May 25, 1999

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: RECIRCULATION PUMP DISCHARGE VALVE SURVEILLANCE REQUIREMENT (TAC NO. MA5118)

Dear Mr. Gipson:

The Commission has issued the enclosed Amendment No. 133 to Facility Operating License No. NPF-43 for the Fermi 2 facility. The amendment consists of changes to the Technical Specifications in response to your application dated March 23, 1999 (NRC-99-0025).

The amendment revises Surveillance Requirement (SR) 4.4.1.1.1 to require each recirculation pump discharge valve be demonstrated operable at least once every 18 months, deletes the "*" footnote from the SR, and revises the footnote itself to read "Not used."

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, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosures: 1. Amendment No. 133 to NPF-43
2. Safety Evaluation

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DISTRIBUTION: See attached page

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DATED: May 25, 1999

AMENDMENT NO. 133 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. 133
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 March 23, 1999, 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.

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. 133 , 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 its date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

George F. Dick, Jr., Acting Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: May 25, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 133

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	INSERT
3/4 4-1	3/4 4-1*
3/4 4-2	3/4 4-2

*Overleaf page provided to maintain document completeness. No changes contained on this page.

3/4 4.4 REACTOR COOLANT SYSTEM
3/4 4.4.1 RECIRCULATION SYSTEM
RECIRCULATION LOOPS
LIMITING CONDITION FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2*.

ACTION:

a. With one reactor coolant system recirculation loop not in operation:

1. Within 4 hours:

a) Place the individual recirculation pump flow controller for the operating recirculation pump in the Manual mode.

b) Reduce THERMAL POWER to less than or equal to 67.2% of RATED THERMAL POWER.

c) Limit the speed of the operating recirculation pump to less than or equal to 75% of rated pump speed.

d) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit to the value for single loop operation required by Specification 2.1.2.

e) Change the Average Power Range Monitor (APRM) Simulated Thermal Power - Upscale Flow Biased Scram and Rod Block Trip Setpoints and Allowable Values to those applicable for single recirculation loop operation per Specifications 2.2.1 and 3.3.6.

f) Perform Surveillance Requirement 4.4.1.1.4 if THERMAL POWER is less than or equal to 30% of RATED THERMAL POWER or the recirculation loop flow in the operating loop is less than or equal to 50% of rated loop flow.

2. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant system recirculation loop in operation while in OPERATIONAL CONDITION 1, immediately place the Reactor Mode Switch in the SHUTDOWN position.

c. With no factor coolant system recirculation loops in operation, while in OPERATIONAL CONDITION 2, initiate measures to place the unit in at least HOT SHUTDOWN within the next 6 hours.

*See Special Test Exception 3.10.4.

SURVEILLANCE REQUIREMENTS

4.4.1.1.1 Each pump discharge valve shall be demonstrated OPERABLE by cycling each valve through at least one complete cycle of full travel at least once per 18 months.

4.4.1.1.2 DELETED

4.4.1.1.3 With one reactor coolant system recirculation loop not in operation, at least once per 12 hours verify that:

a. THERMAL POWER is less than or equal to 67.2% of RATED THERMAL POWER, and
b. The individual recirculation pump flow controller for the operating recirculation pump is in the Manual mode, and
c. The speed of the operating recirculation pump is less than or equal to 75% of rated pump speed.

4.4.1.1.4 With one reactor coolant system loop not in operation with THERMAL POWER less than or equal to 30% of RATED THERMAL POWER or with recirculation loop flow in the operating loop less than or equal to 50% of rated loop flow, verify the following differential temperature requirements are met within no more than 15 minutes prior to either THERMAL POWER increase or recirculation flow increase:

a. Less than or equal to 145°F between reactor vessel steam space coolant and bottom head drain line coolant, and
b. Less than or equal to 50°F between the reactor coolant within the loop not in operation and the coolant in the reactor pressure vessel**, and
c. Less than or equal to 50°F between the reactor coolant within the loop not in operation and the operating loop.**

*Not used.

**Requirement does not apply when the recirculation loop not in operation is isolated from the reactor pressure vessel.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 133 FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

FERMI 2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated March 23, 1999, 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 Surveillance Requirement (SR) 4.4.1.1.1 to require each recirculation pump discharge valve be demonstrated operable at least once every 18 months, delete the "*" footnote from the SR, and revise the footnote itself to read "Not used."

2.0 EVALUATION

Current TS SR 4.4.1.1.1 requires the licensee to demonstrate each recirculation pump discharge valve operable by cycling the valves through one complete cycle of full travel during each startup prior to exceeding 25 percent of rated thermal power. The SR is modified by a "*" footnote that indicates that the surveillance is only required if it has not been performed within the previous 31 days.

Fermi 2 operates on an 18-month cycle for refueling outages. With the current TS, if the plant runs the entire cycle without shutting down, the period between performance of this SR would be roughly 18 months. However, if the plant shuts down some time during the operating cycle, the licensee would be required to perform the SR during the startup if it had not been performed within the previous 31 days. This testing is required following any plant shutdown, whether the plant goes to cold shutdown or hot shutdown, and whether the plant is shutdown for hours or days.

Because of concerns related to leakage past the valve packing, the licensee operates with the recirculation pump discharge valves backseated (i.e., opened to the point at which part of the valve stem or disk contacts the valve bonnet in a way that would restrict flow up to the valve packing). Backseating must be performed by an operator at the valve and is required every time the valve is stroked. During short outages, performance of this task results in higher industrial safety risk due to the high temperatures in the vicinity of the valves and in increased radiation doses. In addition, because the plant normally operates with the drywell inerted with nitrogen, this task requires deinerting the drywell, followed by inerting during the subsequent startup, adding cost for the nitrogen and potentially extending the outage.

The licensee proposed to revise the frequency of SR 4.4.1.1.1 to once every 18 months. With this change, the "*" footnote would be unnecessary, and it would be deleted from the SR. To avoid potential confusion, the licensee proposed to leave the "*" footnote itself at the bottom of the page but revise it to read "Not used."

The recirculation pump discharge valves have one active safety function. The pump discharge valve in one of the two recirculation loops is required to close to direct the flow of the low pressure coolant injection (LPCI) system into the reactor vessel. Loop select logic in the LPCI system determines which of the recirculation pump discharge valves should close. In addition to the selected recirculation pump discharge valve, valves in the LPCI system must also move to their accident mode positions in order for the LPCI system to inject water into the reactor vessel. In particular, the injection valves for the two LPCI subsystems must open.

Testing of the LPCI injection valves is required by TS SR 4.5.1.c.1 which requires a system functional test at least once per 18 months. The system functional test verifies, among other things, that the LPCI injection valves will operate in response to a system initiation signal. These valves are also stroke-tested under the plant's Inservice Testing (IST) Program. Testing under the IST program is accomplished during cold shutdown if not performed within the previous 92 days. There are numerous other valves for which IST testing is performed in this mode. In short outages, cold shutdown testing is expected to commence within 48 hours after cold shutdown is reached and continue until all valves are tested or the unit is ready to start up. Completion of all testing is not a prerequisite for plant start-up. It is possible, if the plant operates the entire cycle with no extended outages, that valves in this category would not be tested between refueling outages.

The proposed changes would make the test frequency for the recirculation pump discharge valves the same as that of the LPCI injection valves. The revised SR 4.4.1.1.1 would require the licensee to test the recirculation pump discharge valves at least once every 18 months. These valves would also be tested on a cold shutdown frequency, as required by the current IST Program.

In addition, these valves are periodically tested under the licensee's motor-operated valve testing program established in accordance with Generic Letter 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves," dated September 18, 1996.

In a telephone conference with the NRC staff on May 12, 1999, the licensee discussed its procedures and analysis to provide assurance that manually backseating the recirculation pump discharge valves does not adversely affect the capability of the motor actuators to close the valves (their safety function). For example, the licensee evaluated the design of the recirculation pump discharge valves to verify that backseating will not cause binding of the valve stem or disc. The licensee predicted significant margin between the thrust applied when manually backseating the recirculation pump discharge valves and the output capability of the motor actuators. The licensee also reviewed diagnostic test data from similar valves to provide confidence in the acceptability of backseating the recirculation pump discharge valves. Further, the licensee has experience in operating the recirculation pump discharge valves from their backseat positions without indication of adverse valve performance. The licensee plans to modify the valve packing arrangement in the recirculation pump discharge valves during the next refueling outage to minimize leakage concerns. The licensee also intends to obtain

valve-specific diagnostic test data that will provide additional confidence in motor actuator capability when operating the recirculation pump discharge valves from their backseat position.

In its submittal, the licensee provided the historical performance of the recirculation pump discharge valves. The licensee indicated that there have been two cases in which one of these valves failed to close on demand, in 1988 and 1993. The licensee stated that there have been no failures since 1993 and that each of the recirculation pump discharge valves have been stroked at least 20 times since the last failure.

The current TS SR dictates testing during every plant shutdown if the testing has not been performed within the previous 31 days. This is a higher frequency than required by the IST program. There is no specific reason to test these valves at an increased frequency. Under the proposed change to the TS SR, the valves would be tested at least once every 18 months and in accordance with the IST Program for valves tested during cold shutdown. Under the revised SR and the existing IST Program, the valves would only be tested when the plant is in a mode (cold shutdown) that supports the test without significant increases in radiation doses and higher industrial safety risks. The remaining testing will still provide reasonable assurance that the valves will perform their active safety function when called upon. Therefore, the staff concludes that the proposed changes are acceptable.

3.0 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.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a surveillance requirement. 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 (64 *FR* 19555). 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.

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

Principal Contributor: Andrew J. Kugler

Date: May 25, 1999