

Docket Nos.: 50-369  
and 50-370

November 18, 1986

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.65 to Facility Operating License NPF-9 and  
Amendment No.46 to Facility Operating License NPF-17 - McGuire  
Nuclear Station, Units 1 and 2

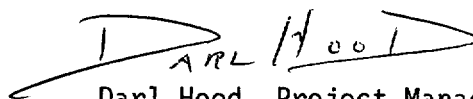
The Nuclear Regulatory Commission has issued the enclosed Amendment No.65 to Facility Operating License NPF-9 and Amendment No.46 to Facility Operating License NPF-17 for the McGuire Nuclear Station, Units 1 and 2. These amendments consist of changes to the Technical Specifications in response to your application dated December 12, 1985.

The amendments change Technical Specification 4.2.5 and Table 3.2-1 "DNB parameters" for the Reactor Coolant System average temperature and pressurizer pressure so as to provide for direct comparison of measured values with parameter limits. The amendments are effective as of their date of issuance.

A copy of the related safety evaluation supporting Amendment No.65 to Facility Operating License NPF-9 and Amendment No.46 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,



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

Enclosures:

1. Amendment No. 65 to NPF-9
2. Amendment No. 46 to NPF-17
3. Safety Evaluation

cc w/enclosures: See next page

DISTRIBUTION:

See attached page

PWR#4/DPWR-A  
MDuncan/mac  
10/28/86

DSH  
PWR#4/DPWR-A  
DHood  
10/28/86

DSH  
PWR#4/DPWR-A  
BJYoungblood  
10/28/86

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Mr. H. B. Tucker  
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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. 65  
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 December 12, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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 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.46, 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: November 18, 1986

*MD*  
PWR#4/DPWR-A  
MDuncan:mac  
10/28/86

*DSH for*  
PWR#4/DPWR-A  
BJYoungblood  
10/28/86

*DSH*  
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DHood  
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*CLB*  
RSB/DPWR-A  
CBerlinger  
10/29/86

*WB*  
FOB/DPWR-A  
FBenaroya  
10/29/86

*OGC/BETH JOHNSON*  
10/26/86  
*10/28/86*  
*ycle to notice*



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. 46  
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 December 12, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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 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-9 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No.65, 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: November 18, 1986

*MD*  
PWR#4/DPWR-A  
MDuncan:mac  
10/26/86

*DSH*  
PWR#4/DPWR-A  
DHood  
10/28/86

*CUB*  
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CBerlinger  
10/29/86

*WB*  
FOB/DPWR-A  
FBenaroya  
10/29/86

*OGC/BETH JOHNSON*  
10/26/86  
*good*  
*w/ ch to notice*

*DSH*  
PWR#4/DPWR-A  
BJYoungblood  
10/28/86

ATTACHMENT TO LICENSE AMENDMENT NO. 65

FACILITY OPERATING LICENSE NO. NPF-9

DOCKET NO. 50-369

AND

TO LICENSE AMENDMENT NO. 46

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 2-22

3/4 2-23

B3/4 2-5

## POWER DISTRIBUTION LIMITS

### 3/4.2.5 DNB PARAMETERS

#### LIMITING CONDITION FOR OPERATION

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3.2.5 The following DNB related parameters shall be maintained within the limits shown on Table 3.2-1:

- a. Reactor Coolant System  $T_{avg}$ , and
- b. Pressurizer Pressure.

APPLICABILITY: MODE 1.

#### ACTION:

With any of the above parameters exceeding its limit, restore the parameter to within its limit within 2 hours or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 4 hours.

#### SURVEILLANCE REQUIREMENTS

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4.2.5 Each of the parameters of Table 3.2-1 shall be measured by averaging the indications (meter or computer) of the operable channels and verified to be within their limits at least once per 12 hours.



TABLE 3.2-1

DNB PARAMETERS

<u>PARAMETER</u>	<u>INDICATION</u>	<u># OPERABLE CHANNELS</u>	<u>LIMITS*</u>
Indicated Reactor Coolant System T <sub>avg</sub>	meter	4	≤590.5°F
	meter	3	≤590.2°F
	computer	4	≤591.0°F
	computer	3	≤590.8°F
	meter	4	>2226.5 psig
	meter	3	>2229.8 psig
Indicated Pressurizer Pressure**	computer	4	>2221.7 psig
	computer	3	>2224.2 psig

\*Limits applicable during four-loop operation.

\*\*Limits not applicable during either a THERMAL POWER ramp in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step in excess of 10% RATED THERMAL POWER.

## POWER DISTRIBUTION LIMITS

### BASES

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#### 3/4.2.4 QUADRANT POWER TILT RATIO

The QUADRANT POWER TILT RATIO limit assures that the radial power distribution satisfies the design values used in the power capability analysis. Radial power distribution measurements are made during STARTUP testing and periodically during power operation.

The 2-hour time allowance for operation with a tilt condition greater than 1.02 but less than 1.09 is provided to allow identification and correction of a dropped or misaligned rod. In the event such action does not correct the tilt, the margin for uncertainty on  $F_Q$  is reinstated by reducing the power by 3% from RATED THERMAL POWER for each percent of tilt in excess of 1.0.

For purposes of monitoring QUADRANT POWER TILT RATIO when one excore detector is inoperable, the moveable incore detectors are used to confirm that the normalized symmetric power distribution is consistent with the QUADRANT POWER TILT RATIO. The incore detector monitoring is done with a full incore flux map or two sets of four symmetric thimbles. The two sets of four symmetric thimbles is a unique set of eight detector locations. These locations are C-8, E-5, E-11, H-3, H-13, L-5, L-11, N-8.

#### 3/4.2.5 DNB PARAMETERS

The limits on the DNB-related parameters assure that each of the parameters are maintained within the normal steady-state envelope of operation assumed in the transient and accident analyses. The limits are consistent with the initial FSAR assumptions and have been analytically demonstrated adequate to maintain a design limit DNBR throughout each analyzed transient. The indicated  $T_{avg}$  values and the indicated pressurizer pressure values correspond to analytical limits of 592.6°F and 2220 psia respectively, with allowance for indication instrumentation measurement uncertainty.

The 12-hour periodic surveillance of these parameters through instrument readout is sufficient to ensure that the parameters are restored within their limits following load changes and other expected transient operation. Indication instrumentation measurement uncertainties are accounted for in the limits provided in Table 3.2-1.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 65 TO FACILITY OPERATING LICENSE NPF-9  
AND AMENDMENT NO. 46 TO FACILITY OPERATING LICENSE NPF-17

DUKE POWER COMPANY

DOCKET NOS. 50-369 AND 50-370

McGUIRE NUCLEAR STATION, UNITS 1 AND 2

INTRODUCTION

By letter dated December 12, 1985, Duke Power Company, the licensee for McGuire Nuclear Station, Units 1 and 2, requested a change to Technical Specification (TS) surveillance requirement 4.2.5 and its referenced Table 3.2-1 "DNB (departure from nucleate boiling) parameters" for the Reactor Coolant System average temperature (Tavg) and the pressurizer pressure associated with station instrumentation. The existing TS specifying limits for these DNB related parameters does not account for indication instrumentation measurement uncertainties and therefore requires that the measured values, as given by station indication instrumentation, be adjusted for instrumentation uncertainties prior to comparison with the proposed parameter limits of TS Table 3.2-1. The requested amendments would adjust these parameters to include the instrumentation uncertainties, allowing direct comparison against measured values, as indicated on station instrumentation. Associated TS Bases 3/4.2.5 "DNB Parameters" would also be revised to reflect the proposed changes to TS 4.2.5 and Table 3.2-1.

These changes for pressurizer pressure limit in Table 3.2-1 would also correct typographical errors in the existing value and unit (existing value " 2230 psai" should have been " 2200 psia" based upon the values assumed in the FSAR safety analyses) and would express this limit in units of psig rather than psia.

The requested changes to Table 3.2-1 would delete all entries regarding three-loop operation. (Such limits had been left blank and were intended for future amendments pending NRC approval of three-loop operation.)

EVALUATION

McGuire Technical Specification 3.2.5, Limiting Condition for Operation for DNB Parameters, requires that the Reactor Coolant System average temperature and pressurizer pressure be maintained within the limits specified in Table 3.2-1. Associated surveillance specification 4.2.5 requires that these temperature and pressure parameters in Table 3.2-1 be periodically verified to be within their specified limit. Table 3.2-1 specified that the coolant average temperature should be no higher than 593°F and the pressurizer pressure should be no lower than "2300 psai".

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The staff finds that the safety analyses for McGuire were based upon a pressurizer pressure limit no lower than 2200 psia. Therefore, the value in Table 3.2-1 prior to these amendments, 2300 psia, was overly conservative and resulted from a typographical error. This error is corrected in the present amendments in that the changes for pressurizer pressure (discussed below) are based upon the intended value, 2200 psia. The revised pressurizer pressure limits are also specified in units of psig, rather than psia, because station indication instrumentation is in psig.

The revision to Table 3.2-1 by these amendments substitutes new values for the "Reactor Coolant System Tavg" and "Indicated Pressurizer Pressure" respectively. Values are given in the revised table for indication by instrument meters or computer readout available to the station operators. The limits in the revised table are adjusted by appropriate uncertainties in the indicating system so that the limits previously in the Technical Specifications (as corrected for the error in pressurizer pressure) are maintained. Accordingly, surveillance specification 4.2.5 is changed to require that these parameters in Table 3.2-1 be periodically measured by averaging the indications (meter or computer) of the operable channels and verified to be within the revised specified limits. Associated Bases 3/4.2.5, "DNB Parameters," is supplemented to note that (1) the "indicated Tavg values and the indicated pressurizer pressure values correspond to analytical limits of 592.6°F and 2220 psia respectively, with allowance for indication instrumentation measurement uncertainty", and that (2) "the indication instrumentation measurement uncertainties are accounted for in the limits provided in Table 3.2-1."

The revised Table 3.2-1 differentiates between limits for the case of four operable channels and the case of three operable channels. This is appropriate because parameter uncertainty associated with the average of four independent channels is different than that for the average of three independent channels. Similarly, the revised table differentiates between limits for indications provided by analog meters and those provided by digital computers because channel accuracy associated with these two information sources differs.

We find that the uncertainty allowances contained in the licensee's letter of December 12, 1985, and used for the revised limits, are appropriate. Since conformance with the previous Specification requires that the same station indication instrumentation in the new Specification be adjusted for instrumentation uncertainties prior to comparison with the specified limits, the change is essentially administrative, and does not change the safety of the station. We therefore find the revised limits as discussed, including the associated wording changes and revised Basis in the licensee's submittal, acceptable.

Prior to these amendments, Table 3.2-1 had included provisions for limits during operation with three reactor coolant loops in operation. No actual values had been specified; rather, this portion of the table had been intended for future application pending licensee analyses and NRC approval of such operation. In accordance with the licensee's request, the present amendments delete these provisions for including possible future three-loop operation values. The revised Table 3.2-1, therefore, applies only for four-loop operation. Deletion of such provisions does not affect safety and is purely administrative; this change is, therefore, acceptable.

### ENVIRONMENTAL CONSIDERATION

These amendments involve changes to the installation or use of facilities' components located within the restricted area as defined in 10 CFR Part 20. 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 30570) on August 27, 1986, and 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: Marvin Dunenfeld, PARS  
Darl Hood, PWR#4

Dated: November 18, 1986

DATED: November 18, 1986

AMENDMENT NO.65 TO FACILITY OPERATING LICENSE NPF-9 - McGuire Nuclear Station, Unit 1  
AMENDMENT NO.46 TO FACILITY OPERATING LICENSE NPF-17 - McGuire Nuclear Station, Unit 2

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