William T. O'Connor, Jr.
Vice President, Nuclear Generation

Fermi 2
6400 North Dixie Hwy., Newport, Michigan 48166
Tel: 734-586-5201 Fax: 734-586-4172

DTE Energy

GL 2003-01

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NRC-03-0060

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

References: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

2) NRC Generic Letter No. 2003-01, "Control Room Habitability," dated June 12, 2003

3) Detroit Edison Letter to NRC, "Proposed License Amendment for the Revision of Control Room Emergency Filtration System Technical Specification Surveillance Requirements Regarding Unfiltered Inleakage," NRC-02-0072, dated September 26, 2002

4) Detroit Edison Letter to NRC, "Proposed License Amendment for the Implementation of Alternative Radiological Source Term Methodology," NRC-03-0007, dated February 13, 2003

5) Detroit Edison Letter to NRC, "Resubmittal of Proposed License Amendment for the Revision of Control Room Emergency Filtration System Technical Specification Surveillance Requirements Regarding Unfiltered Inleakage," NRC-03-0016, dated March 31, 2003

6) Detroit Edison Letter to NRC, "Response to NRC Request for Additional Information Regarding the Implementation of Alternative Source Term," NRC-03-0053, dated July 8, 2003

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Subject: Detroit Edison's 60-Day Response to Generic Letter 2003-01, "Control Room Habitability"

The purpose of this letter is to provide a 60-day response to NRC Generic Letter (GL) 2003-01 for the Fermi 2 Nuclear Power Plant.

On June 12, 2003, the NRC issued GL 2003-01 (Reference 2) requesting licensees to provide information, within 180 days of the date of the GL, confirming that the control rooms at their facilities meet the applicable habitability regulatory requirements and that the control room habitability systems are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing bases.

The GL states that the information provided should emphasize the confirmation of the following three areas:

(a) *That the most limiting unfiltered inleakage into your Control Room Envelope (and the filtered inleakage if applicable) is no more than the value assumed in your design basis radiological analyses for control room habitability. Describe how and when you performed the analyses, tests, and measurements for this confirmation.*

(b) *That the most limiting unfiltered inleakage into your Control Room Envelope (CRE) is incorporated into your hazardous chemical assessments. This inleakage may differ from the value assumed in your design basis radiological analyses. Also, confirm that the reactor control capability is maintained from either the control room or the alternate shutdown panel in the event of smoke.*

(c) *That your technical specifications verify the integrity of the CRE, and the assumed inleakage rates of potentially contaminated air. If you currently have a ΔP surveillance requirement to demonstrate CRE integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your ΔP surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your technical specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any necessary modifications to your CRE so that compliance with your new surveillance requirement can be demonstrated.*

The GL states that if an addressee cannot provide the information or cannot meet the requested completion date, the addressee should submit a written response indicating

this within 60 days of the date of the GL. The response should address any alternative course of action, including the completion schedule and basis for acceptability.

For reasons explained below, Detroit Edison has determined that some of the information requested in the GL related to CRE inleakage testing using currently accepted test methods may not be available within 180 days of the date of the GL. Therefore, Detroit Edison hereby provides an alternative schedule for submitting the information requested in the GL and an explanation of the specific circumstances necessitating this alternate schedule for Fermi 2.

Background:

Fermi 2 Technical Specification (TS) 3.7.3, "Control Room Emergency Filtration (CREF) System," includes surveillance SR 3.7.3.6 which requires verifying that unfiltered inleakage from CREF system duct work outside the CRE, that is at negative pressure during accident conditions, is within limits. The required frequency for performing SR 3.7.3.6 is 36 months.

The provision for control room duct inleakage testing (SR 3.7.3.6) was introduced into the TS by license amendment No. 88, issued on October 15, 1992. This amendment also deleted license condition 2.C.(7) which was included in the Fermi 2 operating license during the original licensing of the plant. This license condition resulted from NRC concerns regarding the use of silicone sealant material to seal the joints on the CREF duct work outside the control room. A periodic visual inspection of silicone sealant on accessible portions of CREF system ductwork outside the control room that are at negative pressure during accident conditions (SR 3.7.3.3) was also added by amendment No. 88. In addition to the two surveillances described above (3.7.3.3 and 3.7.3.6), SR 3.7.3.5 requires verifying that each CREF subsystem can maintain a positive pressure of greater or equal 0.125 inches water gauge relative to the outside atmosphere during the recirculation mode of operation at a makeup flow rate of less or equal to 1800 Cubic Feet per Minute (CFM).

Section 3.7.2 of the current Technical Requirements Manual (TRM) includes additional details regarding the requirement of SR 3.7.3.6. TRM Table TR 3.7.2-2 specifies four sections of control room duct work outside the CRE that are required to be tested under this surveillance. The Table further provides the acceptance criteria for the cumulative total inleakage for all four ducts under two scenarios correlating to the limiting design basis accident analysis. The first scenario is for testing under maximum negative pressure expected for each specific duct during operation in the recirculation mode with no damper failure; and the second scenario assumes a single damper failure. The acceptance criteria provided for the two test scenarios are 11 Standard CFM (SCFM) and 34 SCFM, respectively. The 11 and 34 SCFM values are derived from the unfiltered inleakage assumed in the current

control room dose analysis to demonstrate compliance with 10 CFR 50, Appendix A, General Design Criterion (GDC)-19 following a Loss of Coolant Accident (LOCA). The specified test method is in accordance with the American Society of Mechanical Engineers (ASME) standard N510-1989.

Appendix 15A of the current Updated Final Safety Analysis Report (UFSAR) "Dose Calculation Models and Specific Calculational Values" includes an evaluation of control room operator dose following a LOCA. Section 15A.2.2, "Control Room Model" indicates that control room unfiltered inleakage is assumed to be 35 CFM for the first 30 minutes of the accident and 12 CFM thereafter for the remaining duration of the accident. The higher inleakage rate during the first 30 minutes is associated with a postulated damper failure (single failure) per ASME N510. The design basis assumes that operators would detect the damper failure and shift to the other division of the CREF system within the first 30 minutes of the accident. The current acceptance criteria in Section TR 3.7.2 of the TRM described above was established by assuming a 1.0 CFM average control room inleakage from the doors due to normal ingress and egress activity. The Fermi 2 control room has vestibules installed in the doorways which are used for normal ingress and egress. Although other doors penetrate the CRE, they would not normally be used under accident conditions.

The results of tests conducted in accordance with the requirements of SR 3.7.3.6 are tabulated below:

Test Date or Acceptance Criteria	Leak Rate (SCFM) **No Damper Failure**	Leak Rate (SCFM) **Single Damper Failure**
July 1994	3.92	10.91
October 1997	6.49	13.56
April 2000	5.82	13.43
Acceptance Criteria	*11.00*	*34.00*

The results demonstrate that adequate margin has historically been available between CRE inleakage as measured in accordance with the provisions of SR 3.7.3.6 and the pertinent acceptance criteria.

License Amendment Requests:

On September 26, 2002, Detroit Edison submitted a proposed license amendment (Reference 3) for NRC review and approval. The amendment cited new information released by the NRC in the proposed GL on Control Room Habitability (CRH) and the four associated Draft Guides. The amendment requested approval of a change to the surveillance requirements in SR 3.7.3.6 that adds a note proposing that the requirements of the duct leakage surveillance would be alternatively met by performing a Tracer Gas testing of the CRE using test methods described in

American Society for Testing and Materials (ASTM) standard E741 while operating in the recirculation mode.

The proposed amendment stated that in support of a separate license amendment involving the re-analysis of LOCA in accordance with the Alternative Source Term (AST) methodology, calculations have been performed demonstrating that GDC-19 can be met with unfiltered CRE inleakage significantly higher than the current design basis limits. Reference 3 stated that these AST calculations would provide adequate basis for the justification of CRE operability, should a Tracer Gas test reveal higher CRE inleakage than the current design basis limits, pending a permanent change to the plant's licensing basis to adopt AST. It also stated that, based on the result of the test, operability of the CRE would be evaluated and compensatory measures would be implemented, as necessary, to comply with GDC-19.

Similar to arguments made in GL 2003-01 and Regulatory Guide (RG) 1.197, Reference 3 stated that the proposed integrated Tracer Gas test would provide a measurement of the CRE inleakage from all potential sources and not just the four sections of ducting tested by the component test described in SR 3.7.3.6. Therefore, Detroit Edison, in Reference 3, requested NRC approval of a Technical Specification (TS) change to permit performing the more comprehensive Tracer Gas test to measure CRE inleakage in lieu of the component testing described in SR 3.7.3.6.

In telephone conversations held between Detroit Edison and NRC staff to discuss the proposed license amendment in Reference 3, the staff indicated that the use of AST calculations to address the potential CRE inleakage non-conforming condition may not be appropriate since AST has not yet been reviewed and approved by NRC. The NRC staff also indicated that the proposed potential use of GL 91-18 to demonstrate compliance with GDC-19 may not be acceptable in this case since it would be used to demonstrate compliance with a TS surveillance (even though the acceptance criteria are in the TRM). However, the NRC staff suggested that the use of compensatory measures would be acceptable if incorporated into a new TS Condition and associated Required Actions. The use of compensatory measures to demonstrate compliance with GDC-19 requirements is an interim solution and should not extend beyond one plant operating cycle. A permanent solution that employs physical plant modifications or analytical licensing basis changes must then be implemented to replace the compensatory measures.

On February 13, 2003, Detroit Edison submitted a separate license amendment (Reference 4) requesting licensing basis changes based on the re-evaluation of LOCA using AST. One of the requested licensing basis changes involves an increase in the CRE unfiltered inleakage assumed in the radiological dose analysis to 900 CFM.

Further discussions were held with NRC staff regarding the amendments in References 3 and 4. The NRC staff indicated that based on industry experience, most control rooms tested using the ASTM E741 standard measured inleakage greater than the inleakage assumed in their design basis analyses. Therefore, the NRC was not comfortable in approving the proposed alternate integrated CRE inleakage test because it creates a situation where there is a high likelihood of failure to meet the SR acceptance criteria. The NRC staff indicated that this would no longer be a concern if design basis CRE inleakage limit was increased to 900 CFM as delineated in Reference 4.

Based on staff feedback, Detroit Edison revised the proposed license amendment in Reference 3 and resubmitted it on March 31, 2003 (Reference 5). In addition to the proposed note for crediting the Tracer Gas test, the revision proposed adding a new Condition and associated Required Actions to TS 3.7.3 to address the potential failure of SR 3.7.3.6 to meet CRE unfiltered inleakage limits. The Actions require the initiation of immediate compensatory measures and restoring the unfiltered inleakage to within limits within 18 months. Reference 5 also stated that the base line Tracer Gas test at Fermi 2 would be performed after the NRC has approved the AST license amendment and the acceptance criteria for CRE unfiltered inleakage has been changed to 900 CFM.

On July 8, 2003, Detroit Edison submitted Reference 6 providing a response to NRC request for additional information regarding the AST license amendment in Reference 4. Detroit Edison continues working with NRC staff on addressing questions and issues associated with the two license amendment requests in References 4 and 5; however, NRC approval of both of these license amendments is still pending.

Generic Letter Response:

With the exception of information related to confirming that the most limiting unfiltered inleakage into the CRE is no more than the value assumed in the design basis radiological analyses for CRH, Detroit Edison will provide all the requested information in GL 2003-01 within 180 days of the date of the GL. Information confirming CRE unfiltered inleakage will be provided within 90 days from the date of performing a base line integrated CRE inleakage test of the Fermi 2 control room but no later than December 9, 2004.

As stated above, the Fermi 2 TS includes SR 3.7.3.6 for measuring unfiltered inleakage into the CRE. This SR has been successfully performed since its inclusion in the TS. However, this SR is essentially a Component Test that measures inleakage from four specific sections of duct work outside the CRE that is at negative

pressure during accident conditions. RG 1.197 indicates that this type of test would not be acceptable without an integrated inleakage test conducted in concert.

In light of the most recent information available on CRE inleakage testing and the NRC position regarding the use of component testing to confirm design basis assumptions, Detroit Edison has been actively working with NRC to coordinate the performance of a base line integrated test using methods described in ASTM standard E741. The results of this test will be used to provide the confirmatory information requested in the GL.

The reasons for the alternative schedule provided in this letter are listed below:

1. Given the Fermi 2 TS surveillance requirements for the verification of CRE inleakage, and the latest NRC guidance regarding acceptable test methodologies, Detroit Edison determined that performing SR 3.7.3.6 might not address all CRH concerns. Therefore, in References 3 and 5, Detroit Edison proposed a TS change that would allow crediting a more comprehensive integrated inleakage test using ASTM standard E741 to satisfy the requirements of the SR. However, NRC approval of this change is still pending. Based on the current TS, the requirements of SR 3.7.3.6 must be satisfied no later than January 27, 2004 unless an extension is granted by the NRC.

2. In Reference 4, Detroit Edison proposed a separate license amendment for revising the licensing bases related to the LOCA radiological evaluation using AST. A response to NRC request for additional information was also submitted in Reference 6. One of the proposed changes would increase the allowable control room unfiltered inleakage to 900 CFM. Detroit Edison believes that results from an integrated inleakage test would be well within this limit. However, this AST license amendment is also pending NRC approval.

3. Detroit Edison continues to explore alternatives for performing the base line integrated CRE inleakage test for the Fermi 2 control room; however, pending NRC approval of the submitted license amendments, no conclusions have been reached regarding a successful practical licensing approach for performing the test. This test is currently scheduled to start on October 6, 2003; however, it is uncertain that testing in October would be possible without NRC approval of the two amendments. If the test is postponed again, it would have to be rescheduled based on the availability of qualified test vendors and the ability to schedule a divisional CREF system outage for performing the test.

The following commitment is made in this letter:

Detroit Edison will provide all the requested information in GL 2003-01, with the exception of information related to confirming that the most limiting unfiltered inleakage into the CRE is no more than the value assumed in the design basis radiological analyses for CRH, within 180 days of the date of the GL. Information confirming CRE unfiltered inleakage will be provided within 90 days from the date of performing a base line integrated CRE inleakage test of the Fermi 2 control room but no later than December 9, 2004.

Should you have any questions or require additional information, please contact Mr. Norman K. Peterson of my staff at (734) 586-4258.

Sincerely,

William J. O'Connor Jr.

cc: H. K. Chernoff
M. A. Ring
NRC Resident Office
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission