

July 26, 1983

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. ²³ to Facility Operating License
NPF-9 and Amendment No. ⁴ to Facility Operating License
NPF-17 - McGuire Nuclear Station, Units 1 and 2

The Nuclear Regulatory Commission has issued the enclosed Amendment No. ²³ to Facility Operating License NPF-9 and Amendment No. ⁴ to Facility Operating License NPF-17 for the McGuire Nuclear Station, Units 1 and 2. These amendments are in response to your letters dated April 18, and May 4, 1983.

The amendments change the Technical Specifications to revise the setpoint for Upper Head Injection (UHI) accumulator automatic isolation.

A copy of the related safety evaluation report supporting Amendment No. ²³ to Facility Operating License NPF-9 and Amendment No. ⁴ to Facility Operating License NPF-17 is enclosed.

Sincerely,

[Signature]
Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosures:

1. Amendment No. ²³ to NPF-9
2. Amendment No. ⁴ to NPF-17
3. Safety Evaluation

cc w/encl:
See next page

8308050545 830726
PDR ADOCK 05000369
PDR

OFFICE	LA:DL:LB/4	DL:LB. #4	DL:LB. #4				
SURNAME	MDuncan/hmc	RBirkel	EAdensam				
DATE	7/16/83	7/16/83	7/22/83				

McGuire

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

cc: Mr. A. Carr
Duke Power Company
P.O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Mr. F. J. Twogood
Power Systems Division
Westinghouse Electric Corp.
P.O. Box 355
Pittsburgh, Pennsylvania 15230

Mr. G. A. Copp
Duke Power Company
Nuclear Production Department
P.O. Box 33189
Charlotte, North Carolina 28242

J. Michael McGarry, III, Esq.
Debevoise & Liberman
1200 Seventeenth Street, N.W.
Washington, D. C. 20036

Mr. Wm. Orders
Senior Resident Inspector
c/o U.S. Nuclear Regulatory Commission
Route 4, Box 529
Hunterville, North Carolina 28078

James P. O'Reilly, Regional Admin.
U.S. Nuclear Regulatory Commission,
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dr. John M. Barry
Department of Environmental Health
Mecklenburg County
1200 Blythe Boulevard
Charlotte, North Carolina 28203

Dayne H. Brown, Chief
Radiation Protection Branch
Division of Facility Services
Department of Human Resources

Attorney General
Department of Justice
Justice Building
Raleigh, North Carolina 27602

Office of Intergovernmental Relations
116 West Jones Street
Raleigh, North Carolina 27603

County Manager of Mecklenburg County
720 East Fourth Street
Charlotte, North Carolina 28202

Mr. Bruce Blanchard
Environmental Projects Review
Department of the Interior
Room 4256
18th and C Street, N.W.
Washington, D. C. 20240

EIS Coordinator
U.S. Environmental Protection Agency
Region IV Office
345 Courtland Street, N.E.
Atlanta, Georgia 30308

Chairman, North Carolina
Utilities Commission
430 North Salisbury Street
Dobbs Building
Raleigh, North Carolina 27602

R. S. Howard
Operating Plants Projects
Regional Manager
Westinghouse Electric Corporation -
R&D 701
P.O. Box 2728
Pittsburgh, Pennsylvania 15230

P.O. Box 12200
Raleigh, North Carolina 27605

OFFICE	P.O. Box 12200	Raleigh, North Carolina 27605				
SURNAME						
DATE						

DUKE POWER COMPANY

DOCKET NO. 50-369

MCGUIRE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 23
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 April 18, and supplemented May 4, 1983, 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 license amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - 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:

8308050551 830726
PDR ADDCK 05000369
P PDR

OFFICE							
SURNAME							
DATE							

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 23, 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

S

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Attachment:
Technical Specification
Changes

Date of Issuance: July 26, 1983

*No local objection
to form of license
in accordance
with NRC binding
removed from file*

OFFICE ▶	LA:DL:LB #4	DL:LB #4	OELD	DL:LB #4	AD:L:DL		
SURNAME ▶	MDuncan/tmc	RBirke	<i>Loftin</i>	EAdensam	INovak		
DATE ▶	5/5/83	5/5/83	5/19/83	5/22/83	5/22/83		

DUKE POWER COMPANY

DOCKET NO. 50-370

MCGUIRE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 4
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 (licensee) dated April 18, and supplemented May 4, 1983, 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 license amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - 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:

OFFICE							
SURNAME							
DATE							

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 4, 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

5
Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Attachment:
Technical Specification
Changes

Date of Issuance: July 26, 1983

*No legal objection
to plan of licensee
amendment.
NSHL finding
should be
removed from
SER.*

OFFICE	LA:DL:LB #4	DL:LB #4	OELD	DL:LB #4	AD:L:DJ		
SURNAME	MDuncan/hmc	RBirke	CUTCHIN	EAdensam	TVovak		
DATE	5/2/83	5/5/83	5/19/83	5/27/83	5/25/83		

ATTACHMENT TO LICENSE AMENDMENT NO. 23

FACILITY OPERATING LICENSE NO. NPF-9

DOCKET NO. 50-369

AND

TO LICENSE AMENDMENT NO. 4

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 page is identified by Amendment number and contains a vertical line indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

Amended
Page

3/4 5-4

Overleaf
Page

3/4 5-3

OFFICE ▶							
SURNAME ▶							
DATE ▶							

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the solution in the water-filled accumulator;
- c. At least once per 18 months by:
 - 1) Verifying that each accumulator isolation valve closes automatically when the water level is 76.25 ± 3.3 inches above the bottom inside edge of the water-filled accumulator with atmospheric pressure in the accumulator, and
 - 2) Verifying that the total dissolved nitrogen and air in the water-filled accumulator is less than 80 scf per 1800 cubic feet of water (equivalent to 5×10^{-5} pounds nitrogen per pounds water).
- d. At least once per 5 years by replacing the membrane installed between the water-filled and nitrogen bearing accumulators and verifying that the removed membrane burst at a differential pressure of 40 ± 10 psi.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

McGUIRE NUCLEAR STATION, UNITS 1 AND 2

INTRODUCTION

In a submittal dated April 18, 1983, supplemented by a letter dated May 4, 1983, the licensee submitted a proposed Technical Specification change for the Upper Head Injection (UHI) accumulator water level setpoint and tolerances. The accumulators are presently required to isolate at 76.6 \pm 0.5 inches above the bottom inside edge of the water-filled accumulator. Repeatability of the setpoint for the level instrumentation which provides the UHI accumulator automatic isolation function has been questionable based upon licensee surveillance testing. Because of this, the heat flux hot channel factor, $F_0(Z)$, for the McGuire Units 1 and 2, is being administratively limited by the licensee to 2.20 as stated in Reportable Occurrence Report No. RO-369/82-38 until Technical Specification 4.5.1.2.C.1 is modified.

EVALUATION

The licensee considers the setpoint and tolerance on the accumulator water level unnecessarily restrictive for safe plant operation. Duke has provided an assessment (Ref. 1) which supports changing the water level setpoint to 73.7 inches above the tank vendor working line (76.25 inches after correction for mass of cover gas) with an uncertainty of \pm 3.3 inches. The proposed setpoint and tolerance corresponds to an increased allowable water delivery from the accumulator of 72 ft³.

During the course of the review, the licensee and the vendor (Westinghouse) determined that the proposed technical specification level setpoint tolerance of \pm 4.5 inches should have been \pm 3.3 inches (Ref. 2). Therefore the revised technical specification will include the corrected value of \pm 3.3 inches. The original value was determined by using an incorrect conversion from level to volume in the tank.

The calculations discussed in reference 1 used the 1978 UHI model (Ref. 3) with the 1981 model revisions appropriate for UHI plants (Ref. 4). The first calculation used perfect fluid mixing assumptions for water injected into the upper head; the second calculation used imperfect mixing assumptions. It has been determined generically for UHI plants (Ref. 5) that minimizing the amount of water delivered to the upper head is conservative for imperfect mixing, and maximizing the delivered UHI water is conservative for perfect mixing. Therefore, both cases need to be assessed to determine an allowable setpoint and tolerance. A summary of the worst case results follows:

8308050596 830726
PDR ADOCK 05000369
P PDR

OFFICE							
SURNAME							
DATE							

Table 1

Worst Case McGuire ECCS Performance

Break	Mixing Model	Volume of UHI Delivered (ft ³)	F _Q	PCT (°F)
0.4 DECLG	Imperfect	790	2.32	2119
0.6 DECLG	Perfect	1011	2.32	2188

The perfect mixing calculation was previously calculated and identified as the worst case overall for McGuire. Since this case is already very close to the 10 CFR 50.46 limit of 2200°F, only the imperfect mixing case can be adjusted to decrease the water volume and thus increase the range and tolerance of UHI water delivered. Thus, the imperfect mixing case was recalculated using a volume of delivered water that would be compatible with the measured volume uncertainty range and still meet the 50.46 criteria.

Since both calculations were done with approved acceptable models and the 10 CFR 50.46 limits were not exceeded, we find these analyses in support of expanding the UHI volumetric delivery limits to be acceptable.

ENVIRONMENTAL CONSIDERATION

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

CONCLUSION

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.

OFFICE							
SURNAME							
DATE							

REFERENCES:

1. Letter from Hal B. Tucker (Duke) to Harold R. Denton (NRC) dated 4/18/83.
2. Letter from Hal B. Tucker (Duke) to Harold R. Denton (NRC) dated 5/4/83.
3. WCAP-8478 (Rev. 2) "Westinghouse Emergency Core Cooling System Evaluation Model Application to Plants Equipped with Upper Head Injection," November 1977.
4. WCAP-9229-p-A Rev. 1, "Westinghouse ECCS Evaluation Model 1981 Version," Appendix B, February 1982, (WCAP-9221-A Nonproprietary).
5. Telecopy from TVA dated 4/25/83.

Date: July 26, 1983

Principal Contributors: Norman Lauben, Reactor Systems Branch, DSI
Ralph Birkel, Licensing Branch No. 4, DL

OFFICE	DL:LB #4	LA:DL:LB #4	DSI:RSB	DL:LB #4	AD:I:DL		
SURNAME	RBirkel/hmc	MDuncan	BHorton	EAdensam	TNOvak		
DATE	5/6/83	5/5/83	5/5/83	5/22/83	5/25/83		

July 26, 1983

AMENDMENT NO. 23 TO FACILITY OPERATING LICENSE NPF-9 - McGUIRE NUCLEAR STATION, UNIT 1
AMENDMENT NO. 4 TO FACILITY OPERATING LICENSE NPF-17 - McGUIRE NUCLEAR STATION, UNIT 2

DISTRIBUTION:

✓ Docket Nos. 50-369/370

NRC PDR

Local PDR

TERA

NSIC

LB #4 r/f

E. Adensam

R. Birkel

M. Duncan

Attorney, OELD

D. Eisenhut/R. Purple

R. Hartfield, MPA

R. Diggs, ADM

DA Sarnhart (8)

J. Souder

A. Rosenthal, ASLAB

W. Jones, OA (10)

ACRS (16)

ASLBP

E. L. Jordan, DEQA:I&E

J. M. Taylor, DRP:I&E

L. J. Harmon, I&E File

D. Brinkman, SSPB

H. Denton