



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

April 18, 2014

Mr. Joseph H. Plona
Senior Vice President and Chief Nuclear Officer
DTE Electric Company
Fermi 2 - 210 NOC
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: FERMI 2 - ISSUANCE OF AMENDMENT REGARDING CONTROL ROOM
HABITABILITY TECHNICAL SPECIFICATION TASK FORCE (TSTF) TRAVELER
TSTF-448 (TAC NO. MF1467)

Dear Mr. Plona:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 198 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 April 17, 2013.

The amendment revises the TS requirements related to control room envelope habitability in accordance with Technical Specification Task Force (TSTF) Change Traveler TSTF-448, Revision 3, "Control Room Habitability." TSTF-448 was made available by the NRC on January 17, 2007 (72 FR 2022) as part of the Consolidated Line Item Improvement Process.

A copy of our related safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink, which appears to read "Thomas J. Wengert", is written over a horizontal line.

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosures:

1. Amendment No. 198 to NPF-43
2. Safety Evaluation

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

DTE ELECTRIC COMPANY

DOCKET NO. 50-341

FERMI 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 198
License No. NPF-43

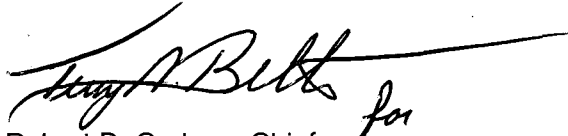
1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the DTE Electric Company (DTE, the licensee) dated April 17, 2013, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 Operating License and 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. 198 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. DTE Electric Company 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 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "Robert D. Carlson", followed by a long horizontal line and the word "for" written in a cursive script.

Robert D. Carlson, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Facility Operating License
and Technical Specifications

Date of Issuance: April 18, 2014

ATTACHMENT TO LICENSE AMENDMENT NO. 198

FACILITY OPERATING LICENSE NO. NPF-43

DOCKET NO. 50-341

Replace the following pages of the Facility Operating License and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

License Page 3
License Page 6
License Page 7

3.7-6
3.7-7
3.7-8
3.7-9
3.7-10
5.0-19

INSERT

License Page 3
License Page 6
License Page 7

3.7-6
3.7-7
3.7-8
3.7-9
3.7-10
5.0-19
5.0-19a

- (4) DTE Electric Company, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material such as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) DTE Electric Company, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) DTE Electric Company, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

DTE Electric Company is authorized to operate the facility at reactor core power levels not in excess of 3486 megawatts thermal (100% power) in accordance with the conditions specified herein and in Attachment 1 to this license. The items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A as revised through Amendment No. 198 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this license. DTE Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Antitrust Conditions

DTE Electric Company shall abide by the agreements and interpretations between it and the Department of Justice relating to Article I, Paragraph 3 of the Electric Power Pool Agreement between DTE Electric Company and

- (21) The schedule for performing surveillance requirements (SRs) that are new or revised in Amendment No. 134 shall be as follows:
- For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of this amendment.
 - For SRs that existed prior to this amendment whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment.
 - For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.
 - For SRs that existed prior to this amendment whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.

(22) Deleted

(23) Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- (a) Fire fighting response strategy with the following elements:
 - 1. Pre-defined coordinated fire response strategy and guidance
 - 2. Assessment of mutual aid fire fighting assets
 - 3. Designated staging areas for equipment and materials
 - 4. Command and control
 - 5. Training of response personnel
- (b) Operations to mitigate fuel damage considering the following:
 - 1. Protection and use of personnel assets
 - 2. Communications
 - 3. Minimizing fire spread
 - 4. Procedures for implementing integrated fire response strategy
 - 5. Identification of readily-available pre-staged equipment
 - 6. Training on integrated fire response strategy
 - 7. Spent fuel pool mitigation measures

- (c) Actions to minimize releases to include consideration of:
 - 1. Water spray scrubbing
 - 2. Dose to onsite responders
- (24) The licensee shall implement and maintain all Actions required by Attachment 2 to NRC Order EA-06-137, issued June 20, 2006, except the last action that requires incorporation of the strategies into the site security plan, contingency plan, emergency plan and/or guard training and qualification plan, as appropriate.
- (25) Upon implementation of Amendment No. 198 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air leakage as required by SR 3.7.3.4, in accordance with TS 5.5.14.c.(i), the assessment of CRE habitability as required by Specification 5.5.14.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.14.d, shall be considered met. Following implementation:
 - a. The first performance of SR 3.7.3.4, in accordance with Specification 5.5.14.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from March 28, 2011, the date of the most recent successful tracer gas test.
 - b. The first performance of the periodic assessment of CRE habitability, Specification 5.5.14.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from March 28, 2011, the date of the most recent successful tracer gas test.
 - c. The first performance of the periodic measurement of CRE pressure, Specification 5.5.14.d, shall be within 18 months, plus the 138 days allowed by SR 3.0.2, as measured from the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.

3.7 PLANT SYSTEMS

3.7.3 Control Room Emergency Filtration (CREF) System

LC0 3.7.3 The CREF System shall be OPERABLE.

-----NOTE-----
The control room envelope (CRE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, and 3,
During movement of recently irradiated fuel assemblies in the secondary containment,

During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREF subsystem inoperable for reasons other than Condition B.	A.1 Restore CREF subsystem to OPERABLE status.	7 days
B. One or more CREF subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3.	B.1 Initiate action to implement mitigating actions.	Immediately
	<u>AND</u> B.2 Verify mitigating actions ensure CRE occupant exposures to radiological and chemical hazards will not exceed limits and CRE occupants are protected from smoke hazards.	24 hours
	<u>AND</u> B.3 Restore CRE boundary to OPERABLE status.	90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	<p>C.1 -----NOTE----- LCO 3.0.4.a is not applicable when entering MODE 3. -----</p> <p>Be in MODE 3.</p>	12 hours
D. Required Action and associated Completion Time of Condition A not met during movement of recently irradiated fuel assemblies in the secondary containment, or during OPDRVs.	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>D.1 Place OPERABLE CREF subsystem in recirculation mode.</p> <p><u>OR</u></p> <p>D.2.1 Initiate action to suspend OPDRVs.</p> <p><u>AND</u></p> <p>-----NOTE----- Not required for a CREF System or subsystem inoperable due to failure to provide the required filtration efficiency, or due to replacement of charcoal filtration media. -----</p> <p>D.2.2 Suspend movement of recently irradiated fuel assemblies in the secondary containment.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

(continued)

FERMI - UNIT 2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Operate each CREF subsystem for ≥ 15 continuous minutes with heaters operating.	31 days
SR 3.7.3.2	<p>-----NOTE----- When the CREF system is made inoperable in MODE 1, 2, or 3 solely for VFTP required surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours. -----</p> <p>Perform required CREF filter testing in accordance with the Ventilation Filter Testing Program (VFTP).</p>	In accordance with the VFTP
SR 3.7.3.3	Verify each CREF subsystem actuates on an actual or simulated initiation signal.	18 months
SR 3.7.3.4	Perform required CRE unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.	In accordance with the Control Room Envelope Habitability Program

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5.5 Programs and Manuals

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

- e. The provisions of SR 3.0.2 do not apply to the test frequencies in the Primary Containment Leakage Rate Testing Program.
- f. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

5.5.13 High Density Spent Fuel Racks

A program shall be provided, for the high density storage racks containing Boraflex as the neutron absorber, which will ensure that any unanticipated degradation of the Boraflex will be detected and will not compromise the integrity of the racks.

5.5.14 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filtration (CREF) System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

- a. The definition of the CRE and the CRE boundary.
- b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.
- c. Requirements for (i) determining the unfiltered air leakage past the CRE boundary into the CRE in accordance with the testing methods and at the frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

(continued)

5.5 Programs and Manuals

5.5.14 Control Room Envelope Habitability Program (continued)

- d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem of the CREF System, operating at the flow rate required by the VFTP, at a Frequency of 18 months on a STAGGERED TEST BASIS. The results shall be trended and assessed every 18 months.
 - e. The quantitative limits on unfiltered air leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air leakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.
 - f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered leakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.
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UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 198 TO FACILITY OPERATING LICENSE NO. NPF-43

DTE ELECTRIC COMPANY

FERMI 2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated April 17, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13108A307), DTE Electric Company (the licensee) requested changes to the technical specifications (TSs) for Fermi 2. The U.S. Nuclear Regulatory Commission (NRC) staff's proposed no significant hazards consideration determination was published in the *Federal Register* on August 20, 2013 (78 FR 51222).

On August 8, 2006, the commercial nuclear electrical power generation industry owners group Technical Specifications Task Force (TSTF) submitted a proposed change, TSTF-448, Revision 3, to the improved Standard Technical Specifications (STS) (NUREGs 1430-1434) on behalf of the industry (TSTF-448, Revisions 0, 1, and 2 were prior draft iterations). TSTF-448, Revision 3, is a proposal to establish more effective and appropriate action, surveillance, and administrative STS requirements related to ensuring the habitability of the control room envelope (CRE).

In NRC Generic Letter 2003-01 (Reference 1), licensees were alerted to findings at facilities that existing TS surveillance requirements for the Control Room Envelope Emergency Ventilation System (CREEVS) may not be adequate. Specifically, the results of ASTM E741 (Reference 2) tracer gas tests to measure CRE unfiltered leakage at facilities indicated that the differential pressure surveillance is not a reliable method for demonstrating CRE boundary operability. Licensees were requested to address existing TS as follows:

Provide confirmation that your technical specifications verify the integrity [i.e., operability] of the CRE [boundary], and the assumed [unfiltered] leakage rates of potentially contaminated air. If you currently have a differential pressure surveillance requirement to demonstrate CRE [boundary] 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 differential pressure 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.,

Enclosure 2

ASTM E741), and 2) making any necessary modifications to your CRE boundary so that compliance with your new surveillance requirement can be demonstrated.

If your facility does not currently have a technical specification surveillance requirement for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

To promote standardization and to minimize the resources that would be needed to create and process plant-specific amendment applications in response to the concerns described in the generic letter, the industry and the NRC proposed revisions to CRE habitability system requirements contained in the STS, using the STS change traveler process. This effort culminated in Revision 3 to traveler TSTF-448, "Control Room Habitability," which the NRC staff approved on January 17, 2007.

Consistent with the traveler as incorporated into NUREG-1433, the licensee proposed revising action and surveillance requirements in TS 3.7.3, "Control Room Emergency Filtration (CREF) System," and adding a new administrative controls program, TS 5.5.14, "Control Room Envelope Habitability Program." The purpose of the changes is to ensure that CRE boundary operability is maintained and verified through effective surveillance and programmatic requirements, and that appropriate remedial actions are taken in the event of an inoperable CRE boundary. The licensee also proposed deletion of current surveillance requirement (SR) 3.7.3.3 which requires visual inspection of silicone sealant in the CREF System.

Some editorial and plant specific changes were incorporated into this safety evaluation resulting in minor deviations from the model safety evaluation text in TSTF-448, Revision 3.

2.0 REGULATORY EVALUATION

2.1 Control Room and Control Room Envelope

NRC Regulatory Guide (RG) 1.196, "Control Room Habitability at Light-water Nuclear Power Reactors," Revision 0, May 2003 (Reference 3) uses the term "control room envelope" in addition to the term "control room" and defines each term as follows:

Control Room: The plant area, defined in the facility licensing basis, in which actions can be taken to operate the plant safely under normal conditions and to maintain the reactor in a safe condition during accident situations. It encompasses the instrumentation and controls necessary for a safe shutdown of the plant and typically includes the critical document reference file, computer room (if used as an integral part of the emergency response plan), shift supervisor's office, operator wash room and kitchen, and other critical areas to which frequent personnel access or continuous occupancy may be necessary in the event of an accident.

Control Room Envelope: The plant area, defined in the facility licensing basis that in the event of an emergency, can be isolated from the plant areas and the environment external to the CRE. This area is served by an emergency ventilation system, with the intent of maintaining the habitability of the control room. This area encompasses the

control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident.

NRC RG 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003 (Reference 5), also contains these definitions, but uses the term CRE to mean both. This is because the protected environment provided for operators varies with the nuclear power facility. At some facilities this environment is limited to the control room; at others, it is the CRE. In this safety evaluation, consistent with the proposed changes to the STS, the CRE will be used to designate both. For consistency, facilities should use the term CRE with an appropriate facility-specific definition derived from the above CRE definition.

2.2 Control Room Emergency Filtration (CREF) System

The CREF System (the term used at Fermi 2 for the Main Control Room Environmental Control (MCREC) System) provides a protected environment from which operators can control the unit during airborne challenges from radioactivity, hazardous chemicals, or smoke, during both normal and accident conditions.

The CREF System is designed to maintain a habitable environment in the control room envelope for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem total effective dose equivalent (TEDE).

The CREF System consists of non-redundant passive components and two divisions of redundant active components. The non-redundant passive components and both divisions of the redundant active components of the CREF System must be OPERABLE to ensure that the system safety function can be performed assuming any active single failure.

Redundant components, of which both divisions must be OPERABLE, include:

- a. Emergency inlet air heater;
- b. Emergency recirculation fans;
- c. Return fans;
- d. Supply fans;
- e. Emergency air intakes; and
- f. Air handling dampers needed to support the system operation.

Non-redundant components required to be OPERABLE include:

- a. Emergency recirculation air filter train;
- b. Emergency makeup air filter train; and
- c. Ductwork and other system structures needed to form the necessary air flow paths.

The CRE boundary is considered operable when the measured unfiltered air leakage is less than or equal to the leakage value assumed by the licensing basis analyses of design basis accident consequences to CRE occupants.

2.3 Regulations Applicable to Control Room Habitability

In Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," General Design Criteria (GDC) 1, 2, 3, 4, 5, and 19 apply to CRE habitability.

In letters to the NRC dated December 8, 2003 (ADAMS Accession No. ML033510077), and May 25, 2005 (ADAMS Accession No. ML051530174), the licensee confirmed that Fermi was in full compliance with GDC 1, 2, 3, 4, 5, and 19. A summary of these GDCs follows.

GDC 1, "Quality Standards and Records," requires that structures, systems, and components (SSCs) important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions performed.

GDC 2, "Design Basis for Protection Against Natural Phenomena," requires that SSCs important to safety be designed to withstand the effects of earthquakes and other natural hazards.

GDC 3, "Fire Protection," requires SSCs important to safety be designed and located to minimize the effects of fires and explosions.

GDC 4, "Environmental and Dynamic Effects Design Bases," requires SSCs important to safety to be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents (LOCAs).

GDC 5, "Sharing of Structures, Systems, and Components," requires that SSCs important to safety not be shared among nuclear power units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions, including, in the event of an accident in one unit, the orderly shutdown and cooldown of the remaining units.

GDC 19, "Control Room," requires that a control room be provided from which actions can be taken to operate the nuclear reactor safely under normal conditions and to maintain the reactor in a safe condition under accident conditions, including a LOCA. Adequate radiation protection is to be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of specified values.

Prior to incorporation of TSTF-448, Revision 3, the STS requirements addressing CRE boundary operability resided in the CRE ventilation system specification NUREG-1433, TS 3.7.4, "Main Control Room Environmental Control (MCREC) System." In this specification, the surveillance requirement associated with demonstrating the operability of the CRE boundary required verifying that one MCREC train could maintain a positive pressure relative to the areas adjacent to the CRE during the pressurization mode of operation at a makeup flow rate. Facilities that pressurize the CRE during the emergency mode of operation of the MCREC System have similar surveillance requirements. Regardless, the results of ASTM E741 (Reference 2) tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that

the differential pressure surveillance is not a reliable method for demonstrating CRE boundary operability. That is, licensees were able to obtain differential pressure and flow measurements satisfying the SR limit even though unfiltered inleakage was determined to exceed the value assumed in the safety analyses.

In addition to an inadequate surveillance requirement, the action requirements of these specifications were ambiguous regarding CRE boundary operability in the event CRE unfiltered inleakage is found to exceed the analysis assumption. The ambiguity stemmed from the view that the CRE boundary may be considered operable but degraded in this condition, and that it would be deemed inoperable only if calculated radiological exposure limits for CRE occupants exceeded a licensing basis limit (e.g., as stated in GDC-19), even while crediting compensatory measures.

NRC Administrative Letter (AL) 98-10, "Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety," states that "the discovery of an improper or inadequate TS value or required action is considered a degraded or nonconforming condition," which is defined in NRC Inspection Manual Chapter 9900; see latest guidance in Regulatory Issue Summary (RIS) 2005-20 (Reference 4). "Imposing administrative controls in response to improper or inadequate TS is considered an acceptable short-term corrective action. The [NRC] staff expects that, following the imposition of administrative controls, an amendment to the inadequate TS, with appropriate justification and schedule, will be submitted in a timely fashion."

Licensees that have found unfiltered inleakage in excess of the limit assumed in the safety analyses and have yet to either reduce the inleakage below the limit or establish a higher bounding limit through re-analysis, have implemented compensatory actions to ensure the safety of CRE occupants, pending final resolution of the condition, consistent with RIS 2005-20. However, based on GL 2003-01 and AL 98-10, the NRC staff expects each licensee to propose TS changes that include a surveillance to periodically measure CRE unfiltered inleakage in order to satisfy 10 CFR 50.36(c)(3), which requires a facility's TSs to include SRs, which it defines as "requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and *that limiting conditions for operation will be met.*" (Emphasis added.)

The NRC staff also expects facilities to propose unambiguous remedial actions, consistent with 10 CFR 50.36(c)(2), for the condition of not meeting the limiting condition for operation (LCO) due to an inoperable CRE boundary.

The action requirements should specify a reasonable completion time to restore conformance to the LCO before requiring a facility to be shut down. This completion time should be based on the benefits of implementing mitigating actions to ensure CRE occupant safety and sufficient time to resolve most problems anticipated with the CRE boundary, while minimizing the chance that operators in the CRE will need to use mitigating actions during accident conditions.

2.4 Adoption of TSTF-448 Revision 3, by Fermi 2

Adoption of TSTF-448, Revision 3, will assure that the facility's TS LCO for the CREF System is met by demonstrating unfiltered leakage into the CRE is within limits (i.e., the operability of the CRE boundary). In support of this surveillance, which specifies a test interval (frequency)

described in RG 1.197, TSTF-448 also adds TS administrative controls to assure the habitability of the CRE between performances of the ASTM E741 test. In addition, adoption of TSTF-448 will establish clearly stated and reasonable required actions in the event CRE unfiltered leakage is found to exceed the analysis assumption.

The changes made by TSTF-448 to the STS requirements for the MCREC System and the CRE boundary conform to 10 CFR 50.36(c) (2) and 10 CFR 50.36(c) (3). Their adoption will better assure that a plant's CRE will remain habitable during normal operation and design basis accident conditions. These changes are, therefore, acceptable from a regulatory standpoint.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the proposed changes against the corresponding changes made to the STS by TSTF-448, Revision 3, which the NRC staff has found to satisfy applicable regulatory requirements, as described above in Section 2.0. The emergency operational mode of the CREF System at Fermi 2 pressurizes the CRE to minimize unfiltered air leakage. The proposed changes are consistent with this design.

3.1 Proposed Changes

The proposed amendment would strengthen CRE habitability TS requirements by changing TS 3.7.3, "CREF System," and adding a new TS administrative controls program on CRE habitability. Accompanying the proposed TS changes are appropriate conforming technical changes to the TS Bases. The proposed revision to the Bases also includes editorial and administrative changes to reflect applicable changes to the corresponding STS Bases, which were made to improve clarity, conform to the latest information and references, correct factual errors, and achieve more consistency among the STS NUREGs. Except for plant-specific differences, all of these changes are consistent with STS as revised by TSTF-448, Revision 3.

The NRC staff compared the proposed TS changes to the STSs and the STS markups and evaluations in TSTF-448. The staff verified that differences from the STS were adequately justified on the basis of plant-specific design or retention of current licensing basis. In particular, the NRC staff also reviewed the proposed changes to the TS Bases for consistency with the STS Bases and the plant-specific design and licensing bases, although approval of the Bases is not a condition for accepting the proposed amendment. However, TS 5.5.10, "TS Bases Control Program," provides assurance that the licensee has established and will maintain the adequacy of the Bases. The proposed Bases for TS 3.7.3 refer to specific guidance in Nuclear Energy Institute (NEI) 99-03, "Control Room Habitability Assessment Guidance," Revision 0, dated June 2001 (Reference 6), which the NRC staff has formally endorsed, with exceptions, through RG 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," dated May 2003 (Reference 3).

3.2 Editorial Changes

The licensee proposed editorial changes to TS 3.7.3, "CREF System," to establish standard terminology, such as "control room envelope (CRE)" in place of "control room," except for the plant-specific name for the MCREC, and "radiological, chemical, and smoke hazards" in place of various phrases to describe the hazards that CRE occupants are protected from by the CREF

System. These changes improve the usability and quality of the presentation of the TSs, have no impact on safety, and therefore, are acceptable.

3.3 TS 3.7.3, CREF System

The licensee proposed to revise the action requirements of TS 3.7.3 "CREF System," to acknowledge that an inoperable CRE boundary, depending upon the location of the associated degradation, could cause just one (instead of both) CREF subsystem to be inoperable. This is accomplished by revising Condition A to exclude Condition B, and revising Condition B to address one or more CREF subsystems, as follows:

- Condition A: One CREF subsystem inoperable for reasons other than Condition B.
- Condition B: One or more CREF subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3

This change clarifies how to apply the action requirements in the event just one CREF subsystem is unable to ensure CRE occupant safety within licensing basis limits because of an inoperable CRE boundary. It enhances the usability of Conditions A and B with a presentation that is more consistent with the intent of the existing requirements. This change is an administrative change because it neither reduces nor increases the existing action requirements and, therefore, is acceptable.

The licensee proposed to replace existing Required Action B.1, "Restore control room boundary to OPERABLE status," which has a 24-hour Completion Time, with Required Action B.1, to immediately initiate action to implement mitigating actions; Required Action B.2, to verify, within 24 hours, that the mitigating actions ensure CRE occupant radiological and chemical exposures will not exceed limits, and that CRE occupants are protected from smoke hazards; and Required Action B.3, to restore CRE boundary to OPERABLE status within 90 days.

The 24-hour Completion Time of new Required Action B.2 is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions as directed by Required Action B.1. The 90-day Completion Time of new Required Action B.3 is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. The 90-day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most anticipated problems with the CRE boundary. Therefore, the NRC staff finds the proposed Required Actions B.1, B.2, and B.3 are acceptable

The licensee proposed to add a new Condition to Action F of TS 3.7.3 that states, "One or more CREF subsystems inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel assemblies in secondary containment, or during OPDRVs." The specified Required Actions proposed for this Condition are the same as for the other existing Condition for Action F, which states, "Two CREF subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment or during OPDRVs." Accordingly, the new Condition is stated with the other Condition in Action F using the logical connector "OR." The

practical result of this presentation in format is the same as specifying two separately numbered Actions, one for each Condition. Its advantage is to make the TS Actions table easier to use by avoiding having an additional numbered row in the Actions table. This new Condition in Action F is needed because proposed Action B will only apply in Modes 1, 2, and 3. As such, this change will ensure that the Actions table continues to specify a Condition for an inoperable CRE boundary during refueling and OPDRVs. Therefore, the NRC staff finds this change is administrative and acceptable.

In operation, the CREF System filters air taken in at the emergency outside air ventilation intakes, filters the emergency ventilation air supply to the CRE, and pressurizes the CRE to minimize unfiltered air leakage past the CRE boundary into the CRE. The licensee proposed to delete the CRE pressurization SR 3.7.3.5. This SR requires verifying that each CREF subsystem can maintain a pressure ≥ 0.125 inches water gauge, relative to the outside atmosphere during the recirculation mode of operation at a makeup flow rate of ≤ 1800 cubic feet per minute (cfm). The deletion of this SR is proposed because measurements of unfiltered air leakage into the CRE at numerous reactor facilities demonstrated that a basic assumption of this SR, an essentially leak-tight CRE boundary, was incorrect for most facilities. Hence, meeting this SR by achieving the required CRE pressure is not necessarily a conclusive indication of CRE boundary leak tightness, i.e., CRE boundary operability. Based on the adoption of TSTF-448, Revision 3, the NRC staff finds the licensee's proposal to delete SR 3.7.3.5 is acceptable.

The proposed CRE leakage measurement SR states, "Perform required CRE unfiltered air leakage testing in accordance with the Control Room Envelope Habitability Program." The CRE Habitability Program TS, proposed TS 5.5.14, requires that the program include Requirements for determining the unfiltered air leakage past the CRE boundary into the CRE in accordance with the testing methods and at the frequencies specified in Sections C.1 and C.2 of RG 1.197, Revision 0 (Reference 5). This guidance references ASTM E741 (Reference 2) as an acceptable method for ascertaining the unfiltered leakage into the CRE. The licensee has proposed to follow this method. Therefore, the NRC staff finds the proposed CRE leakage measurement SR is acceptable.

3.4 TS 5.5.14, CRE Habitability Program

The proposed administrative controls program TS is consistent with the model program TS in TSTF-448, Revision 3. In combination with SR 3.7.3.4, this program is intended to ensure the operability of the CRE boundary, which as part of an operable CREF System, will ensure that CRE habitability is maintained such that CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under DBA conditions without personnel receiving radiation exposures in excess of 5 rem TEDE for the duration of the accident.

A CRE Habitability Program TS acceptable to the NRC staff requires the program to contain the following elements:

Definitions of CRE and CRE boundary.

This element is intended to ensure that these definitions accurately describe the plant areas that are within the CRE, and also the interfaces that form the CRE boundary, and are consistent with the general definitions discussed in Section 2.1 of this safety evaluation. Establishing what is meant by the CRE and the CRE boundary will preclude ambiguity in the implementation of the program.

Configuration control and preventive maintenance of the CRE boundary.

This element is intended to ensure the CRE boundary is maintained in its design condition. Guidance for implementing this element is contained in RG 1.196 (Reference 3), which endorsed, with exceptions, NEI 99-03, Rev. 0 (Reference 6). Maintaining the CRE boundary in its design condition provides assurance that its leak-tightness will not significantly degrade between CRE inleakage determinations.

Assessment of CRE habitability at the frequencies stated in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0 (Reference 5), and measurement of unfiltered air leakage into the CRE in accordance with the testing methods and at the frequencies stated in Sections C.1 and C.2 of Regulatory Guide 1.197.

This element is intended to ensure that the plant assesses CRE habitability consistent with Sections C.1 and C.2 of RG 1.197. Assessing CRE habitability at the NRC accepted frequencies provides assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations. Determination of CRE inleakage using test methods acceptable to the NRC staff assures that test results are reliable for ascertaining CRE boundary operability. Determination of CRE inleakage at the NRC-accepted frequencies provides assurance that significant degradation of the CRE boundary will not occur between CRE inleakage determinations.

Measurement of CRE pressure with respect to all areas adjacent to the CRE boundary at designated locations for use in assessing the CRE boundary at a frequency of 18 months on a staggered test basis (with respect to the CREF subsystems).

This element is intended to ensure that CRE differential pressure is regularly measured to identify changes in pressure warranting evaluation of the condition of the CRE boundary. Obtaining and trending pressure data provides additional assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations.

Quantitative limits on unfiltered inleakage.

This element is intended to establish the CRE inleakage limit as the CRE unfiltered infiltration rate assumed in the CRE occupant radiological consequence analyses of design basis accidents. Having an unambiguous criterion for the CRE boundary to be considered operable in order to meet LCO 3.7.3 will ensure that associated action requirements are consistently applied in the event of CRE degradation resulting in inleakage exceeding the limit.

Consistent with TSTF-448, Revision 3, the program states that the provisions of SR 3.0.2 are applicable to the program frequencies for performing the activities required by program paragraph number c, parts (i) and (ii) (assessment of CRE habitability and measurement of CRE leakage), and paragraph number d (measurement of CRE differential pressure).

This statement is needed to avoid confusion. SR 3.0.2 is applicable to the surveillance that references the testing in the CRE Habitability Program. However, SR 3.0.2 is not applicable to Administrative Controls unless specifically invoked. Providing this statement in the program eliminates any confusion regarding whether SR 3.0.2 is applicable, and is acceptable.

Consistent with TSTF-448, Revision 3, the licensee's proposed TS 5.5.14 states that (1) a CRE Habitability Program shall be established and implemented, (2) the program shall include all of the NRC-staff required elements, as described above, and (3) the provisions of SR 3.0.2 shall apply to program frequencies. Therefore, the proposed TS 5.5.14, is consistent with the model program TS approved by the NRC staff in TSTF-448, Revision 3, and is acceptable.

3.5 Deletion of CREF Silicone Sealant Visual Inspection, SR 3.7.3.3

The current SR 3.7.3.3 requires the licensee to visually inspect silicone sealant on accessible portions of CREF system duct work outside the control room that are at negative pressures during accident conditions and for which potential leakage would not receive full filtration. The frequency for current SR 3.7.3.3 is 12 months. The licensee proposed deletion of SR 3.7.3.3. The licensee justified the deletion of the SR by stating that the SR represents a maintenance activity that will be addressed by the Control Room Envelope Habitability Program in TS 5.5.14, as applicable. The NRC staff reviewed the proposed deletion and determined that it is a less restrictive change, but that the restrictions will be maintained by the licensee's proper implementation of the Control Room Habitability Program. Therefore, the NRC staff determined that the deletion is acceptable.

3.6 Implementation of New Surveillance and Assessment Requirements by the Licensee

The licensee has proposed license conditions regarding the initial performance of the new surveillance and assessment requirements. The new license conditions adopted the conditions in Section 2.3 of the model application published in the *Federal Register* on January 17, 2007 (72 FR 2022), as corrected by NRC memo dated February 2, 2007 (ADAMS Accession No. ML070330657). Plant-specific changes were made to these proposed license conditions. The proposed plant-specific conditions are consistent with the model application, and are 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 or changes the surveillance requirements. The NRC 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 (78 FR 51222). 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 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) there is reasonable assurance that 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.

7.0 REFERENCES

1. NRC Generic Letter 2003-01, "Control Room Habitability," dated June 12, 2003, (GL 2003-01) (ADAMS Accession No. ML031620248).
2. ASTM E 741 - 00, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution," 2000, (ASTM E741).
3. Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," Revision 0, dated May 2003 (ADAMS Accession No. ML031630930).
4. NRC Regulatory Issue Summary 2005-20: Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," dated September 26, 2005 (RIS 2005-20) (ADAMS Accession No. ML052020424).
5. Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003 (ADAMS Accession No. ML031490664).
6. NEI 99-03, "Control Room Habitability Assessment Guidance," Revision 0, dated June 2001 (ADAMS Accession No. ML020600236).
7. License Amendment Request from DTE Electric Company dated April 17, 2013 (ADAMS Accession No. ML13108A307).

8. "Detroit Edison's 180-Day Response to Generic Letter 2003-1, Control Room Habitability" (ADAMS Accession No. ML033510077).

Principal Contributor: M. Hamm, NRR/DSS

Date: April 18, 2014

Mr. Joseph H. Plona
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DTE Electric Company
Fermi 2 - 210 NOC
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SUBJECT: FERM1 2 - ISSUANCE OF AMENDMENT REGARDING CONTROL ROOM
HABITABILITY TECHNICAL SPECIFICATION TASK FORCE (TSTF) TRAVELER
TSTF-448 (TAC NO. MF1467)

Dear Mr. Plona:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 198 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 April 17, 2013.

The amendment revises the TS requirements related to control room envelope habitability in accordance with Technical Specification Task Force (TSTF) Change Traveler TSTF-448, Revision 3, "Control Room Habitability." TSTF-448 was made available by the NRC on January 17, 2007 (72 FR 2022) as part of the Consolidated Line Item Improvement Process.

A copy of our related safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,
/RA/

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosures:

1. Amendment No. 198 to NPF-43
2. Safety Evaluation

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ADAMS Accession No. ML14098A062

*via memorandum

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