

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

April 3, 1998

SUBJECT: FERMI 2 - ISSUANCE OF AMENDMENT RE: PRIMARY CONTAINMENT
 MONITORING SYSTEM OXYGEN MONITORING ACTION STATEMENT
 (TAC NO. MA1356)

Dear Mr. Gipson:

The Commission has issued the enclosed Amendment No. 117 to Facility Operating License No. NPF-43 for the Fermi 2 facility. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated April 2, 1998 (NRC-98-0062). This request was treated as an emergency amendment in accordance with 10 CFR 50.91(a)(5).

The amendment revises the required Action specified in TS Table 3.3.7.5-1 if one channel of drywell oxygen monitoring is inoperable. The revised action allows 30 days to restore the inoperable monitor. If one oxygen monitor cannot be restored within the 30 days, a report outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the oxygen monitor to operability must be submitted within 14 days. The revised action is consistent with NUREG-1433, Revision 1, "Standard Technical Specifications General Electric Plants, BWR/4." The amendment also adds a new license condition 2.C.(19) that requires restoration of the Division 2 primary containment oxygen monitoring subsystem to operable status prior to startup following the sixth refueling outage. This license condition was proposed by Detroit Edison in its April 2, 1998, letter.

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 LINDA L. GUNDRUM FOR

Andrew J. Kugler, Project Manager
 Project Directorate III-1
 Division of Reactor Projects - III/IV
 Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosures: 1. Amendment No. 117 to NPF-43
 2. Safety Evaluation

cc w/encl: See next page

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Fermi 2

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DATED: April 3, 1998

AMENDMENT NO. 117 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. 117
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 2, 1998 (NRC-98-0062), 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. 117 , 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.

In addition, the license is amended to add paragraph 2.C.(19) to the Facility Operating License No. NPF-43 as follows:

- (19) DECo shall return the Division 2 primary containment oxygen monitoring subsystem to operable status prior to startup following the sixth refueling outage.
3. This license amendment is effective as of the date of its issuance with full implementation by April 6, 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

Rinda K. Lundrum for

Andrew J. Kugler, Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachments: 1. Changes to the Technical Specifications
2. Page 5 of License

Date of Issuance: April 3, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 117

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 3-61

3/4 3-61

3/4 3-62

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Replace the following pages of NPF-43 with the attached pages.

5

5

TABLE 3.3.7.5-1
ACCIDENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>REQUIRED NUMBER OF CHANNELS</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>ACTION</u>
1. Reactor Vessel Pressure	2	1	1, 2	80
2. Reactor Vessel Water Level				
a. Fuel Zone	2	1	1, 2	80
b. Wide Range	2	1	1, 2	80
3. Suppression Chamber Water Level	2	1	1, 2	80
4. Suppression Chamber Water Temperature	2	1	1, 2	80
5. Suppression Chamber Air Temperature	2	1	1, 2	80
6. Suppression Chamber Pressure	2	1	1, 2	80
7. Drywell Pressure, Wide Range	2	1	1, 2	80
8. Drywell Air Temperature	2	1	1, 2	80
9. Drywell Oxygen Concentration	2	1	1, 2	83
10. Drywell Hydrogen Concentration	2	1	1, 2	80
11. Safety/Relief Valve Position Indicators	1*/valve	1*/valve	1, 2	80
12. Containment High Range Radiation Monitor	2	2	1, 2, 3	81

*Pressure switch

TABLE 3.3.7.5-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

ACTION STATEMENTS

- ACTION 80 -
- a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
 - b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- ACTION 81 - With the number of OPERABLE channels less than required by the minimum channels OPERABLE requirements, initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours, and:
- 1) either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or
 - 2) prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.
- ACTION 82 - With the number of OPERABLE accident monitoring instrumentation channels less than required by the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, within 48 hours either:
- a. Restore the inoperable channel(s) to OPERABLE status, or
 - b. Declare the affected isolation valve inoperable and take the ACTION specified by Specification 3.6.3 ACTION a.
- ACTION 83-
- a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 30 days, or submit a report to the Commission pursuant to Specification 6.9.2 within the following 14 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the instrument channel(s) to OPERABLE status.
 - b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

(11) Low-Pressure Turbine-Disc Inspection (Section 10.2.2, SER)*

DECo shall perform an inspection of the low-pressure turbine-discs during the second refueling outage, including volumetric examination of the disc base using ultrasonic techniques. The frequency of subsequent inspections shall be in accordance with the turbine manufacturer's recommendations.

(12) Deleted

(13) Deleted

(14) Deleted

(15) Deleted

(16) Deleted

(17) Deleted

(18) Deleted

(19) DECo shall return the Division 2 primary containment oxygen monitoring subsystem to operable status prior to startup following the sixth refueling outage.

[NEXT PAGE IS PAGE 8]

* The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report (SER) and/or its supplements wherein the license condition is discussed.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 117 TO FACILITY OPERATING LICENSE NO. NPF-43
DETROIT EDISON COMPANY
FERMI 2
DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated April 2, 1998 (NRC-98-0062), 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 actions specified in TS Table 3.3.7.5-1 from Action 80 to proposed Action 83 if one channel of drywell oxygen monitoring is inoperable.

The current TS Action 80 for the drywell oxygen monitors requires: "a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours. b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours."

The proposed TS Action 83 states, "a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 30 days, or submit a report to the Commission pursuant to Specification 6.9.2 within the following 14 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the instrument channel(s) to OPERABLE status. b. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels OPERABLE requirements of Table 3.3.7.5-1, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours."

The licensee requested the proposed amendment be treated as an emergency amendment as discussed in Section 4.0 of this safety evaluation. Additionally, the licensee proposed a license condition that requires restoration of the Division 2 primary containment oxygen monitoring subsystem to operable status prior to startup following the sixth refueling outage.

2.0 EVALUATION

2.1 Background

Fermi 2 has an inerted primary containment atmosphere during reactor operation. Because of this, in the event of a loss-of-coolant accident (LOCA), the oxygen concentration is the limiting parameter for preventing the accumulation of an explosive gas mixture. The hydrogen and oxygen concentrations are monitored during operation and following a LOCA by the primary containment hydrogen and oxygen monitors and are displayed in the control room.

There are two divisions of the Primary Containment Monitoring System. The oxygen monitors are part of the Primary Containment Monitoring System (PCMS). The PCMS oxygen monitors provide control room operators with information regarding oxygen concentration following an accident. As described in the Updated Final Safety Analysis Report (UFSAR), the containment oxygen monitoring system consists of two divisions, each division including one channel for each function. The system continuously samples the containment atmosphere during Operational Conditions 1 and 2 when required to be operable by the TS. Each division can be aligned to monitor either the drywell or the suppression chamber. One division is normally aligned to the drywell, with the other division aligned to the suppression chamber.

The oxygen monitors are classified as Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Category I, Type C instruments. Type C instruments provide information to indicate the potential for breaching or the actual breach of the barriers to fission product release. The oxygen monitors are used to detect high oxygen concentrations in primary containment which could lead to a containment breach. Additionally, the primary containment hydrogen and oxygen monitors provide information to the control room operators for monitoring hydrogen and oxygen concentrations in the primary containment so that actions can be initiated, if necessary, to prevent the accumulation of an explosive gas mixture. The oxygen monitors alarm in the main control room on high oxygen concentration but provide no automatic function to prevent or mitigate any of the UFSAR analyzed accidents.

TS 3.3.7.5 requires the primary containment hydrogen and oxygen monitors to be operable in Operational Conditions 1 and 2. In addition, TS 3.6.6.2 requires the drywell and suppression chamber atmosphere oxygen concentration to be less than 4% by volume.

On March 30, 1998, at 8:25 a.m., signal spiking exceeded predetermined levels of acceptable spurious signal noise and the Division 2 oxygen monitor was declared inoperable. This placed the plant in a 7-day Limiting Condition for Operation (LCO 3.3.7.5). Neither the Division 1 oxygen monitor nor confirmatory grab samples indicated the presence of oxygen.

2.2 Proposed Change

TS LCO 3.3.7.5, Table 3.3.7.5-1, specifies the "Required Number of Channels" of Drywell Oxygen Concentration as 2 in Operational Conditions 1 and 2. Table 3.3.7.5-1, Action 80, requires that "with the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3.7.5-1, restore the inoperable

channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours." The proposed change increases the time allowed for a channel to remain inoperable to 30 days and requires a report discussing the results of the root-cause evaluation and identifying proposed restorative actions following this period, rather than a plant shutdown, if the instrumentation is not returned to operable status.

There is no change between the current Action 80 and proposed Action 83 when two required channels are inoperable.

2.3 Evaluation

The 30-day completion time is based on operating experience and takes into account the remaining OPERABLE channel, the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low likelihood of an event requiring the oxygen monitoring instrumentation during this interval. If a channel has not been restored to OPERABLE status in 30 days, proposed Action 83 requires a written report to be submitted to the NRC. The report will discuss the results of the root-cause evaluation of the inoperability and will identify proposed restorative actions. This action is appropriate in lieu of a shutdown requirement since alternative actions are identified before loss of functional capability, a redundant instrument is available to perform this function, and given the likelihood of plant conditions that would require information provided by this instrumentation.

With only one channel of the oxygen monitoring system inoperable, the remaining operable channel is sufficient to provide the monitoring function this instrumentation is intended to perform. NUREG-1433, Revision 1, "Standard Technical Specifications General Electric Plants, BWR/4," has provided a regulatory basis for no longer requiring a plant shutdown when one channel of the oxygen monitoring system becomes inoperable. Increasing the allowed outage time to 30 days is based upon operating experience, due to the passive function of the instrumentation (there are no critical automatic actions associated with these instruments); the operators' ability to diagnose an accident using alternative instruments and methods; and the low likelihood of plant conditions that would require information provided by this instrumentation. Submittal of a report discussing the results of the root-cause evaluation and identifying proposed restorative actions is acceptable in lieu of a plant shutdown as discussed in NUREG-1433, Revision 1, based upon the requirement for alternative actions (to be identified in the required report) before loss of functional capability occurs.

TS 3.6.6.2 continues to require the drywell and suppression chamber oxygen concentration to remain less than 4% by volume during Operational Conditions 1 and 2. The redundant oxygen analyzer is adequate for monitoring this parameter. Until the Division 2 primary containment oxygen monitoring channel is returned to operable status, the licensee will validate the monthly channel check with a grab sample analysis of the containment atmosphere. A license condition was proposed to restore the Division 2 primary containment oxygen monitoring channel to operable status prior to restart following the sixth refueling outage. The sixth refueling outage is scheduled for Fall 1998. Additionally, the loss of one or both oxygen analyzers is factored into the Emergency Operating Procedures, and guidance is provided for energizing the Combustible Gas Control System, as appropriate, with or without the information provided by

these instruments. Based on the above evaluation, the staff finds the proposed changes acceptable.

3.0 EMERGENCY CIRCUMSTANCES

The Commission's regulations in 10 CFR 50.91 contain provisions for issuance of an amendment where the Commission finds that emergency circumstances exist, in that a licensee and the Commission must act quickly and that the time does not permit the Commission to publish a *Federal Register* notice allowing 30 days for prior public comment. The emergency exists in this case in that the proposed amendment is needed to prevent shutdown of Fermi 2. The licensee was unable to make a more timely application even though spiking has been observed in the Division 2 oxygen monitor circuitry since February 1998. Several sensor and component replacements were made in an attempt to eliminate the spiking. It was thought that the spiking problem was corrected during a system outage conducted the week of March 23, 1998. However, the spiking was again observed on March 28, 1998, during a transfer of the suction for this instrument from the suppression chamber to the drywell. On March 30, 1998, the spiking exceeded the predetermined level at which time it was decided the Division 2 containment oxygen monitor would be declared inoperable. This placed the plant in a 7-day LCO (LCO 3.3.7.5). The action for this LCO, Table 3.3.7.5-1 Action 80, requires that the inoperable channel be restored to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours. An extensive troubleshooting effort has been underway to determine the cause of the spiking and to repair it. However, at this point, the cause has not been determined. Additionally, troubleshooting would best be continued with the plant remaining in the current inerted steady-state condition. The staff has determined that the licensee used its best efforts to make a timely application.

Accordingly, the Commission has determined that emergency circumstances exist pursuant to 10 CFR 50.91(a)(5) and could not have been avoided, that the submittal of information was timely, and that the licensee did not create the emergency condition.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION

The Commission's regulations in 10 CFR 50.92(c) state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) result in a significant reduction in the margin of safety. The NRC staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment should be issued as allowed by the criteria contained in 10 CFR 50.91. The NRC staff's final determination is presented below.

1. The change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change will permit operation with one of the primary containment oxygen monitor channels inoperable for greater than 7 days without requiring a plant shutdown. The primary

containment oxygen monitors are passive instruments that provide indication and alarms to control room operators of the oxygen concentration in the primary containment. Because these monitors perform only a passive monitoring function, the oxygen monitors are not associated with the initiation of any previously evaluated accident; therefore, there is no change in the probability of an accident previously evaluated.

The indication provided by the monitors is used by the control room operators to ensure oxygen concentration remains below limits and to make decisions regarding the use of the Combustible Gas Control System, if necessary. The remaining operable channel is sufficient to provide this monitoring function during the limited period affected by this amendment. Performing grab sampling to validate the monthly channel check of the remaining operable channel will provide additional assurance that gross failure of the operable channel has not occurred. Therefore, this change will not involve a significant increase in the consequences of a previously evaluated accident.

2. The change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

As discussed above, the oxygen monitors are passive, indication and alarm only instruments that provide information to control room operators. The proposed change does not introduce a new mode of plant operation, nor does it involve a physical modification to the plant. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. The change does not involve a significant reduction in the margin of safety.

The proposed change involves the length of time that a containment oxygen monitor may be out of service. These monitors are passive, indication and alarm only instruments that do not affect any parameters or assumptions used in the calculation of any safety margin associated with TS safety limits, limiting safety system settings, limiting control settings or LCOs, or other previously defined margins for any structure, system, or component. Therefore, the proposed changes do not involve a significant reduction in a margin of safety during the limited period affected by this amendment.

5.0 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.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 made a final finding that the amendment involves no significant hazards consideration. 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.

7.0 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 Contributors: B. Marcus
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Date: April 3, 1998