

Docket No. 50-341

October 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 - ISSUANCE OF AMENDMENT RE: EMERGENCY DIESEL GENERATOR
BEARING INSPECTIONS (TAC NO. M86061)

The Commission has issued the enclosed Amendment No. 94 to Facility Operating License No. NPF-43 for the Fermi-2 facility. The amendment consists of changes to the Facility Operating License No. NPF-43 in response to your letter dated March 23, 1993.

The amendment deletes License Condition 2.C(10)(a) which required Emergency Diesel Generator bearing gap check inspections following each automatic unlubricated engine start or every six months, whichever occurred first.

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. 94 to NPF-43
2. Safety Evaluation

cc w/enclosures:
See next page

OFFICE	LA:PD31	PM:PD31	OGC NLO	(A)D:PD31
NAME	CJamerson <i>CJ</i>	TColburn <i>T</i>	MZOBLE <i>MZ</i>	WDean <i>W</i>
DATE	10/7/93	10/12/93	10/14/93	10/13/93

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Mr. Douglas R. Gipson
Detroit Edison Company

Fermi-2

cc:

John Flynn, Esquire
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U.S. Nuclear Regulatory Commission
799 Roosevelt Road
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Mr. William E. Miller
Director - Nuclear Licensing
Detroit Edison Company
Fermi-2
6400 North Dixie Highway
Newport, Michigan 48166

DATED: October 26, 1993

AMENDMENT NO. 94 TO FACILITY OPERATING LICENSE NO. NPF-43-FERMI-2

Docket File

NRC & Local PDRs

PDIII-1 Reading

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W. Dean

C. Jamerson

T. Colburn

OGC-WF

D. Hagan, 3302 MNBB

G. Hill (2), P1-22

C. Grimes, 11/F/23

J. Norberg, 7-E-23

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ACRS (10)

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OC/LFDCB

B.Jorgensen, R-III

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. 94
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 March 23, 1993, 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 following sections under paragraph 2.C. of Facility Operating License No. NPF-43 are hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A as revised through Amendment No. 94 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.

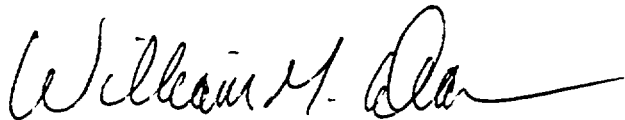
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(10) Emergency Diesel Generator (EDG) Lube Oil Monitoring

DECo shall obtain and analyze, once each month, an engine lube oil sample from each EDG except when an EDG is unavailable for service. Should each of two consecutive samples analyzed identify foreign matter/deposits which exceed DECo established limits and which could degrade crankshaft bearing performance, DECo shall inform the NRC immediately and, within 15 working days following such notification, submit a report of analysis results and the detailed corrective action to be taken.

3. This license amendment is effective as of the date of its issuance with full implementation within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



William M. Dean, Acting Director
Project Directorate III-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Page 4 of License No. NPF-43*

Date of Issuance: October 26, 1993

*Page 4 is attached, for convenience, for the composite license to reflect these changes.

Consumers Power Company as specified in a letter from DECo to the Director of Regulation, dated August 13, 1971, and the letter from Richard W. McLaren, Assistant Attorney General, Antitrust Division, U.S. Department of Justice, to Bertram H. Schur, Associate General Counsel, Atomic Energy Commission, dated August 16, 1971.

- (4) Deleted
- (5) Deleted
- (6) Deleted
- (7) Deleted
- (8) Deleted
- (9) Modifications for Fire Protection (Section 9.5.1, SSER #5 and SSER #6)*

DECo shall implement and maintain in effect all provisions of the approved fire protection program as described in its Final Safety Analysis Report for the facility through Amendment 60 and as approved in the SER through Supplement No. 5, subject to the following provision:

- (a) DECo may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

- (10) Emergency Diesel Generator (EDG) Engine Special Inspection Program

DECo shall obtain and analyze, once each month, an engine lube oil sample from each EDG except when an EDG is unavailable for service. Should each of two consecutive samples analyzed identify foreign matter/deposits which exceed DECo established limits and which could degrade crankshaft bearing performance, DECo shall inform the NRC immediately and, within 15 working days following such notification, submit a report of analysis results and the detailed corrective action to be taken.

*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. 94 TO FACILITY OPERATING LICENSE NO. NPF-43
DETROIT EDISON COMPANY
FERMI-2
DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated March 23, 1993, the Detroit Edison Company, the licensee, proposed to amend its operating license for Fermi Unit 2 (Fermi). The amendment consisted of modifying License Condition 2.C.(10) which pertains to the Emergency Diesel Generators (EDGs). This license condition requires the following activities:

- (1) Perform gap checks on each EDG after each automatic unprelubricated engine start, or every six months, whichever occurs first.
- (2) Obtain and analyze, once each month, an engine lube oil sample from each EDG except when an EDG is unavailable for service.

In its letter, the licensee proposed to eliminate the first activity requiring EDG main engine bearing gap checks. The license condition was specified in Amendment 12 to the Fermi operating license as a result of several upper crankline main bearing problems encountered with the Fermi EDGs during the initial plant startup in 1985. The licensee stated that, since the issuance of Amendment 12 in 1987, the performance of this activity has revealed no adverse bearing conditions, and has resulted in high EDG unavailability. The licensee thus concluded that this requirement is no longer warranted.

2.0 DISCUSSION

The standby AC power system for Fermi consists of four Fairbanks Morse opposed-piston EDGs. Each EDG is a 12-cylinder, turbocharged engine, and is rated for continuous duty at 3967 horsepower. During initial plant startup in January of 1985, the licensee reported problems with the main bearings on several of the engines. Although the root cause of the problems was never identified with certainty, it is generally believed that the major contributor was inadequate bearing lubrication during unprelubricated fast starts of the engines. Before the occurrence of the bearing problems, the licensee did not manually prelude the engines prior to planned starts such as surveillance testing. The licensee subsequently revised its EDG testing procedures to include manual prelubing prior to all planned starts. Unplanned starts, such as those in response to loss-of-offsite power and spurious or actual accident signals, are not manually prelubricated. Fermi encountered additional bearing problems in November of 1985. Again, the root cause of the problems could not

be definitively determined; however, several likely contributing factors were identified (e.g., misalignment of bearing caps, adequacy of the brand of lube oil, and possible contamination of the lube oil), and corrective actions were implemented.

Following the problems encountered in November of 1985, the licensee performed a Reliability Demonstration Test Program to confirm the operability of the EDGs. In addition, the licensee proposed to perform a gap check inspection of the upper and lower crankline main bearings every six months in order to more closely monitor bearing conditions. Unprelubricated engine starts were not included in the Demonstration Test Program since the licensee and the staff agreed that such starts were detrimental to the engine and should be minimized. To address the concern with unprelubricated starts, the licensee was required to add a provision to its proposed EDG inspection program which required that bearing gap checks be performed after every unprelubricated engine start. The EDG main bearing gap check inspection program was subsequently included as part of License Condition 2.C.(10).

In its March 23, 1993, submittal, the licensee stated that since License Condition 2.C.(10) became effective, the Fermi EDGs have undergone a total of approximately 60 bearing gap checks, approximately 22 of which were performed following unprelubricated fast starts. The licensee stated that the gap checks have not revealed any signs of bearing distress on the upper or lower crankline main bearings of any of the four EDGs. The licensee further stated that, since each EDG must be taken out of service for approximately 8 hours in order to perform the gap checks, the license condition has resulted in high EDG unavailability. The licensee also noted that the Fermi Technical Specifications require an 18-month inspection of each EDG in accordance with the manufacturers recommendations, and that this requirement includes engine main bearing gap checks.

3.0 EVALUATION

The current license condition requiring bearing gap checks after every unprelubricated engine start or every six months, whichever occurs first, was imposed because of the inherent uncertainties in determining the root cause(s) of the 1985 bearing problems, and because of the limitations of the subsequent Demonstration Test Program. Although the root cause of the problems was not definitively determined, it was generally believed that the problems were likely due to the excessive number of unprelubricated engine starts in combination with some of the additional contributing factors which were identified and corrected by the licensee.

The potential detrimental effects of unprelubricated fast starts of EDGs have been addressed by the staff in previous generic correspondences. Generic Letter 83-41, "Fast Cold Starts of Diesel Generators", requested that licensees provide information related to the frequency of fast cold starts (i.e., unprelubricated fast starts) and the potential for diesel generator degradation. Generic Letter 84-15, "Proposed Staff Actions To Improve And

Maintain Diesel Generator Reliability" suggested changes in Technical Specifications and EDG testing procedures to improve diesel generator reliability, and specifically requested that licensees reduce the number of unprelubricated fast cold test starts. According to a study conducted by the Fermi licensee in 1985, all other nuclear plants which employ this type of engine manually prelubricate the engine prior to all planned starts. In addition, the EDG manufacturer, Coltec Industries, strongly recommends prelubing prior to planned engine starts.

In its March 23, 1993, submittal, the licensee indicated that, since the implementation of the corrective actions in 1985 and 1986, the Fermi EDGs have not experienced any engine bearing problems. The manner in which the licensee now operates its EDGs appears consistent with the manufacturers recommendations, and with the manner in which other utilities operate similar EDGs. It is also noted that the licensee's Technical Specifications require that the EDGs be maintained in accordance with the manufacturers recommendations. As such, the licensee will continue to perform EDG bearing gap checks about every 18 months. Based on the above, the staff agrees with the licensee that continuing to perform the bearing gap checks in accordance with License Condition 2.C.(10) results in high EDG unavailability with no apparent increase in engine reliability. The staff finds that continuation of the special bearing gap checks in accordance with License Condition 2.C.(10) is not warranted. Therefore, the licensee's request to amend its operating license to eliminate the special bearing gap check requirement is acceptable.

4.0 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.

5.0 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 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 (58 FR 28054). 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.

6.0 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: M. McBrearty

Date: October 26, 1993