

March 31, 1998

Mr. Douglas R. Gipson  
Senior Vice President  
Nuclear Generation  
Detroit Edison Company  
6400 North Dixie Highway  
Newport, MI 48166

SUBJECT: FERMI 2 - ISSUANCE OF AMENDMENT RE: TESTING OF THE REACTOR  
MODE SWITCH REFUEL POSITION INTERLOCKS WITH ONE OR MORE  
CONTROL RODS WITHDRAWN FROM DEFUELED CELLS  
(TAC NO. MA0718)

Dear Mr. Gipson:

The Commission has issued the enclosed Amendment No. 116 to Facility Operating License No. NPF-43 for the Fermi 2 facility. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 28, 1998 (NRC-98-0008).

The amendment revises the "#" footnote in TS Table 1.2 and the "\*" footnote associated with surveillance requirements 4.9.1.2 and 4.9.1.3 to allow placing the mode switch in the Run or Startup/Hot Standby positions to test mode switch interlock functions while control rods are withdrawn from defueled core cells.

A copy of our Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

ORIGINAL SIGNED BY

Andrew J. Kugler, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosures: 1. Amendment No. 116 to NPF-43  
2. Safety Evaluation

cc w/encl: See next page

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Mr. Douglas R. Gipson  
Detroit Edison Company

Fermi 2

cc:

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DATED: March 31, 1998

AMENDMENT NO. 116 TO FACILITY OPERATING LICENSE NO. NPF-43 - FERMI 2

Docket File (50-341)

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

DETROIT EDISON COMPANY

DOCKET NO. 50-341

FERMI 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 116  
License No. NPF-43

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Detroit Edison Company (the licensee) dated January 28, 1998, as supplemented on March 10, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations 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;
  - 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 amended by 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-43 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 116 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. DECo shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance with full implementation within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Andrew J. Kugler, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: March 31, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 116

FACILITY OPERATING LICENSE NO. NPF-43

DOCKET NO. 50-341

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

REMOVE

1-9  
1-10  
3/4 9-1  
3/4 9-2

INSERT

1-9\*  
1-10  
3/4 9-1\*  
3/4 9-2

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\*Overleaf page provided to maintain document completeness. No changes contained on these pages.

TABLE 1.1  
SURVEILLANCE FREQUENCY NOTATION

<u>NOTATION</u>	<u>FREQUENCY</u>
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
Q	At least once per 92 days.
SA	At least once per 184 days.
A	At least once per 366 days.
R	At least once per 18 months (550 days).
S/U	Prior to each reactor startup.
P	Prior to each radioactive release.
NA	Not applicable.

DEFINITIONS

TABLE 1.2  
OPERATIONAL CONDITIONS

<u>CONDITION</u>	<u>MODE SWITCH POSITION</u>	<u>AVERAGE REACTOR COOLANT TEMPERATURE</u>
1. POWER OPERATION	Run	Any temperature
2. STARTUP	Startup/Hot Standby	Any temperature
3. HOT SHUTDOWN	Shutdown <sup>#</sup> , <sup>***</sup>	> 200° F
4. COLD SHUTDOWN	Shutdown <sup>#</sup> , <sup>##</sup> , <sup>***</sup>	≤ 200° F <sup>****</sup>
5. REFUELING*	Shutdown or Refuel <sup>**</sup> , <sup>#</sup>	≤ 140° F

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<sup>#</sup>The reactor mode switch may be placed in the Run, Startup/Hot Standby, or Refuel position to test the switch interlock functions and related instrumentation provided that the control rods are verified to remain fully inserted in core cells containing one or more fuel assemblies by a second licensed operator or other technically qualified member of the unit technical staff.

<sup>##</sup>The reactor mode switch may be placed in the Refuel position while a single control rod drive is being removed from the reactor pressure vessel per Specification 3.9.10.1.

\*Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

\*\*See Special Test Exceptions 3.10.1 and 3.10.3.

\*\*\*The reactor mode switch may be placed in the Refuel position while a single control rod is being recoupled or withdrawn provided that the one-rod-out interlock is OPERABLE.

\*\*\*\*See Special Test Exception 3.10.7.

### 3/4.9 REFUELING OPERATIONS

#### 3/4.9.1 REACTOR MODE SWITCH

##### LIMITING CONDITION FOR OPERATION

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3.9.1 The reactor mode switch shall be OPERABLE and locked in the Shutdown or Refuel position. When the reactor mode switch is locked in the Refuel position:

- a. A control rod shall not be withdrawn unless the Refuel position one-rod-out interlock is OPERABLE.
- b. CORE ALTERATIONS shall not be performed using equipment associated with a Refuel position interlock unless at least the following associated Refuel position interlocks are OPERABLE for such equipment.
  1. All rods in.
  2. Refuel platform position.
  3. Refuel platform hoists/grapple fuel-loaded.
  4. Fuel grapple position.
  5. Service platform hoist fuel-loaded.

APPLICABILITY: OPERATIONAL CONDITION 5\* #.

##### ACTION:

- a. With the reactor mode switch not locked in the Shutdown or Refuel position as specified, suspend CORE ALTERATIONS and lock the reactor mode switch in the Shutdown or Refuel position.
- b. With the one-rod-out interlock inoperable, lock the reactor mode switch in the Shutdown position.
- c. With any of the above required Refuel position equipment interlocks inoperable, suspend CORE ALTERATIONS with equipment associated with the inoperable Refuel position equipment interlock.

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\* See Special Test Exceptions 3.10.1 and 3.10.3.

# The reactor shall be maintained in OPERATIONAL CONDITION 5 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

## REFUELING OPERATIONS

### SURVEILLANCE REQUIREMENTS

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4.9.1.1 The reactor mode switch shall be verified to be locked in the Shutdown or Refuel position as specified:

- a. Within 2 hours prior to:
  1. Beginning CORE ALTERATIONS, and
  2. Resuming CORE ALTERATIONS when the reactor mode switch has been unlocked.
- b. At least once per 12 hours.

4.9.1.2 Each of the above required reactor mode switch Refuel position interlocks\* shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST within 24 hours prior to the start of and at least once per 7 days during control rod withdrawal or CORE ALTERATIONS, as applicable.

4.9.1.3 Each of the above required reactor mode switch Refuel position interlocks\* that is affected shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST prior to resuming control rod withdrawal or CORE ALTERATIONS, as applicable, following repair, maintenance or replacement of any component that could affect the Refuel position interlock.

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\* The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that all control rods are verified to remain fully inserted in core cells containing one or more fuel assemblies by a second licensed operator or other technically qualified member of the unit technical staff.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. <sup>116</sup> TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

FERMI 2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated January 28, 1998 (NRC-98-0008), as supplemented on March 10, 1998 (NRC-98-0036), the Detroit Edison Company (DECo or the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. NPF-43 for Fermi 2. The proposed amendment would revise the "#" footnote in TS Table 1.2 and the "\*" footnote associated with surveillance requirements 4.9.1.2 and 4.9.1.3 to allow placing the mode switch in the Run or Startup/Hot Standby positions to test mode switch interlock functions while control rods are withdrawn from defueled core cells. The March 10, 1998, supplement requested a change in the implementation period and was not outside the scope of the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

In the current TS, the "#" footnote in TS Table 1.2 allows the mode switch to be placed in the Run or Startup/Hot Standby positions to test mode switch interlock functions provided that the control rods are verified to remain fully inserted. The "\*" footnote associated with surveillance requirements 4.9.1.2 and 4.9.1.3 is worded slightly different and allows the mode switch to be placed in the Run or Startup/Hot Standby positions to test mode switch interlock functions provided that all [emphasis added] control rods are verified to remain fully inserted.

At one point during the fifth refueling outage the licensee had multiple control rods withdrawn for maintenance in accordance with TS 3.9.10.2. This TS required that the associated fuel cells be defueled and the licensee had complied with this provision. An equipment problem occurred on the refueling bridge. After repairing the problem, TS required the licensee to test the interlocks before declaring the refuel bridge operable. This would require moving the mode switch from the Refuel or Shutdown positions. The existing footnotes would not allow this action with control rods withdrawn. However, in order to move the rods back into the core, the licensee would need the use of the refuel bridge to place blade guides. This situation identified a deficiency in the TS.

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### 3.0 EVALUATION

The refueling interlocks are designed to reinforce the refueling procedures and to reduce the probability of inadvertent criticality, damage to reactor internals or fuel assemblies, and exposure of personnel to excessive radiation. The interlocks are active when the mode switch is in the Shutdown or Refuel position. Part of the testing of the interlocks requires moving the mode switch out of the Shutdown or Refuel position. The requirement in the footnotes to verify that all rods are inserted is intended to ensure that the core is in a safe configuration before moving the mode switch to a position in which the refueling interlocks are not active. Having all rods inserted ensures that the reactor will remain subcritical.

Defueling a cell means removing the four fuel assemblies around a particular control rod. Once the fuel has been removed from a cell, the associated control rod does not affect the reactivity of the core. The revised footnotes would allow moving the mode switch out of the Shutdown or Refuel position only when the licensee has verified that all control rods have been inserted in core cells containing one or more fuel assemblies. In addition, TS 3.9.1 prohibits core alterations when the mode switch is not in the Shutdown or Refuel position. With these requirements met, there are no credible mechanisms for unacceptable reactivity excursions during the planned interlock testing. Therefore, the staff concludes that the changes proposed by the licensee are acceptable.

### 4.0 STATE CONSULTATION

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

### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The staff has determined that the amendment involves 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 amendment involves no significant hazards consideration and there has been no public comment on such finding (63 FR 9599). Accordingly, the amendment meets 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 amendment.

### 6.0 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Andrew Kugler

Date: March 31, 1998