

March 24, 1987

Docket Nos.: 50-369
and 50-370

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

Subject: Issuance of Amendment No.69 to Facility Operating License NPF-9 and
Amendment No.50 to Facility Operating License NPF-17 - McGuire
Nuclear Station, Units 1 and 2

The Nuclear Regulatory Commission has issued the enclosed Amendment No.69 to
Facility Operating License NPF-9 and Amendment No. 50 to Facility Operating
License NPF-17 for the McGuire Nuclear Station, Units 1 and 2. These amend-
ments consist of changes to the Technical Specifications in response to
your letters dated February 17, 1986, and February 5 and March 16, 1987.

The amendments change Technical Specification 3/4.9.12 regarding restrictions
for fuel assemblies placed in Region 2 of the spent fuel storage pool. The
amendments are effective as of their date of issuance.

A copy of the related safety evaluation supporting Amendment No.69 to Facility
Operating License NPF-9 and Amendment No.50 to Facility Operating License NPF-17
is enclosed.

Notice of issuance of amendments will be included in the Commission's next
bi-weekly Federal Register notice.

Sincerely,

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Darl Hood, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A

Enclosures:

1. Amendment No. 69 to NPF-9
2. Amendment No. 50 to NPF-17
3. Safety Evaluation

cc w/enclosures: See next page

Distribution:

See attached page

PWR#4/DPWR-A
*MDuncan/mac
11/14/86

PWR#4/DPWR-A
*DHood
11/14/86
3/23/87
DSt

* SEE PREVIOUS CONCURRENCES

PWR#4/DPWR-A
BJYoungblood
03/24/87

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Mr. H. B. Tucker
Duke Power Company

McGuire Nuclear Station

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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. 69
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 February 17, 1986, and supplemented February 5 and March 16, 1987, 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, as amended, 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, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachments to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-9 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.69, 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

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Darl Hood, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A

Attachment:
Technical Specification
Changes

Date of Issuance: March 24, 1987

PWR#4/DPWR-A
MDuncan:mac
11/14/86

DSH
PWR#4/DPWR-A
DHood
11/14/86
3/23/87 DSH

in
FOB/DPWR-A
VBenaroya
12/3/86

OGC/BETH
J. O'Hara
12/15/86

PWR#4/DPWR-A
BJYoungblood
3/24/87



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.50
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 February 17, 1986, and supplemented February 5 and March 16, 1987, 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, as amended, 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 attachments to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-17 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.50, 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

151

Darl Hood, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A

Attachment:
Technical Specification
Changes

Date of Issuance: March 24, 1987

PWR#4/DPWR-A
MDuncan:mac
11/14/86

DSH
PWR#4/DPWR-A
DHood
11/14/86
3/23/87 DSH

WB
FOB/DPWR-A
VBenaroya
12/3/86

OGC/BETH
Jenkins
12/15/86
[Signature]

PWR#4/DPWR-A
BJYoungblood
12/24/86
[Signature]

ATTACHMENT TO LICENSE AMENDMENT NO. 69

FACILITY OPERATING LICENSE NO. NPF-9

DOCKET NO. 50-369

AND

TO LICENSE AMENDMENT NO. 50

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.

Amended
Page

3/4 9-16
3/4 9-17

B3/4 9-3

REFUELING OPERATIONS

3/4.9.12 FUEL STORAGE - SPENT FUEL STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.9.12 Fuel is to be stored in the spent storage pool with:

- a. The boron concentration in the spent fuel pool maintained at greater than or equal to 2000 ppm; and
- b. Storage in Region 2 restricted to irradiated fuel which has decayed at least 16 days and one of the following:
 - 1) fuel which has been qualified in accordance with Table 3.9-1; or
 - 2) Fuel which has been qualified by means of an analysis using NRC approved methodology to assure with a 95 percent probability at a 95 percent confidence level that k_{eff} is no greater than 0.95 including all uncertainties; or
 - 3) Unqualified fuel stored in a checkerboard configuration. In the event checkerboard storage is used, one row between normal storage locations and checkerboard storage locations will be vacant.

APPLICABILITY:

During storage of fuel in the spent fuel pool.

ACTION:

- a. Suspend all actions involving the movement of fuel in the spent fuel pool if it is determined a fuel assembly has been placed in the incorrect Region until such time as the correct storage location is determined. Move the assembly to its correct location before resumption of any other fuel movement.
- b. Suspend all actions involving the movement of fuel in the spent fuel pool if it is determined the pool boron concentration is less than 2000 ppm, until such time as the boron concentration is increased to 2000 ppm or greater.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.9.12a. Verify all fuel assemblies to be placed in Region 2 of the spent fuel pool are within the enrichment and burnup limits of Table 3.9-1 or that $k_{eff} \leq 0.95$ by checking the assemblies' design and burnup documentation or the assemblies' qualifying analysis documentation respectively.
- b. Verify at least once per 31 days that the spent fuel pool boron concentration is greater than 2000 ppm.

Table 3.9-1

Minimum Burnup Versus Initial Enrichment for Region 2 Storage

<u>Initial Enrichment</u> <u>w/o U-235</u>	<u>Assembly Burnup</u> <u>(GWD/MT)</u>
1.4	0.00
1.5	2.50
1.6	5.00
1.7	6.65
1.8	8.30
1.9	9.95
2.0	11.60
2.1	13.20
2.2	14.60
2.3	16.00
2.4	17.40
2.5	18.80
2.6	20.20
2.7	21.40
2.8	22.60
2.9	23.90
3.0	25.20
3.1	26.60
3.2	27.80
3.3	28.93
3.4	30.07
3.5	31.20
3.6	32.26
3.7	33.32
3.8	34.38
3.9	35.44
4.0	36.50

3/4.9.9 and 3/4.9.10 WATER LEVEL - REACTOR VESSEL and STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gas activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the accident analysis.

3/4.9.11 FUEL HANDLING VENTILATION EXHAUST SYSTEM

The limitations on the Fuel Handling Ventilation Exhaust System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorbers prior to discharge to the atmosphere. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the accident analyses. ANSI N510-1975 will be used as a procedural guide for surveillance testing. The methyl iodide penetration test criteria for the carbon samples have been made more restrictive than required for the assumed iodine removal in the accident analysis because the humidity to be seen by the charcoal adsorbers may be greater than 70% under normal operating conditions.

3/4.9.12 FUEL STORAGE - SPENT FUEL STORAGE POOL

The requirements for fuel storage in the spent fuel pool on 3.9.12 (a) and (b) ensure that: (1) the spent fuel pool will remain subcritical during fuel storage; and (2) a uniform boron concentration is maintained in the water volume in the spent fuel pool for reactivity control. The value of 0.95 or less for K_{eff} which includes all uncertainties at the 95/95 probability/confidence level as described in Section 9.1.2.3.1 of the FSAR is the acceptance criteria for fuel storage in the spent fuel pool. Table 3.9-1 is conservatively developed in accordance with the acceptance criteria and methodology referenced in Section 5.6 of the Technical Specifications. Storage in a checkerboard configuration in Region 2 meets all the acceptance criteria referenced in Section 5.6 of the Technical Specifications and is verified in a semi-annual basis after initial verification through administrative controls.

The Action Statement applicable to fuel storage in the spent fuel pool ensures that: (1) the spent fuel pool is protected from distortion in the fuel storage pattern that could result in a critical array during the movement of fuel; and (2) the boron concentration is maintained at 2000 ppm during all actions involving movement of fuel in the spent fuel pool.

The Surveillance Requirements applicable to fuel storage in the spent fuel pool ensure that: (1) fuel stored in Region 2 meets the enrichment and burnup limits of Table 3.9-1 or the $K_{eff} \leq 0.95$ acceptance criteria of an analysis using NRC approved methodology; and (2) the boron concentration meets the 2000 ppm limit.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 69 TO FACILITY OPERATING LICENSE NPF-9
AND AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NPF-17

DUKE POWER COMPANY

DOCKET NOS. 50-369 AND 50-370

McGUIRE NUCLEAR STATION, UNITS 1 AND 2

INTRODUCTION

Each McGuire unit has a two-region spent fuel storage pool. In region 1 the center-to-center spacing of fuel assemblies and the amount of neutron absorber (boron) in the racks is such that fresh fuel containing up to 4.0 weight percent U-235 may be safely stored. In region 2 the assemblies are stored closer together and less boron is built into the racks. Technical Specification (TS) 3/4.9.12 states that fuel may be stored in this region only if it has achieved a certain minimum burnup which is dependent on its initial enrichment. TS Figure 3.9-2 is a curve which shows the required minimum burnup.

By letter dated February 17, 1986, Duke Power Company (the licensee) made application to amend the licenses of the McGuire Nuclear Station, Units 1 and 2. The proposed amendments would change the TSs so as to:

1. Replace TS Figure 3.9-2 with a Table 3.9-1 containing the same information.
2. Add the capability to perform a safety (criticality) analysis on individual fuel assemblies as an acceptance criterion for fuel storage in region 2, and
3. Add a Bases 3/4.9.12 to the TSs to discuss fuel storage.

EVALUATION

1. Substitution of Table 3.9-1 for Figure 3.9-2

The licensee has concluded that it will be easier for the operators to use a table rather than a figure to determine the minimum burnup for the initial enrichment required for region 2 storage. Use of the table is expected to reduce the probability of error. The NRC has reviewed proposed Table 3.9-1 and finds that it contains the same information as that of Figure 3.9-2 which it replaces. Therefore, we find the change to be of an administrative nature and acceptable.

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2. Use of Criticality Analysis

The licensee proposes to perform criticality analyses for assemblies that do not appear to qualify for inclusion under the conservative table (Table 3.9-1) of minimum burnups in the TSSs. As stated in the licensee's letters dated February 5 and March 16, 1987, the analysis would be performed using NRC approved methodology. The currently approved methodology is that which was previously reviewed and approved by the NRC for the existing rack design (see previous Amendments 35 (Unit 1) and 16 (Unit 2)). The same acceptance criterion (K_{eff} no greater than 0.95, including all uncertainties, at a 95 percent probability with a 95 percent confidence level) would also be used. Therefore, we conclude that this change is acceptable.

3. Addition of Bases 3/4.9.12

We have reviewed the licensee's proposed Bases 3/4.9.12 and find that it adequately describes the purpose and design basis associated with the Limiting Conditions for Operation and Surveillance Requirements for TS 3/4.9.12.

ENVIRONMENTAL CONSIDERATION

These amendments involve changes to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The 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 exposure. The NRC staff has made a determination that the amendments involve no significant hazards consideration, and there has been no public comment on such finding. 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 these amendments.

CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register (51 FR 30571) on August 27, 1986. The licensee's subsequent submittals dated February 5 and March 16, 1987, do not alter the scope of the licensee's requested amendment as described in the August 27, 1986 Federal Register; nor do they affect the Commission's proposed no significant hazards consideration determination. The Commission consulted with the state of North Carolina. No public comments were received, and the state of North Carolina did not have any comments.

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: W. Brooks, PARS
Darl S. Hood, PWR#4

Dated: March 24, 1987

DATED: March 24, 1987

AMENDMENT NO. 69TO FACILITY OPERATING LICENSE NPF-9 - McGuire Nuclear Station, Unit 1
AMENDMENT NO. 50TO FACILITY OPERATING LICENSE NPF-17 - McGuire Nuclear Station, Unit 2

DISTRIBUTION:

Docket File 50-369/370

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