

September 13, 1990

Docket No. 50-341

Mr. William S. Orser
Senior Vice President - Nuclear
Operations
Detroit Edison Company
6400 North Dixie Highway
Newport, Michigan 48166

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Dear Mr. Orser:

SUBJECT: AMENDMENT NO. 57 TO FACILITY OPERATING LICENSE NO. NPF-43:
(TAC NO. 75143)

The Commission has issued the enclosed Amendment No. 57 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 27, 1989.

The amendment revises the Technical Specifications (TS) by adding a remote-manual primary containment isolation valve associated with the installation of enhanced primary containment water level instrumentation to the valves listed in TS Table 3.6.3-1, Primary Containment Isolation Valves.

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,

/s/

John F. Stang, Project Manager
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 57 to NPF-43
2. Safety Evaluation

cc w/enclosures:
See next page

See previous concurrence*
 LA/PD31:DRSP* PM/PD31:DRSP*
 MRShuttleworth JStang
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D/PD31:DRSP
 RPierston
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Senior Vice President - Nuclear
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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,

A handwritten signature in black ink, appearing to read "John F. Stang".

John F. Stang, Project Manager
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

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2. Safety Evaluation

cc w/enclosures:
See next page

Mr. B. Ralph Sylvia
Detroit Edison Company

Fermi-2 Facility

cc:

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

DETROIT EDISON COMPANY

DOCKET NO. 50-341

FERMI-2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 57
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 27, 1989, 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:

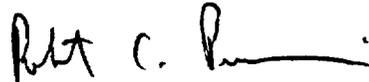
Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 57, 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 issuance with full implementation within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert C. Pierson, Director
Project Directorate III-1
Division of Reactor Projects - III,
IV, V & Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 13, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 57

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 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.

REMOVE	INSERT
*3/4 6-33	*3/4 6-33
3/4 6-34	3/4 6-34

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

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

<u>VALVE FUNCTION AND NUMBER</u>	<u>MAXIMUM ISOLATION TIME (Seconds)</u>
B. <u>Remote-Manual Isolation Valves</u>^(e) (Continued)	
26. <u>Service Air to Drywell Isolation Valves</u> ^(q)	NA
Inboard: P50-F604	
Outboard: P50-F603	
27. <u>TIP System Shear Valves</u> ^{(m)(r)}	NA
C51-F001A	
C51-F001B	
C51-F001C	
C51-F001D	
C51-F001E	
28. <u>Post Accident Sampling Isolation Valves</u>	NA
a. <u>Drywell Atmosphere Sample Suction Valves</u>	
Division I: P34-F404B	
P34-F403B	
Division II: P34-F403A	
P34-F404A	
b. <u>Suppression Pool Atmosphere Sample Suction Valves</u>	
Division I: P34-F405B	
P34-F406B	
Division II: P34-F405A	
P34-F406A	

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

<u>VALVE FUNCTION AND NUMBER</u>	<u>MAXIMUM ISOLATION TIME (Seconds)</u>
B. <u>Remote-Manual Isolation Valves</u> ^(e) (Continued)	
28. <u>Post Accident Sampling Isolation Valves</u> (Continued)	NA
c. <u>Gaseous Sample Return Valves</u>	
P34-F408	
P34-F410	
d. <u>Pressurized Reactor Coolant Sample Suction Valves</u>	
P34-F401A	
P34-F401B	
e. <u>Liquid Sample Return Valves</u> ^(b)	
P34-F407	
P34-F409	
29. <u>Nitrogen Inerting Instrumentation Valve</u>	
T48-F451	NA
30. <u>Torus To Secondary Containment Vacuum Breaker Isolation Valves</u>	
T23-F410	NA
T23-F409	NA
31. <u>Primary Containment Water Level Instrumentation Isolation Valve</u>	
T50-F458	NA
C. <u>Manual Isolation Valves</u>	
1. <u>Drywell Condensate Supply Header Inboard Isolation Valve</u> ^(q)	NA
P11-F126	
2. <u>Drywell Control Air and N₂ Outboard Isolation Bypass Valve</u> ^(q)	NA
T49-F007	
3. <u>N₂ to Drywell Outboard Isolation Bypass Valve</u> ^(q)	NA
T49-F016	



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 57 TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated September 27, 1989, 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 TS by adding a remote-manual primary containment isolation valve associated with the installation of enhanced primary containment water level instrumentation to the valves listed in TS Table 3.6.3-1, Primary Containment Isolation Valves.

DECo was required to perform a Detailed Control Room Design Review (DCRDR) on the Fermi-2 control room in accordance with the requirements of NUREG-0737, Supplement 1 as specified by License Condition 2.C.(17), Attachment 2, Item 1. The DCRDR Summary Report identified a number of Human Engineering Discrepancies (HED). Of particular concern to this TS change is HED 462 which identified that primary containment water level indication up to 108 feet is not available. To resolve HED 462 modifications to the plant will be required.

Primary Containment water level indication will be accomplished with the installation of two new pressure instrumentation loops. One loop will measure torus pressure off of the existing wet leg tap for the torus water level transmitter. The other loop will measure drywell pressure at elevation 650 feet utilizing spare penetration X-27f. Penetration X-27f currently consists of a one inch schedule 160, seamless, stainless steel pipe which is capped outside containment approximately three inches from the penetration radiation shielding material. In order to facilitate the installation of the new drywell pressure sensing diaphragm, a one inch sensing line will be connected to existing penetration X-27f. The sensing line will consist of one manual globe valve, a remote manual solenoid operated globe valve, two test connection valves and a blind flange assembly which houses the transmitter sensing diaphragm. All of the piping and valves will be classified QA Level I, Seismic Category I. The piping up to, and including, the remote manual isolation valve and second test connection valve will be designed, fabricated, and installed per ASME Code Section III, Class 2, as this section of piping is considered to be part of the drywell pressure boundary. The piping after the remote manual isolation valve up to, and including, the blind flange assembly and the piping after the second test connection valve will be designed, fabricated and installed per ANSI B31.1, Power Piping Code. Control and indication for the remote manual valve will be

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provided in the main control room. The valve will not be interlocked with any containment isolation signal. In the September 27, 1989 application the licensee proposed that the valve position be normally opened because it is used in an instrument line for instrumentation that is required during emergency operation of the plant.

A change to the Fermi-2 TS Table 3.6.3-1 is required since the modification will require the installation of a remote manual primary containment isolation valve on the drywell pressure sensing line which is to be installed on spare penetration X-27f.

2.0 EVALUATION

The configuration of the proposed installation of the new instrumentation line through penetration X-27f meets the requirements of 10 CFR Part 50, Appendix A, General Design Criteria (GDC) 54 for Piping Systems Penetrating Primary Containment; GDC 56 for Primary Containment Isolation; and Regulatory Guide 1.11 for Instrument Lines Penetrating Primary Reactor Containment.

To meet the requirements of GDC 54, the licensee has attached the sensing line to penetration X-27f with one manual and one manual remote containment isolation valves, two test connection valves and a blind flange assembly located outside primary containment. Monitoring of the remote-manual isolation valve performance will be part of the Fermi-2 In-Service Testing (IST) program.

GDC 56 addresses primary containment isolation and requires that lines which connect directly to the primary containment atmosphere must have two isolation valves unless it can be demonstrated that the containment isolation for a specific class of lines such as instrument lines, are acceptable on some other defined basis. NUREG-0800, Section 6.2.4, Part II, Containment Isolation System Acceptance Criteria, recognizes Regulatory Guide 1.11 as an acceptable alternate basis for containment isolation of instrument lines.

The new sensing line attached to penetration X-27f has been designed and will be installed in accordance with Regulatory Guide 1.11. The sensing line is a one inch, seamless, stainless steel pipe. It is a static line that is not connected to the reactor coolant boundary. In the event of a postulated failure of the piping, reactor coolant leakage will not occur. Failure of the penetration during normal operation will have no effect upon the integrity or functional performance of the Secondary Containment and Standby Gas Treatment System since the fission product inventory is contained within the reactor coolant system. The potential off-site exposure due to any failure of the penetration would be below 10 CFR Part 100 limits. In addition to the considerations of Regulatory Guide 1.11, the staff examined the potential effects of failure of the proposed instrument line during accident conditions. The worst case is a line failure without isolation during primary containment pressurization following a Loss-of-Coolant Accident (LOCA). This event would challenge the secondary containment with a greater rate of radiological exfiltration from the primary containment than would otherwise occur. A similar event is evaluated in the Fermi-2

Updated Final Safety Analysis Report (UFSAR). In this event, an instrument line connected directly to the Reactor Coolant Pressure boundary fails outside containment without isolation. The UFSAR described event provides a much more severe challenge to the secondary containment systems performance since the reactor coolant system depressurizes from approximately 1000 psi pressure directly into the secondary containment. The evaluation of the instrument line failure shows that the functional performance of the secondary containment and standby gas treatment system are not impaired by this event, and the calculated potential offsite exposures are substantially below the guidelines of 10 CFR Part 100 (UFSAR Sections 6.2.4.2.5 and 15.6.2). On this basis, the potential failure of the proposed installation for the drywell level instrument line was determined not to pose an undue risk to the public health and safety.

Section 6.2.4 of the Fermi-2 SER, NUREG-0798, reviewed several similar situations where a single remote-manual valve with a manual valve used for containment isolation purposes on a one inch line. The criteria used was Section 6.2.4, Item II of NUREG-0800.

The similar situations are:

<u>Function</u>	<u>Penetrations</u>	<u>Fails</u>
Containment Atmosphere Sampling	X-27 a, b, c, d, e X-48 a, b, c, d, e	Closed
RPS Instrumentation	X-47 a, b, e	As is
Torus Pressure and Level Instrumentation	X-206 a, b	As is

UFSAR Table 6.2-2 give details on each penetration.

It should be noted that penetration X-27f was configured like penetrations X-27 a-e at the time of licensing of Fermi-2. The modifications to the Fermi-2 Containment Atmosphere Sampling Systems for environmental qualification purposes made this penetration a spare.

Position 1.c of Regulatory Guide 1.11 requires the sensing line be provided with an isolation valve capable of automatic operation or remote operation from the control room, and located in the line outside the containment as close to the containment as practical. A remote manual solenoid operated valve will be installed in the sensing line as close as possible to the outside surface of the primary containment shield wall. Valve control and position will be provided in the control room. The valve will be classified QA Level 1, Seismic Category I, ASME Code, Section III, Class 2.

The valve limit switches and solenoids will be Class 1E. The valve and position indicating lights will be powered by a Class 1E 130V DC power supply. These design parameters will provide for a high degree of assurance that the valve can be closed from the control room if the sensing line integrity outside

containment is lost under accident conditions and can be reopened under the conditions that would prevail when the valve reopening is appropriate. The valve will be normally closed and will have fail as-is logic. Position 1.d of Regulatory Guide 1.11 requires that components up to and including the isolation valve should be designed and installed to the quality at least equivalent to the containment. The sensing line piping and valves up to and including the remote manual isolation valve and second test connection valve will be designed, fabricated and installed per ASME Code, Section III, Class 2. The remainder of the sensing line will be installed in an accessible area approximately eight feet above the Reactor Building third floor which will provide for visual inspection and testing. The piping assembly will be installed to preclude any failure of one line inducing failure of another. Position 1.e of Regulatory Guide 1.11 requires that instrument lines penetrating primary containment should not be so restricted by components in the line. The in-line components of the proposed sensing line will be selected to minimize the restriction presented to the transmission of drywell pressure to the transmitter diaphragm.

The installation of the new sensing line at penetration X-27f will be conducted in two phases. The first phase was completed during the recent refueling outage (December 1989) which installed the manual in-line valve and the test connection and associated valves. A qualified welded cap was used to seal closed the line where the remote manual valve will be installed later. The penetration, including the in-line manual valve, was leak tested per the requirements of 10 CFR Part 50, Appendix J prior to unit restart. The second installation phase will take place with the unit in power operation. The welded cap will be removed and remaining installation of the remote manual valve, associated wiring and the blind flange assembly for the pressure transmitter sensing diaphragm, will be completed. When the welded cap is removed from the penetration for phase two of the installation, the licensee will enter into the Action Statement a. 3 of TS Section 3.6.3. The Action Statement allows continued operation of the plant with the one locked closed manual containment isolation valve until the plant is shut down.

Following the installation, the penetration will be leak tested per the requirements of 10 CFR Part 50, Appendix J, the remote-manual valve operation will be tested, and the new TS requirements will be implemented.

Based on the above evaluation the staff finds the modifications to the plant to resolve HED 462 are acceptable and the addition of the new manual-remote containment isolation valve to Section 3/4.6.3, Table 3.6.3-1 is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes 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

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (55 FR 5523) on February 15, 1990 and consulted with the State of Michigan. No public comments were received and the State of Michigan did not have any comments. 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 (3) 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: J. Stang

Date: September 13, 1990