

January 31, 1994

Docket Nos. 50-369  
and 50-370

Mr. T. C. McMeekin  
Vice President, McGuire Site  
Duke Power Company  
12700 Hagers Ferry Road  
Huntersville, North Carolina 28078-8985

Distribution  
Docket File  
NRC/Local PDRs  
PDII-3 Reading  
S.Varga  
L.Plisco  
V.Nerses  
L.Berry  
OGC 15B18

R.Jones, 8E23  
D.Hagan MNB4702  
G.Hill(4) P1-37  
C.Grimes 11F23  
ACRS(10) P-135  
PA 17F2  
OC/LFMB MNB4702  
E.Merschhoff, RII  
D.Pickett 13D1

Dear Mr. McMeekin:

SUBJECT: ISSUANCE OF AMENDMENTS - MCGUIRE NUCLEAR STATION, UNITS 1 AND 2  
(TAC NOS. M84988 AND M84989)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 139 to Facility Operating License NPF-9 and Amendment No. 121 to Facility Operating License NPF-17 for the McGuire Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated October 28, 1992, as supplemented December 14, 1993.

The amendments remove the Reactor Vessel Material Surveillance Program - Withdrawal Schedule (Table 4.4-5) from the TS and make other administrative changes associated with the removal of the withdrawal schedule in response to Generic Letter (GL) 91-01.

The submittal also included a new withdrawal schedule for Unit 1 per the recommendations of Surveillance Capsule Report (WCAP-12354) to meet the commitment made in a letter to the NRC dated July 3, 1992, in response to GL 91-01. The new withdrawal schedule will be reviewed by the staff and addressed in a separate letter.

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:  
Victor Nerses, Project Manager  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 139 to NPF-9
2. Amendment No. 121 to NPF-17
3. Safety Evaluation

EMCB\*

cc w/enclosures:

See next page

\*SEE PREVIOUS CONCURRENCE

J.STROSNIDER

1/27/94

OFFICE	PDII-3/LA	PDII-3/PE*	PDII-3/PM	OGC*	PDII-3/D
NAME	LBERRY	JSTAREFOS	VNERSES		L.PLISCO
DATE	1/27/94	10/28/93	1/28/94	11/08/93	1/31/94

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DATE	1/27/94	10/28/93	1/18/94	11/08/93	1/31/94

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FILE NAME: G:\MCGUIRE\MCG84988.AMD

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Duke Power Company

McGuire Nuclear Station

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

DUKE POWER COMPANY

DOCKET NO. 50-369

McGUIRE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 139  
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 (licensee) dated October 28, 1992, as supplemented December 14, 1993, 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.

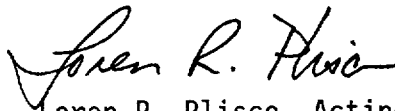
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-9 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 139, are hereby incorporated into this 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



Loren R. Plisco, Acting Director  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: January 31, 1994



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

DUKE POWER COMPANY

DOCKET NO. 50-370

McGUIRE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 121  
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 1 (the facility), Facility Operating License No. NPF-17 filed by the Duke Power Company (licensee) dated October 28, 1992, as supplemented December 14, 1993, 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.

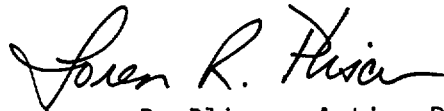
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-17 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 121, are hereby incorporated into this 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



Loren R. Plisco, Acting Director  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: January 31, 1994

ATTACHMENT TO LICENSE AMENDMENT NO.139

FACILITY OPERATING LICENSE NO. NPF-9

DOCKET NO. 50-369

AND

TO LICENSE AMENDMENT NO.121

FACILITY OPERATING LICENSE NO. NPF-17

DOCKET NO. 50-370

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

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Insert Pages

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## REACTOR COOLANT SYSTEM

### 3/4.4.9 PRESSURE/TEMPERATURE LIMITS

## REACTOR COOLANT SYSTEM

### LIMITING CONDITION FOR OPERATION

---

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2, 3.4-3, 3.4-4, and 3.4-5 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

- a. Maximum heatup rates as specified in Figures 3.4-2 and 3.4-3
- b. Maximum cooldown rates as specified in Figures 3.4-4 and 3.4-5
- c. A maximum temperature change of less than or equal to 10°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

#### ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS  $T_{avg}$  and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

---

4.4.9.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.9.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, as required by 10 CFR 50, Appendix H. The results of these examinations shall be used to update Figures 3.4-2, 3.4-3, 3.4-4, and 3.4-5.

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## REACTOR COOLANT SYSTEM

### BASES

#### PRESSURE/TEMPERATURE LIMITS (Continued)

The fracture toughness properties of the ferritic materials in the reactor vessel are determined in accordance with the NRC Standard Review Plan, ASTM E185-73, and in accordance with additional reactor vessel requirements. These properties are then evaluated in accordance with Appendix G of the 1976 Summer Addenda to Section III of the ASME Boiler and Pressure Vessel Code and the calculation methods described in WCAP-7924-A, "Basis for Heatup and Cooldown Limit Curves, April 1975."

Heatup and cooldown limit curves are calculated using the most limiting value of the nil-ductility reference temperature,  $RT_{NDT}$ , at the end of the effective full power years (EFPY) of service life identified on the applicable technical specification figure. The 10 EFPY service life period is chosen such that the limiting  $RT_{NDT}$  at the 1/4T location in the core region is greater than the  $RT_{NDT}$  of the limiting unirradiated material. The selection of such a limiting  $RT_{NDT}$  assures that all components in the Reactor Coolant System will be operated conservatively in accordance with applicable Code requirements.

The reactor vessel materials have been tested to determine their initial  $RT_{NDT}$ ; the results of these tests are shown in Table B 3/4.4-1. Reactor operation and resultant fast neutron (E greater than 1 MeV) irradiation can cause an increase in the  $RT_{NDT}$ . Therefore, an adjusted reference temperature, based upon the fluence, copper content, and phosphate content of the material in question, can be predicted using Figure B 3/4.4-1 and the largest value of  $\Delta RT_{NDT}$ . For Unit 1, the adjusted reference temperature has been computed by Regulatory Guide 1.99, Revision 2. For Unit 2, the adjusted reference temperature has been computed as discussed in WCAP-11029. The heatup and cooldown limit curves of Figures 3.4-2, 3.4-3, 3.4-4 and 3.4-5 include predicted adjustments for this shift in  $RT_{NDT}$  at the end of the identified service life. Adjustments for possible errors in the pressure and temperature sensing instruments are included when stated on the applicable figure.

Values of  $\Delta RT_{NDT}$  determined in this manner may be used until the results from the material surveillance program, evaluated according to ASTM E185, are available. Capsules will be removed in accordance with the requirements of ASTM E185-73 and 10 CFR 50, Appendix H. The lead factor represents the relationship between the fast neutron flux density at the location of the capsule and the inner wall of the pressure vessel. Therefore, the results obtained from the surveillance specimens can be used to predict the future radiation damage to the pressure vessel material by using the lead factor and the withdrawal time of the capsule. The heatup and cooldown curves must be recalculated when the  $\Delta RT_{NDT}$  determined from the surveillance capsule exceeds the calculated  $\Delta RT_{NDT}$  for the equivalent capsule radiation exposure.

Allowable pressure-temperature relationships for various heatup and cooldown rates are calculated using methods derived from Appendix G in Section III of the ASME Boiler and Pressure Vessel Code as required by Appendix G to 10 CFR Part 50, and these methods are discussed in detail in WCAP-7924-A.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 139 TO FACILITY OPERATING LICENSE NPF-9  
AND AMENDMENT NO. 121 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 October 28, 1992, as supplemented December 14, 1993, Duke Power Company (the licensee) submitted a request for changes to the McGuire Nuclear Station, Units 1 and 2, Technical Specifications (TS). The requested changes would remove the "Reactor Vessel Material Surveillance Program - Withdrawal Schedule" from the TS and implement associated administrative changes. These changes are reflected in proposed TS 4.4.9.1.2 and Table 4.4-5, and the appropriate section of the TS Bases. The December 14, 1993, letter provided clarifying information that did not change the scope of the October 28, 1992, application and the initial proposed no significant hazards consideration determination. The staff's safety evaluation of the proposed changes follows.

2.0 EVALUATION

As stated in Generic Letter 91-01, a program for reactor vessel material surveillance ensures the availability of data to update the inservice operating temperature and pressure limits. This program will assist in fulfilling the requirements of Appendix H to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) to prevent brittle fracture of the reactor vessel. The surveillance requirements associated with these limits specify the withdrawal schedule for the reactor vessel material specimens. Section II.B.3 of Appendix H to 10 CFR Part 50 requires that a proposed withdrawal schedule be submitted to, and approved by the NRC before implementation. Hence, the placement of this schedule for material specimens in the TS duplicates the controls on changes to this schedule that have been established by Appendix H.

The removal of the schedule from the TS will not result in any loss of regulatory control because changes to this schedule are controlled by the requirements of Appendix H to 10 CFR Part 50.

The NRC staff finds that the proposed amendments for McGuire with respect to the removal of the schedule for the withdrawal of reactor vessel specimens from the TS are consistent with the regulations, have no adverse safety implication, and are, therefore, acceptable.

### 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 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 (57 FR 61112 dated December 23, 1992). 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: J. Starefos

Date: January 31, 1994