June 3, 1988

Docket No. 50-341

Mr. B. Ralph Sylvia
Group Vice President - Nuclear
Operations
Detroit Edison Company
6400 North Dixie Highway
Newport, Michigan 48166

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Dear Mr. Sylvia:

SUBJECT: AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NO. NPF-43: REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS (TAC NO. 67917)

The Commission has issued the enclosed Amendment No. 19 to Facility Operating License No. NPF-43 for the Fermi-2 facility. This amendment consists of changes to the Plant Technical Specifications in response to your letter dated April 20, 1988.

The license amendment revises Technical Specification Table 4.3.1.1-1, "Reactor Protection System Instrumentation Surveillance Requirements," to delete the Daily Channel Check requirements of Note (g) for the Average Power Range Monitor Flow Biased Neutron Flux - High Scram Functional Unit.

A copy of the Safety Evaluation supporting this amendment is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Theodore R. Quay

Theodore R. Quay, Project Manager
Project Directorate III-1
Division of Reactor Projects - III, IV, V
& Special Projects

Enclosures:
1. Amendment No. 19 to NPF-43
2. Safety Evaluation

cc w/enclosures:
See next page

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

June 3, 1988

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6400 North Dixie Highway
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See next page

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Detroit Edison Company

Fermi-2 Facility

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

DETROIT EDISON COMPANY

WOLVERINE POWER SUPPLY COOPERATIVE, INCORPORATED

DOCKET NO. 50-341

FERMI-2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 19
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 April 20, 1988, 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. 19, 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.

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3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Daniel R. Muller, Acting Director
Project Directorate III-1
Division of Reactor Projects - III, IV, V
& Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 3, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 19

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 a vertical line indicating the area of change.

REMOVE	INSERT
3/4 3-7	3/4 3-7
3/4 3-8	3/4 3-8

TABLE 4.3.1.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION[a]	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
1. Intermediate Range Monitors:				
a. Neutron Flux - High	S/U,S,(b)	S/U[c], W	SA	2
	S	W	SA	3, 4, 5
b. Inoperative	NA	W	NA	2, 3, 4, 5
2. Average Power Range Monitor[f]:				
a. Neutron Flux -	S/U,S,(b)	S/U[c], W	SA	2
High, Setdown	S	W	SA	3, 5
b. Flow Biased Neutron Flux - High	S	S/U[c], W	W[d][e],SA,R[h]	1
c. Fixed Neutron Flux - High	S	S/U[c], W	W[d], SA	1
d. Inoperative	NA	W	NA	1, 2, 3, 5
3. Reactor Vessel Steam Dome Pressure - High	S	M	R	1, 2
4. Reactor Vessel Low Water Level - Level 3	S	M	R	1, 2
5. Main Steam Line Isolation Valve - Closure	NA	M	R	1
6. Main Steam Line Radiation - High	S	M	R	1, 2[i]
7. Drywell Pressure - High	S	M	R	1, 2

TABLE 4.3.1.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
8. Scram Discharge Volume Water Level - High				
a. Float Switch	NA	Q	R	1, 2, 5(j)
b. Level Transmitter	S	M	R	1, 2, 5(j)
9. Turbine Stop Valve - Closure	NA	M	R	1
10. Turbine Control Valve Fast Closure	NA	M	NA	1
11. Reactor Mode Switch Shutdown Position	NA	R	NA	1, 2, 3, 4, 5
12. Manual Scram	NA	M	NA	1, 2, 3, 4, 5
13. Backup Manual Scram	NA	R	NA	1, 2, 3, 4, 5

(a) Neutron detectors may be excluded from CHANNEL CALIBRATION.
(b) The IRM and SRM channels shall be determined to overlap for at least ½ decades during each startup after entering OPERATIONAL CONDITION 2 and the IRM and APRM channels shall be determined to overlap for at least ½ decades during each controlled shutdown, if not performed within the previous 7 days.
(c) Within 24 hours prior to startup, if not performed within the previous 7 days.
(d) This calibration shall consist of the adjustment of the APRM channel to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER $\geq$ 25% of RATED THERMAL POWER. Adjust the APRM channel if the absolute difference is greater than 2% of RATED THERMAL POWER. Any APRM channel gain adjustment made in compliance with Specification 3.2.2 shall not be included in determining the absolute difference.
(e) This calibration shall consist of the adjustment of the APRM flow biased channel to conform to a calibrated flow signal.
(f) The LPRMs shall be calibrated at least once per 1000 effective full power hours (EFPH) using the TIP system.
(g) Deleted.
(h) This calibration shall consist of verifying the 6 ± 1 second simulated thermal power time constant.
(i) This function is not required to be OPERABLE when the reactor pressure vessel head is removed per Specification 3.10.1.
(j) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

WOLVERINE POWER SUPPLY COOPERATIVE, INCORPORATED

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated April 20, 1988 (NRC-88-0105), the Detroit Edison Company (DECo or the licensee) requested amendment to the Technical Specifications (TSs) appended to Facility Operating License No. NPF-43 for Fermi-2. The proposed license amendment would change Technical Specification Table 4.3.1.1-1, "Reactor Protection System Instrumentation Surveillance Requirements," to delete the Daily Channel Check requirements of Note (g) for the Average Power Range Monitor Flow Biased Neutron Flux (APRM-FBNF) - High Scram Functional Unit.

Problems with the existing Note (g) were discovered as a result of the on-going Technical Specification review effort at Fermi-2. During a comparison of Fermi-2 Technical Specifications with other comparable Boiling Water Reactor (BWR) Technical Specifications, differences in the wording of this item were noted and investigated by the licensee. The existing provisions of Note (g) have not yet posed an operational problem at Fermi-2 since the correlation between recirculation drive flow and total core flow to determine "established core flow" is based upon the startup testing performed at 100% power and flow. Fermi-2 has not yet completed this portion of the startup tests and has, therefore, not yet made the comparisons covered by Note (g). When the correlation is established, the requirements of Note (g) will unnecessarily limit the operation of Fermi-2.

2.0 EVALUATION

A review of the various versions of BWR Technical Specifications shows that there are two general versions of the footnote. Neither of the two versions exactly matches the wording appearing in the BWR Standard Technical Specifications, nor do they match the wording appearing in the Fermi-2 Technical Specifications.

A number of concerns and/or events may have been considered when the note was incorporated in the Technical Specifications. These are:

1) Flow control valve crudding;

2) Jet pump beam cracking;

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3) Jet pump blockage;

4) Core crudding; and

5) Jet pump instrumentation problems.

The flow control valve crudding does not apply to Fermi-2 because Fermi-2 does not have flow control valves.

Jet pump beam cracking is already addressed by the requirements of Technical Specification 3/4.4.1.2 (Jet Pumps). The Surveillance Requirements for this Technical Specification (4.4.1.2) are stated as follows:

"Each of the required jet pumps shall be demonstrated OPERABLE prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER and at least once per 24 hours by determining recirculation loop flow, total core flow, and diffuser-to-lower plenum differential pressure for each jet pump and verifying that no two of the following conditions occur when the recirculation pumps are operating at the same speed:

a. The indicated recirculation loop flow differs by more than 10% from the established pump speed-loop flow characteristics.

b. The indicated total core flow differs by more than 10% from the established total core flow value derived from recirculation loop flow measurements.

c. The indicated diffuser-to-lower plenum differential pressure of any individual jet pump differs from the mean of all jet pump differential pressures in the same loop by more than 20% deviation from its normal deviation.

"If Jet Pump Beam Cracking was to occur, this surveillance check would recognize it. Failure to meet the acceptance criteria would then require a plant shutdown because the corresponding ACTION under 3.4.1.2 states, 'With one or more jet pumps inoperable, be in at least HOT SHUTDOWN within 12 hours.' Additional ACTION or surveillance under the RPS instrumentation Technical Specification should not be required."

In the unlikely event a jet pump becomes blocked or obstructed, the aforementioned jet pump surveillances would reveal this condition.

With respect to core crudding, General Electric has indicated that the change in m-ratio (core flow minus recirculation loop drive flow divided by recirculation loop drive flow) that might occur from beginning-of-cycle to end-of-cycle due to core crudding is so slight that this phenomenon is not considered to be a significant concern and that the resultant change in the m-ratio would have negligible impact on the APRM-FBNF trip setpoint. The m-ratio will be checked at least once per cycle using Reactor Engineering procedures. The recirculation flow units and APRM flow biased scram circuitry is checked periodically per required surveillances. These activities ensure that W (percent of rated recirculation drive flow) as required for Reactor Protection System (RPS) instrumentation, is accurate or conservative.

Finally, with respect to jet pump instrumentation problems, if any of the surveillances under 4.4.1.2 yield unacceptable results, a jet pump instrumentation problem would be suspected. Gross checks against other related instruments associated with the required jet pump surveillances would be performed to determine if it is indeed just an instrument problem. If an instrument problem is identified, then the necessary actions would be performed to restore the instrumentation to operable status. No concern with respect to the APRM-FBNF trip exists (assuming the APRM-FBNF instrumentation is operable as verified by the performance of its associated surveillances) because a jet pump instrument problem does not involve an actual change in the m-ratio.

The five concerns are adequately addressed by the RPS instrumentation surveillances, the recirculation flow unit surveillances, the jet pump surveillances and the check of the m-ratio. Jet pump beam cracking or jet pump blockage, which could cause a gross change in m-ratio are already covered by specific surveillance requirements. Changes to the m-ratio due to core crudding would be expected to be minimal over the course of the cycle. As such, the check of m-ratio at least once per cycle and the surveillance requirements for RPS and recirculation flow unit instrumentation provide assurance that the concerns associated with core crudding are adequately addressed. A requirement like Note (g) therefore, should not be included in the RPS instrumentation Technical Specification because the concerns described above do not require it.

As described above, adequate steps are taken without Note (g) to detect and take appropriate action for degradation in the amount of core flow resulting from a given recirculation loop flow. Therefore, we find the request to delete the Daily Channel Check for the APRM-FBNF signal and the associated Note (g) from Table 4.3.1.1-1 to be acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in surveillance requirements. We have determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents which 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

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

Principal Contributor: D. Fieno
T. Quay

Dated: June 3, 1988