations of the two demonstration assemblies in reactor service. Inasmuch as these two assemblies are test assemblies and the data from these assemblies will be used to achieve improved performance for future fuel rod material, we conclude that the licensee has provided adequate assurance for these two assemblies in McGuire Cycle 8 reload.

The staff considers these two demonstration assemblies as lead test assemblies (LTAs). In general, there are two criteria governing the use of LTAs: (1) the total number of demonstration assemblies in one core should be limited, and (2) the demonstration assemblies should not be loaded in limiting positions. The licensee's demonstration program conforms to these criteria. We conclude that these two demonstration assemblies are acceptable for McGuire Cycle 8 and future cycles.

The licensee requested an exemption to 10 CFR 50.46 since the two demonstration assemblies contain cladding material which is not Zircaloy, but has similar chemical properties. The staff, on its own initiative, issued an exemption to 10 CFR 50 Appendix K, 10 CFR 50.44, and 50.46 on September 27, 1991. The basis for the exemption is that calculations performed in accordance with 10 CFR 50.46, 10 CFR 50 Appendix K, and 10 CFR 50.44 are conservative and bounding for the two demonstration assemblies. The chemical similarity between the advanced claddings and Zircaloy, in conjunction with the small number of advanced clad fuel rods present in the two demonstration assemblies, ensures that previous consideration of the metal-water reaction and subsequent hydrogen production will not significantly change. Additionally, the demonstration assemblies meet the same design bases, setpoints, and safety limits as the fuel currently in the McGuire Unit 1 reactor.

Section 5.3 Reactor Core, Fuel Assemblies was revised to include a footnote that would allow the use of two demonstration assemblies which contain at least 30 fuel rods of advanced alloy in each assembly. Based on the above evaluation, we conclude that the change is acceptable.

The NRC staff has reviewed the licensee's TS change submittal for McGuire Cycle 8 and future cycles. Based on the staff's evaluation of the advanced alloy requirements, the use of two demonstration assemblies and TS changes for McGuire Cycle 8 and future cycles are approved.

3.0 STATE CONSULTATION

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

4.0 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. 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 (56 FR 27041). 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.

5.0 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. Wu, SRXB/DST

Date: October 31, 1991