

January 16, 2004

Mr. William T. O'Connor, Jr.  
Vice President - Nuclear Generation  
Detroit Edison Company  
6400 North Dixie Highway  
Newport, MI 48166

SUBJECT: FERMI 2 - ISSUANCE OF AMENDMENT RE: DEFERRAL OF TECHNICAL SPECIFICATION 3.7.3, "CONTROL ROOM EMERGENCY FILTRATION (CREF) SYSTEM," SURVEILLANCE REQUIREMENT 3.7.3.6 (TAC NO. MC1139)

Dear Mr. O'Connor:

The Commission has issued the enclosed Amendment No. 158 to Facility Operating License No. NPF-43 for the Fermi 2 facility. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated October 10, 2003, as supplemented December 30, 2003.

The amendment revises TS 3.7.3, "Control Room Emergency Filtration (CREF) System," Surveillance Requirement (SR) 3.7.3.6, to permit a one-time deferral of SR 3.7.3.6 until startup from the next refueling outage (RF-10) to preclude a mid-cycle shutdown solely for the performance of this SR. SR 3.7.3.6 requires verifying that unfiltered in-leakage from CREF system duct work outside the control room envelope that is at negative pressure during accident conditions is within limits. This SR is required to be performed every 36 months, and can be performed only when the CREF system is not required to be OPERABLE (i.e., in MODES 4 or 5, with no operations with a potential for draining the reactor vessel and with no fuel movement of recently irradiated fuel in progress).

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,

*/RA/*

Harold K. Chernoff, Project Manager, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosures: 1. Amendment No. 158 to NPF-43  
2. Safety Evaluation

cc w/encls: See next page

Fermi 2

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The amendment revises TS 3.7.3, "Control Room Emergency Filtration (CREF) System," Surveillance Requirement (SR) 3.7.3.6, to permit a one-time deferral of SR 3.7.3.6 until startup from the next refueling outage (RF-10) to preclude a mid-cycle shutdown solely for the performance of this SR. SR 3.7.3.6 requires verifying that unfiltered in-leakage from CREF system duct work outside the control room envelope that is at negative pressure during accident conditions is within limits. This SR is required to be performed every 36 months, and can be performed only when the CREF system is not required to be OPERABLE (i.e., in MODES 4 or 5, with no operations with a potential for draining the reactor vessel and with no fuel movement of recently irradiated fuel in progress).

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DETROIT EDISON COMPANY

DOCKET NO. 50-341

FERMI 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 158  
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 October 10, 2003, as supplemented December 30, 2003, 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. 158, 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 its date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

L. Raghavan, Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: January 16, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 158

FACILITY OPERATING LICENSE NO. NPF-43

DOCKET NO. 50-341

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

REMOVE

3.7-10

INSERT

3.7-10

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 158 FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

FERMI 2

DOCKET NO. 50-341

1.0 INTRODUCTION

By application dated October 10, 2003, as supplemented December 30, 2003, the Detroit Edison Company (DECo) requested changes to the Technical Specifications (TSs) for Fermi 2. The proposed changes would revise TS 3.7.3, "Control Room Emergency Filtration (CREF) System," Surveillance Requirement (SR) 3.7.3.6, to permit a one-time deferral of SR 3.7.3.6 until startup from the next refueling outage (RF-10) to preclude a mid-cycle shutdown solely for the performance of this SR. SR 3.7.3.6 requires verifying that unfiltered in-leakage from CREF system duct work outside the control room envelope that is at negative pressure during accident conditions is within limits. This SR is required to be performed every 36 months, and can be performed only when the CREF system is not required to be OPERABLE (i.e., in MODES 4 or 5, with no operations with a potential for draining the reactor vessel and with no fuel movement of recently irradiated fuel in progress). The next required performance of SR 3.7.3.6 is February 1, 2004. The December 30, 2003, supplemental letter provided additional clarifying information that was within the scope of the original application and did not change the Nuclear Regulatory Commission (NRC) staff's initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

In a separate application dated March 31, 2003, DECo proposed a revision to SR 3.7.3.6 to allow crediting performance of an integrated tracer gas test of the control room envelope while in the recirculation mode using test methods described in American Society for Testing and Materials (ASTM) Consensus Standard E741, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution." As proposed, this testing could be performed in lieu of the current requirement to verify unfiltered in-leakage. DECo also stated that ASTM E741 testing could be performed during power operation (MODE 1) and was identified by the NRC and industry as an effective method for monitoring control room envelope performance.

The analysis DECo performed in support of the March 31, 2003, application relied, in part, on another proposed license amendment to implement an alternative source term (AST) in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.67, "Accident source term." The proposed AST amendment was submitted by application dated February 13, 2003. Both the March 31, 2003, and the February 13, 2003, applications are

currently being reviewed by the NRC staff. These reviews will not be completed prior to February 1, 2004.

In accordance with the current TSs, SR 3.7.3.6 must be performed by February 1, 2004. DECo has stated that this test takes as much as 7 days in MODE 4 to perform while the proposed tracer gas testing can be performed during MODE 1. DECo further stated that anticipating NRC approval of both the February 13, 2003, and March 31, 2003, applications prior to February 1, 2004, SR 3.7.3.6 was not performed during the spring 2003 refueling outage at Fermi 2. In order to avoid a mid-cycle shutdown to perform SR 3.7.3.6 prior to the required completion date, DECo proposed this one-time deferral of the completion of SR 3.7.3.6 until prior to startup from RF-10, an extension of 10 to 12 months beyond the current required completion date.

### 3.0 REGULATORY EVALUATION

TS 3.7.3 establishes the limiting conditions for operation and SRs for the CREF system in accordance with the requirements of 10 CFR 50.36, "Technical specifications." The CREF system provides a controlled environment from which the unit can be safely operated during a design-basis accident (DBA). This system includes duct work, dampers, fans, and filters that are used to maintain exposure to operating personnel less than or equal to 5 rem whole body or its equivalent to any portion of the body for the duration of any DBA. When the system senses conditions that could result in radiological exposure to control room personnel, it automatically switches to the recirculation mode of operation, which serves to control the infiltration of contaminated air into the control room. During operation in the recirculation mode, the control room envelope is pressurized to minimize infiltration of radiological material.

During the initial licensing of Fermi 2, the NRC staff raised a concern<sup>1</sup> about the use of silicone sealant material on duct work seam joints located outside of the control room envelope. The concern dealt with the ability of the silicone sealant to perform its sealing function over the designed plant lifetime of 40 years. The resolution of this concern resulted in a license condition being added to Fermi 2 Operating License No. NPF-43. This license condition required DECo to either provide assurance that this concern would not significantly impact control room habitability or submit a license amendment application proposing implementation of TS SRs for periodic leakage testing to assure the integrity of the portions of the CREF system outside the control room pressurization envelope. By application dated November 16, 1989, DECo submitted proposed TS SRs for periodic leakage testing of the affected duct work. On October 15, 1992, the NRC staff issued License Amendment No. 88, which established appropriate TS SRs and removed the previously discussed license condition.

The TS SRs approved in License Amendment No. 88 included both visual examination and leakage testing requirements. The frequency for the visual inspection (12 months) and leakage testing (36 months) were established based on industry experience with silicone sealant of the type installed at Fermi 2 and the ability of the visual examinations and leakage tests to identify unexpected degradation of the silicone sealant.

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<sup>1</sup>NRC NUREG-0798, Supplement 5, "Safety Evaluation Report Related to the Operation of Fermi-2," dated March 1985.



The TS Bases for SR 3.7.3.6 state:

This SR verifies that the accident analysis assumptions concerning leakage in through CREF system duct work outside the control room envelope that would be under negative pressure (less than atmospheric) during accident conditions and where any inleakage would not be filtered are maintained. This test is needed since the CREF system duct work seams have had silicone sealant applied. Since the underlying welds have not been leak tested without silicone sealant and the qualities of the silicone sealant have not been demonstrated over time, a periodic program of verifying the integrity of these sections of duct is required.

Since the accident analyses assume a single damper failure, the test pressures must account for the worst case negative pressure in each duct of concern.

The SR Frequency is based upon the long-term nature of the concern and the additional assurance that the condition of the silicone is not changing provided by the annual inspection of the accessible duct work required by SR 3.7.3.3.

#### 4.0 TECHNICAL EVALUATION

Currently, the Fermi 2 TSs require that SR 3.7.3.6 must be completed by February 1, 2004. This date reflects the 25-percent frequency extension permitted by SR 3.0.2. DECo has stated that SR 3.7.3.6 can only be performed when the CREF system is not required to be OPERABLE (i.e., in MODES 4 or 5, with no operations with a potential for draining the reactor vessel and with no fuel movement of recently irradiated fuel in progress). In order to avoid a shutdown to complete this SR, DECo proposed, in its October 10, 2003, application, that the next completion of SR 3.7.3.6 be deferred until prior to startup from RF-10.

SR 3.7.3.6 is performed to verify that unfiltered in-leakage from CREF system duct work outside the control room envelope that is subject to a negative pressure during accident conditions is within the limits assumed in the DBA analysis. This surveillance is required to be performed on a 36-month frequency. The acceptance criteria for the two limiting accident scenarios and test results from the performance of this surveillance since its inception are provided in Table 3.1.

**Table 3.1 - SR 3.7.3.6 Acceptance Criteria and Test Results**

<b>Test Date</b>	<b>Leak Rate with No Damper Failure / Acceptance Criteria</b>	<b>Leak Rate with Single Damper Failure / Acceptance Criteria</b>
07/1994	3.92 cfm / 11.00 cfm	10.91 cfm / 34.00 cfm
10/1997	6.49 cfm / 11.00 cfm	13.56 cfm / 34.00 cfm
04/2000	5.82 cfm / 11.00 cfm	13.43 cfm / 34.00 cfm

As summarized in Table 3.1, each performance of SR 3.7.3.6 has determined that the acceptance criteria have been met with relatively consistent levels of leakage identified.

Additionally, in each case, substantive margin existed between the test results and the acceptance criteria.

Current TS SR 3.7.3.3 requires the visual inspection of the silicone sealant for signs of degradation on the accessible portions of the CREF system duct work outside the control room envelope. This SR is further limited to those sections of duct work that are subject to a negative pressure during accident conditions and for which potential in-leakage would not receive full filtration. SR 3.7.3.3 is required to be performed on a 12-month frequency.

In its October 10, 2003, application, DECo stated that with the exception of isolated deficiencies identified during performance of SR 3.7.3.3 in 1996<sup>2</sup>, SR 3.7.3.3 has been completed at the required frequency with satisfactory results (i.e., no indication of silicone sealant cracking, de-bonding, or other abnormal degradation, and no noticeable degradation in sealant quality). In its supplemental letter dated December 30, 2003, DECo noted that the most recent performance of this SR was completed satisfactorily in November 2003.

In addition to the surveillances specifically intended to identify degradation of the silicone sealant, SR 3.7.3.5 is performed to verify that each CREF subsystem can maintain a positive pressure of  $\geq 0.125$  inches water gauge relative to the outside atmosphere during the recirculation mode of operation. SR 3.7.3.5, which is performed on an 18-month STAGGERED TEST BASIS, also confirms that this pressure can be maintained with a make-up flow rate of  $\leq 1800$  cfm. This SR was most recently completed in April 2003. At that time, the acceptance criteria of SR 3.7.3.5 were met with a measured make-up flow rate of 1419 cfm.

In the aggregate, the surveillance testing that has been performed on the CREF system has served to verify that the silicone sealant material used continues to perform its intended function. Additionally, DECo has not observed degradation of the silicone sealant. Based on this information, the NRC staff finds that the performance of the silicone sealant material, as verified by the aforementioned surveillance activities, provides a sufficient basis for the deferral of the next performance of SR 3.7.3.6 until startup from RF-10 (approximately 10 to 12 months beyond the current required completion date of February 1, 2004). Therefore, the NRC staff concludes that DECo's proposed changes to SR 3.7.3.6 are acceptable.

Notwithstanding the NRC staff's determination, DECo committed, in its December 30, 2003, supplemental letter, to perform SR 3.7.3.6 prior to RF-10 if an outage of sufficient duration and appropriate plant conditions occurs.

## 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.

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<sup>2</sup>DECo letter to NRC, "Special Report of Debonded and Damaged Control Center Heating, Ventilation, and Air Conditioning (CCHVAC) Duct Sealant," dated January 23, 1996, identified the surveillance deficiencies and corrective actions taken by DECo. These actions included repairs and quarterly monitoring until the next annual inspection. DECo concluded that the identified deficiencies did not prevent the duct work from performing its intended function.

## 6.0 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. 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 (68 FR 66134). 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 Contributor: H. K. Chernoff

Date: January 16, 2004