Docket No. 50-341

May 26, 1993

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

Dear Mr. Gipson:

SUBJECT: FERMI-2 - AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NO. NPF-43 (TAC NO. M84693)

The Commission has issued the enclosed Amendment No. 89 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 September 30, 1992.

The amendment revises Technical Specification (TS) 3/4.4.3.2 - Reactor Coolant System Operational Leakage, to implement the guidance contained in Generic Letter (GL) 88-01 and Supplement 1 to that GL. The amendment changes the reactor coolant system (RCS) unidentified leakage rate of change limit in Operational Condition (OP CON) 1, retains the current limit for RCS unidentified leakage rate of change in OP CONs 2 and 3, changes the surveillance frequency for leakage monitoring in OP CON 1, and revises the related bases for these Technical Specifications.

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
Timothy G. Colburn, Sr. Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 89 to NPF-43
2. Safety Evaluation

cc w/enclosures:
See next page

OFFICE	LA:PD31	PM:PD31	OGC	D:PD31	EMCB ~~MCEB~~
NAME	MShuttleworth	TColburn	EHOLLER	LMarsh	JStrosnider
DATE	4/27/93	4/28/93	5/24/93	5/26/93	5/19/93
COPY	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

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cc:

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DATED: May 26, 1993

AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NO. NPF-43-FERMI-2

Docket File
NRC & Local PDRs
PDIII-1 Reading
Fermi Plant File
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L. Marsh
M. Shuttleworth
T. Colburn
OGC-WF
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G. Hill (2), P-137
Wanda Jones, MNBB-7103
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OC/LFMB
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cc: Plant Service list

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. 89
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 September 30, 1992, 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. 89 , 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 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

William M. Lea for

Ledyard B. Marsh, Director
Project Directorate III-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 26, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 89

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 4-9*	3/4 4-9*
3/4 4-10	3/4 4-10
3/4 4-11	3/4 4-11
------	3/4 4-11a
------	3/4 4-11b*
3/4 4-12*	3/4 4-12*
B 3/4 4-2	B 3/4 4-2
B 3/4 4-2a	B 3/4 4-2a

*Overleaf pages provided to maintain document completeness. No changes contained in these pages.

3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.3.1 The following reactor coolant system leakage detection systems shall be OPERABLE:

a. The primary containment atmosphere gaseous radioactivity monitoring system channel.

b. The primary containment sump flow monitoring system consisting of:

1. The drywell floor drain sump level, flow and pump-run-time system, and

2. The drywell equipment drain sump level, flow and pump-run-time system.

c. The drywell floor drain sump level monitoring system.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With only two of the above required leakage detection systems OPERABLE, restore the inoperable detection system to OPERABLE status within 30 days; when the required gaseous radioactive monitoring system is inoperable, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours, otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1 The reactor coolant system leakage detection systems shall be demonstrated OPERABLE by:

a. Primary containment atmosphere gaseous monitoring systems-performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

b. Primary containment sump flow and drywell floor drain sump level monitoring systems-performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION TEST at least once per 18 months.

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION

3.4.3.2 Reactor coolant system leakage shall be limited to:

a. No PRESSURE BOUNDARY LEAKAGE.

b. 5 gpm UNIDENTIFIED LEAKAGE.

c. 25 gpm total leakage averaged over any 24-hour period.

d. 1 gpm leakage at a reactor coolant system pressure of 1045 ± 10 psig from any reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1.

e. 2 gpm increase in UNIDENTIFIED LEAKAGE within any 24 hour period during OPERATIONAL CONDITION 1.

f. 2 gpm increase in UNIDENTIFIED LEAKAGE within any 4 hour period during OPERATIONAL CONDITIONS 2 and 3.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

b. With any reactor coolant system leakage greater than the limits in b and/or c, above, reduce the leakage rate to within the limits within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one other closed manual, deactivated automatic, or check* valve, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

d. With one or more of the high/low pressure interface valve leakage pressure monitors shown in Table 3.4.3.2-2 inoperable, restore the inoperable monitor(s) to OPERABLE status within 7 days or verify the pressure to be less than the alarm setpoint at least once per 12 hours; restore the inoperable monitor(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*Which has been verified not to exceed the allowable leakage limit at the last refueling outage or after the last time the valve was disturbed, whichever is more recent.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

e. In OPERATIONAL CONDITION 1, with any reactor coolant system UNIDENTIFIED LEAKAGE increase greater than 2 gpm within any 24 hour period, identify the source of leakage increase as not service sensitive Type 304 or 316 austenitic stainless steel within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

f. In OPERATIONAL CONDITIONS 2 and 3, with any reactor coolant system UNIDENTIFIED LEAKAGE increase greater than 2 gpm within any 4 hour period, identify the source of leakage increase as not service sensitive Type 304 or 316 austenitic stainless steel within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The reactor coolant system leakage shall be demonstrated to be within each of the above limits by:

a. Monitoring the primary containment atmospheric gaseous radioactivity at least once per 4 hours,*

b. Monitoring the primary containment sump flow rate at least once per 12 hours in OPERATIONAL CONDITION 1** and at least once per 4 hours in OPERATIONAL CONDITIONS 2 and 3,

c. Monitoring the drywell floor drain sump level at least once per 12 hours**, in OPERATIONAL CONDITION 1** and at least once per 4 hours in OPERATIONAL CONDITIONS 2 and 3, and

d. Monitoring the reactor vessel head flange leak detection system at least once per 24 hours.*

*Not a means of quantifying leakage.
**The provisions of Specification 4.0.2 are not applicable to the surveillance requirement in OPERATIONAL CONDITION 1.

SURVEILLANCE REQUIREMENTS (Continued)

4.4.3.2.2 Each reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1 shall be demonstrated OPERABLE by leak testing pursuant to Specification 4.0.5 and verifying the leakage of each valve to be within the specified limit:

a. At least once per 18 months, and

b. Prior to returning the valve to service following maintenance, repair or replacement work on the valve which could affect its leakage rate.

The provisions of Specification 4.0.4 are not applicable for entry into OPERATIONAL CONDITION 3.

4.4.3.2.3 The high/low pressure interface valve leakage pressure monitors shall be demonstrated OPERABLE with alarm setpoints per Table 3.4.3.2-2 by performance of a:

a. CHANNEL FUNCTIONAL TEST at least once per 31 days, and

b. CHANNEL CALIBRATION at least once per 18 months.

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TABLE 3.4.3.2-1
REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

	VALVE NUMBER	VALVE DESCRIPTION
1.	RHR System	
	E11-F015A	LPCI Loop A Injection Isolation Valve
	E11-F015B	LPCI Loop B Injection Isolation Valve
	E11-F050A	LPCI Loop A Injection Line Testable Check Valve
	E11-F050B	LPCI Loop B Injection Line Testable Check Valve
	E11-F008	Shutdown Cooling RPV Suction Outboard Isolation Valve
	E11-F009	Shutdown Cooling RPV Suction Inboard Isolation Valve
	E11-F608	Shutdown Cooling Suction Isolation Valve
2.	Core Spray System	
	E21-F005A	Loop A Inboard Isolation Valve
	E21-F005B	Loop B Inboard Isolation Valve
	E21-F006A	Loop A Containment Check Valve
	E21-F006B	Loop B Containment Check Valve
3.	High Pressure Coolant Injection System	
	E41-F007	Pump Discharge Outboard Isolation Valve
	E41-F006	Pump Discharge Inboard Isolation Valve
4.	Reactor Core Isolation Cooling System	
	E51-F012	Pump Discharge Isolation Valve
	E51-F013	Pump Discharge to Feedwater Header Isolation Valve

TABLE 3.4.3.2-2
REACTOR COOLANT SYSTEM INTERFACE VALVES
LEAKAGE PRESSURE MONITORS

VALVE NUMBER	SYSTEM	ALARM SETPOINT (psig)
E11-F015A & B, E11-F050A & B	RHR LPCI	≤ 449
E11-F008, F009, F608	RHR Shutdown Cooling	≤ 135
E21-F005A & B, E21-F006A & B	Core Spray	≤ 452
E41-F006, F007	HPCI	≤ 71
E51-F012, F013	RCIC	≤ 71

3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE

3/4.4.3.1 LEAKAGE DETECTION SYSTEMS

The RCS leakage detection systems required by this specification are provided to monitor and detect leakage from the reactor coolant pressure boundary. These detection systems are consistent with the recommendations of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems", May 1973.

3/4.4.3.2 OPERATIONAL LEAKAGE

The allowable leakage rates from the reactor coolant system have been based on the predicted and experimentally observed behavior of cracks in pipes. The normally expected background leakage due to equipment design and the detection capability of the instrumentation for determining system leakage was also considered. The evidence obtained from experiments suggests that for leakage somewhat greater than that specified for UNIDENTIFIED LEAKAGE the probability is small that the imperfection or crack associated with such leakage would grow rapidly. However, in all cases, if the leakage rates exceed the values specified or the leakage is located and known to be PRESSURE BOUNDARY LEAKAGE, the reactor will be shutdown to allow further investigation and corrective action. Service sensitive reactor coolant system Type 304 and 316 austenitic stainless steel piping; i.e., those that are subject to high stress or that contain relatively stagnant, intermittent, or low flow fluids, requires additional surveillance and leakage limits. The additional limit placed upon the rate of increase in UNIDENTIFIED LEAKAGE in OPERATIONAL CONDITION 1 meets the NRC Staff guidance in Generic Letter 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping". The applicability of the Generic Letter 88-01 limit to OPERATIONAL CONDITION 1 only ensures that the expected increases in UNIDENTIFIED LEAKAGE experienced during reactor vessel heatup and pressurization during startup do not cause unwarranted entries into the applicable ACTION statement. The rate of increase in UNIDENTIFIED LEAKAGE limit in OPERATIONAL CONDITIONS 2 and 3 ensures that the above service sensitive reactor coolant system Type 304 and 316 austenitic stainless steel piping is monitored during reactor startup prior to reactor vessel heatup and pressurization. The surveillance interval for determination of UNIDENTIFIED LEAKAGE in OPERATIONAL CONDITION 1 meets the guidance in Supplement 1 to Generic Letter 88-01.

The purpose of the RCS interface valves leakage pressure monitors (LPMs) is to provide assurance of the integrity of the Reactor Coolant System pressure isolation valves which form a high/low pressure boundary. The LPM is designed to alarm on increasing pressure on the low pressure side of the high/low pressure interface to provide indication to the operator of abnormal interface valve leakage.

The Surveillance Requirements for RCS pressure isolation valves provide added assurance of valve integrity thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS pressure isolation valves is IDENTIFIED LEAKAGE and will be considered as a portion of the allowed limit.

3/4.4.4 CHEMISTRY

The water chemistry limits of the reactor coolant system are established to prevent damage to the reactor materials in contact with the coolant. Chloride limits are specified to prevent stress corrosion cracking of the

CHEMISTRY (Continued)

stainless steel. The effect of chloride is not as great when the oxygen concentration in the coolant is low, thus the 0.2 ppm limit on chlorides is permitted during POWER OPERATION. During shutdown and refueling operations, the temperature necessary for stress corrosion to occur is not present so a 0.5 ppm concentration of chlorides is not considered harmful during these periods. Conductivity measurements are required on a continuous basis since changes in this parameter are an indication of abnormal conditions. When the conductivity is within limits, the pH, chlorides and other impurities affecting conductivity must also be within their acceptable limits. With the conductivity meter inoperable, additional samples must be analyzed to ensure that the chlorides are not exceeding the limits.

The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

On January 25, 1988, the NRC issued Generic Letter (GL) 88-01, "NRC Position on IGSCC (Intergranular Stress Corrosion Cracking) in BWR Austenitic Stainless Steel Piping." Detroit Edison Company (DECo or the licensee) responded to the GL for Fermi-2 in letters dated August 5, 1988, April 27, and May 12, 1989. The NRC staff provided its Safety Evaluation (SE) for these licensee submittals by letter dated January 4, 1990. As discussed in that SE, the staff concluded that the DECo submittals were acceptable with the exception of their position on reactor coolant leakage Technical Specifications.

On February 4, 1992, the NRC issued Supplement 1 to GL 88-01 which provided acceptable alternative NRC staff positions to some of those delineated in the original GL. By letter dated July 29, 1992, DECo responded to GL 88-01, Supplement 1, and committed to submit a license amendment application to implement the leakage detection requirements no later than September 30, 1992.

2.0 EVALUATION

The NRC staff has evaluated the licensee's license amendment request dated September 30, 1992. The details of this evaluation are listed below:

The licensee has proposed to modify Technical Specification (TS) 3.4.3.2.e to change the previous reactor coolant system leakage limit from a 2 gallon per minute (gpm) increase in unidentified leakage within any 4 hour period during Operational Conditions 1, 2, and 3, to a 2 gpm increase in unidentified leakage within any 24 hour period during Operational Condition 1, and retention of the previous limit during Operational Conditions 2 and 3 under a new TS 3.4.3.2.f. The licensee's basis for not changing the unidentified leakage rate of change limit in Operational Conditions 2 and 3 is to prevent unnecessary entry into the action statement for unidentified leakage rate of change due to changes in unidentified leakage experienced during routine startups.

The staff guidance contained in GL 88-01, states that plant shutdown should be initiated for corrective action when: (a) within any 24 hour period any leakage detection system indicates an increase of unidentified leakage in excess of 2 gpm, or (b) the total unidentified leakage attains a rate of 5 gpm

or equivalent. The staff has determined that the licensee's proposed and existing TS meet the intent of the GL 88-01 guidance and are, therefore, acceptable.

The licensee has also proposed changing the associated Action Statements for the above TS to reflect the new TS unidentified leakage limits. These changes make the Action Statements consistent with the corresponding TS changes and are, therefore, acceptable.

The licensee has proposed changing the surveillance requirement of TSs 4.4.3.2.1.b and c for the drywell floor drain sump level monitoring and primary containment sump flowrate monitoring frequencies in Operational Condition 1 from at least once per 4 hours to at least once per 12 hours. The current monitoring frequencies of once per 4 hours are retained in Operational Conditions 2 and 3. The licensee has also added a footnote to ensure that the 25 percent surveillance extension interval provision of TS 4.0.2 does not apply to the surveillance requirements in Operational Condition 1. This ensures that the surveillance is performed at least once per 12 hours.

The intent of the guidance in Supplement 1 to GL 88-01 was to ensure that the leakage detection monitoring would occur on at least a once per shift basis. The staff recognized that some licensees employ 12 hour shifts, therefore, the wording of the guidance for the surveillance frequency related to this monitoring function was "once per shift, not to exceed 12 hours." Discussions with DECo personnel have indicated that as a general rule, all of the per shift surveillances for the Fermi-2 plant are defined as having a TS surveillance interval, by definition, of 12 hours. A review of the definition section of the Fermi-2 TS confirms this. Based on this and the elimination of the applicability of TS 4.0.2 to the Operational Condition 1 surveillance, the staff has determined that the staff's position on surveillance frequency will be met, therefore, the proposed TS 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 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 the 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

(57 FR 61110). 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 staff 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: Timothy G. Colburn

Date: May 26, 1993