May 31, 1989

Docket No. 50-341

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

Dear Mr. Sylvia:

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SUBJECT: AMENDMENT NO. 34 TO FACILITY OPERATING LICENSE NO. NPF-43: (TAC NO. 72971)

The Commission has issued the enclosed Amendment No. 34 to Facility Operating License No. NPF-43 for the Fermi-2 facility. This amendment consists of changes to the Plant Technical Specifications (TSs) in response to your letter dated April 21, 1989.

The amendment revises the TSs to reflect a design modification to the Reactor Building's railroad bay air lock doors. The modifications to the doors are a result of the licensee discovering the air supply to the inflatable seals on the doors was not safety related.

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,

original signed by

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. 34 to NPF-43
2. Safety Evaluation

cc w/enclosures:
See next page

LA/PD31:DRSP	PM/PD31:DRSP	(A)D/PD31:DRSP	SPLB	OGC
for RIngram	JStang	LYandell	JCraig	see changes to SE. SHLewis
5/25/89	5/25/89	5/25/89	for 5/25/89	5/31/89

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
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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. 34
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 21, 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. 34, 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. The Technical Specifications are to become effective within 10 days of receipt of this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

Albert, DeAgazio, Acting 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: May 31, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 34

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. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE	INSERT
1-5*	1-5*
1-6	1-6
3/4 6-51	3/4 6-51
-	3/4 6-51a
3/4 6-52*	34 6-52*

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

2. Closed by at least one manual valve, blank flange, or deactivated automatic valve secured in its closed position, except as provided in Table 3.6.3-1 of Specification 3.6.3.

b. All primary containment equipment hatches are closed and sealed.

c. Each primary containment air lock is in compliance with the requirements of Specification 3.6.1.3.

d. The primary containment leakage rates are within the limits of Specification 3.6.1.2.

e. The suppression chamber is in compliance with the requirement of Specification 3.6.2.1.

f. The sealing mechanism associated with each primary containment penetration, e.g., welds, bellows, or O-rings, is OPERABLE.

g. The suppression chamber to reactor building vacuum breakers are in compliance with Specification 3.6.4.2.

THE PROCESS CONTROL PROGRAM

1.30 The PROCESS CONTROL PROGRAM (PCP) shall contain the provisions to assure that the SOLIDIFICATION of wet radioactive wastes results in a waste form with properties that meet the requirements of 10 CFR Part 61 and of low-level radioactive waste disposal sites. The PCP shall identify process parameters influencing SOLIDIFICATION, such as pH, oil content, H_2O content, solids content, ratio of solidification agent to waste and/or necessary additives for each type of anticipated waste, and the acceptable boundary conditions for the process parameters shall be identified for each waste type, based on laboratory scale and full scale testing or experience. The PCP shall also include an identification of conditions that must be satisfied, based on full scale testing, to assure that dewatering of bead resins, powdered resins, and filter sludges will result in volumes of free water, at the time of disposal, within the limits of 10 CFR Part 61 and of low-level radioactive waste disposal sites.

PURGE - PURGING

1.31 PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is required to purify the confinement.

RATED THERMAL POWER

1.32 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3292 MWT.

REACTOR PROTECTION SYSTEM RESPONSE TIME

1.33 REACTOR PROTECTION SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by any series of sequential, overlapping or total steps such that the entire response time is measured.

REPORTABLE EVENT

1.34 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

ROD DENSITY

1.35 ROD DENSITY shall be the number of control rod notches inserted as a fraction of the total number of control rod notches. All rods fully inserted is equivalent to 100% ROD DENSITY.

SECONDARY CONTAINMENT INTEGRITY

1.36 SECONDARY CONTAINMENT INTEGRITY shall exist when:

a. All secondary containment penetrations required to be closed during accident conditions are either:

1. Capable of being closed by an OPERABLE secondary containment automatic isolation system, or

2. Closed by at least one manual velve, blind flange, or deactivated automatic damper secured in its closed position, except as provided in Table 3.6.5.2-1 of Specification 3.6.5.2.

b. All secondary containment hatches and blowout panels are closed and sealed.

c. The standby gas treatment system is in compliance with the requirements of Specification 3.6.5.3.

d. At least one door in each access to the secondary containment is closed (except as noted in item g below).

e. The sealing mechanism associated with each secondary containment penetration, e.g., welds, bellows or O-rings, is OPERABLE.

f. The pressure within the secondary containment is less than or equal to the value required by Specification 4.6.5.1.a.

g. Both railroad bay access doors are OPERABLE and closed except for ingress and egress or testing as specified by Specification 3.6.5.1.

SHUTDOWN MARGIN

1.37 SHUTDOWN MARGIN shall be the amount of reactivity by which the reactor is subcritical or would be subcritical assuming all control rods are fully inserted except for the single control rod of highest reactovity worth which is assumed to be fully withdrawn and the reactor is in the shutdown condition; cold, i.e., 68°F; and xenon free.

SITE BOUNDARY

1.38 The SITE BOUNDARY shall be that line beyond which the land is neither owned, nor leased, nor otherwise controlled, by the licensee.

3/4.6.5 SECONDARY CONTAINMENT

SECONDARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.5.1 SECONDARY CONTAINMENT INTEGRITY# shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, and *.

ACTION:

a. Without SECONDARY CONTAINMENT INTEGRITY (for reasons other than one railroad bay access door inoperable or open greater than allowed by #):

   1. In OPERATIONAL CONDITION 1, 2, or 3, restore SECONDARY CONTAINMENT INTEGRITY within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

   2. In Operational Condition *, suspend handling of irradiated fuel in the secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

b. Without SECONDARY CONTAINMENT INTEGRITY because of one railroad bay access door inoperable or open for greater than allowed by #:

   1. In OPERATIONAL CONDITION 1, 2, or 3, restore SECONDARY CONTAINMENT INTEGRITY by restoring both railroad bay access doors to OPERABLE and closed status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

   2. In OPERATIONAL CONDITION*, suspend handling of irradiated fuel in the secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

*When irradiated fuel is being handled in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

#One railroad bay access door may be open for up to four hours at a time for ingress and egress or testing, or up to 12 hours for new fuel receipt activities, provided the other door is OPERABLE and closed.

SURVEILLANCE REQUIREMENTS

4.6.5.1 SECONDARY CONTAINMENT INTEGRITY shall be demonstrated by:

a. Verifying at least once per 24 hours that the vacuum within the secondary containment is greater than or equal to 0.125 inch of vacuum water gauge.

b. Verifying at least once per 31 days that:

1. All secondary containment equipment hatches and pressure relief doors are closed and sealed, and both railroad bay access doors are closed and sealed.

2. At least one door in each access to the secondary containment is closed.

3. All secondary containment penetrations not capable of being closed by OPERABLE secondary containment automatic isolation dampers/valves and required to be closed during accident conditions are closed by valves, blank flanges, or deactivated automatic dampers/valves secured in the closed position.

c. At least once per 18 months:

1. Verifying that one standby gas treatment subsystem will draw down the secondary containment to greater than or equal to 0.25 inch of vacuum water gauge in less than or equal to 567 seconds at a flow rate not exceeding 3800 cfm, and

2. Operating one standby gas treatment subsystem for 1 hour and maintaining greater than or equal to 0.25 inch of vacuum water gauge in the secondary containment at a flow rate not exceeding 3000 cfm.

SECONDARY CONTAINMENT AUTOMATIC ISOLATION DAMPERS

LIMITING CONDITION FOR OPERATION

3.6.5.2 The secondary containment ventilation system automatic isolation dampers shown in Table 3.6.5.2-1 shall be OPERABLE with isolation times less than or equal to the times shown in Table 3.6.5.2-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3 and *.

ACTION:

With one or more of the secondary containment ventilation system automatic isolation dampers shown in Table 3.6.5.2-1 inoperable, maintain at least one isolation damper OPERABLE in each affected penetration that is open and within 8 hours either:

a. Restore the inoperable damper(s) to OPERABLE status, or

b. Isolate each affected penetration by use of at least one deactivated damper secured in the isolation position, or

c. Isolate each affected penetration by use of at least one closed manual valve or blank flange.

Otherwise, in OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

Otherwise, in Operational Condition *, suspend handling of irradiated fuel in the secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.5.2 Each secondary containment ventilation system automatic isolation damper shown in Table 3.6.5.2-1 shall be demonstrated OPERABLE:

a. Prior to returning the damper to service after maintenance, repair, or replacement work is performed on the damper or its associated actuator, control or power circuit by cycling the damper through at least one complete cycle of full travel and verifying the specified isolation time.

b. During COLD SHUTDOWN or REFUELING at least once per 18 months by verifying that on a containment isolation test signal each isolation damper actuates to its isolation position.

c. By verifying the isolation time to be within its limit when tested pursuant to Specification 4.0.5.

*When irradiated fuel is being handled in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 34 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 21, 1989, 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 amendment would revise the TSs to reflect a design modification to the Reactor Building's railroad bay air lock doors. The modifications to the doors are a result of the licensee discovering via NRC Information Notice No. 89-26, "Instrument Air Supply to Safety-Related Equipment," the air supply to the inflatable seals on the doors was not safety related. This design change is a result of industry concerns with the reliability of secondary containment systems to perform their containment function. The Reactor Building, in conjunction with the functions performed by the Reactor Building Heating and Ventilation System and the Standby Gas Treatment System, constitutes Fermi-2's secondary containment. Fermi-2's secondary containment boundary provides an essentially leak-tight barrier against uncontrolled flow of air into or out of the Reactor Building. This prevents the dissipation of contaminated air directly to the environment and limits the release of radioactivity. In order to allow access into and out of the Reactor Building and maintain the secondary containment negative pressure differential, personnel and equipment air locks, and a railroad bay air lock are provided.

Because of the railroad bay air lock door seals' air supply inadequacies, Detroit Edison has performed secondary containment integrity tests to determine if Technical Specification required negative pressures could be maintained without the seals inflated. These tests determined that secondary containment pressure could not be maintained within Technical Specification limits without at least a single air lock door seal inflated. A short-term modification has been implemented which installed a foam seal between the railroad bay outer door and the door's weather stripping. Subsequent testing has confirmed that this modification allows secondary containment to be maintained within Technical Specification limits with the seals deflated. However, this modification is not desirable as a permanent design.

2.0 EVALUATION

A design modification is being prepared that will provide the railroad bay door seals with air from a qualified safety-related source. The inner door seal will be supplied from Division I of the Non-Interruptible Air Supply (NIAS) System and the outer door seal will be supplied from Division II of the NIAS System. The NIAS System consists of two 100 percent capacity air compressors and distribution systems (Division I and Division II). The NIAS System is safety related and seismically supported (Category I). The NIAS System's air compressors are automatically loaded on to the emergency diesel generators (EDGs) upon the loss of offsite power to the air compressor(s) electrical bus(es). A design modification analysis has determined that sufficient capacity exists in the NIAS System to supply the railroad bay door seals concurrent with the system's existing loads. Air supply lines from the associated NIAS Division to each railroad bay air lock door seal will be seismically qualified and will be provided with a restrictive orifice and individual receiver tank. A restrictive orifice will limit NIAS leakage such that a rupture of a door seal will not degrade the function of other equipment which depend on the NIAS System. The individual receiver tanks on each door's air supply line will provide a reserve volume such that the existing NIAS System's Divisional receiver tanks design basis is not invalidated. The existing and new receiver tanks are designed to provide a 10 minute reserve capacity independent of the NIAS Air Compressor(s) input even though the NIAS Compressors are supplied by emergency power within approximately 48 seconds after loosing offsite power. The individual receiver tank on each door seal's air supply line will also assist in normal inflation of the seal.

Control room alarms for low railroad bay air lock door seal pressure will be installed for each door. This will allow continuous monitoring by control room personnel of the railroad bay air lock door's secondary containment integrity. The door seals' pressure provides an excellent indication of the railroad bay air lock's secondary containment integrity because the seals are the only components on the doors which rely on "active" equipment for their safety function operability. The existing automatic seal inflation circuitry will be removed because it is not safety related and its failure could lead to an unintentional seal deflation. The design modification has provisions for manually inflating and deflating each door seal individually.

Implementation of the proposed modification necessitates additional controls to ensure that both railroad bay air lock doors remain closed and sealed because of the vulnerability of the system to a single active failure if only one door is normally required to be closed and sealed. The existing secondary containment Technical Specification 4.6.5.1.b.1 only requires one railroad bay access door to be closed. In order to address the proposed modification, the licensee has proposed the subject TS changes.

1. The existing definition of secondary containment integrity, 1.36, does not specifically address the railroad bay air lock. The proposed changes add a clarification to item "d" to prevent a misinterpretation that this item applies to the railroad bay doors. As specified in proposed item "g" both railroad bay access doors are required to be operable and closed because of the vulnerability of the system to a single active failure if only one door is normally required closed.

2. The existing Limiting Condition for Operation (LCO) in conjunction with the proposed secondary containment integrity definition has no provisions for normal ingress and egress through the railroad bay air lock or for routine testing of doors alarm/indication instrumentation if both doors are required closed. Thus, the proposed footnote will temporarily suspend the proposed "two door closed and OPERABLE" requirement for ingress and egress through the railroad bay air lock and for routine testing of the doors alarm/indication instrumentation. The temporary suspension of the LCO will only be allowed for four hours provided one of the two doors is open and the other air lock door is OPERABLE and closed. The existing Technical Specification allows four hours to recover from a complete loss of secondary containment integrity before a reactor shutdown is required. The proposed footnote's 12-hour time period is needed to allow sufficient time for transfer of new fuel. The railroad bay air lock is needed to temporarily store the empty new fuel shipping crates in order to off-load a complete shipment of new fuel. Closing and opening the inner air lock after placement of each new fuel shipping crate in the air lock is unnecessary, because of the short period of time one of the two doors will be open and the infrequent number of shipments (approximately 8 per 18 months). Additionally, both of the footnote's time limits are justified based on the low probability of a single failure on the closed door, the low frequency of a door being open and the low probability of an accident requiring secondary containment integrity.

3. The existing LCO, in conjunction with the proposed two door closed and OPERABLE requirement, has no realistic provisions for a single inoperable railroad bay air lock door. The existing action "a" is based on the complete loss of one or more secondary containment penetrations and/or barriers, or the loss of secondary containment pressure. The proposed ACTION "b" provides requirements for the situation where only one railroad bay air lock door is inoperable; in this case, the railroad bay secondary containment penetration is still isolated by the other railroad bay door. The existing actions are based upon situations where secondary containment integrity is completely compromised. The seven day out of service time limit on proposed ACTION "b.1" is consistent with Technical Specification 3.6.5.3, Standby Gas Treatment System (SGTS). The SGTS configuration and function, and the proposed modification configuration are similar in that both systems support secondary containment integrity, both systems have 100% redundant capabilities and both systems are safety related. Proposed action "b.2) is consistent with existing action "b".

4. The existing 31-day surveillance requirement 4.6.5.1.b.1 only requires verification of one railroad bay air lock door. The proposed change to this surveillance requirement will require that at least once per 31 days both railroad bay air lock doors are verified closed and sealed.

The proposed changes enhance the overall safety of the system based on the following:

- Two railroad bay air lock doors will be required closed during normal operation as opposed to one railroad bay door which is currently required

by the existing Technical Specifications. This will effectively increase the capability and reliability of secondary containment integrity compared to the existing configuration.

- o The design modification will supply the safety-related railroad bay air lock door seals with safety related air from the existing fully qualified and redundant NIAS System. The design modification analysis has evaluated the NIAS System and determined that it is capable of handling the increased railroad bay door seal(s) loads. Additionally, the design modification will include provision(s) (restrictive orifices and receiver tanks) such that a rupture of railroad bay air lock seals will not affect the function of other equipment which depend on the NIAS System.

- o Control room alarms for low railroad bay air lock door seal pressure will be installed for each door. This will allow continuous monitoring by control room personnel of the railroad bay air lock door's secondary containment integrity. The door seal's pressure provides an excellent indication of the railroad bay air lock's secondary containment integrity because the seals are the only components on the doors which rely on "active" equipment for their safety function operability.

- o The proposed actions are consistent with accepted industry standards for related equipment of similar redundancy and safety classification which are also required to support secondary containment integrity.

- o The proposed footnote, which will allow opening of one of the two air lock bay doors, is only applicable if the other air lock door is operable and closed. Both of the time limits in the footnote are based on engineering judgement considering the low probability of a single failure on the closed door, the low frequency of a door being open and the low probability of an accident requiring secondary containment integrity. Additionally, if within the 4 or 12 hour time period, allowed for one railroad bay air lock door to be open, the closed door becomes inoperable because of a loss of seal pressure (the only active component dependent on an active system) control room personnel would immediately receive the low seal pressure alarm.

Based on the above evaluation the staff finds the proposed changes to the TSs to be 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

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: John Stang

Date: May 31, 1989