



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

DTE ELECTRIC COMPANY

DOCKET NO. 50-341

FERMI-2

RENEWED FACILITY OPERATING LICENSE

Renewed License No. NPF-43

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for renewed license filed by the DTE Electric Company¹ (licensee) complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;
 - B. Construction of Fermi-2 (the facility) has been substantially completed in conformity with Construction Permit No. CPPR-87 and the application, as amended, the provisions of the Act, and the regulations of the Commission;
 - C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission, (except as exempted from compliance in Section 2.D below);
 - D. There is reasonable assurance: (i) that the activities authorized by this renewed operating license 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 set forth in 10 CFR Chapter I (except as exempted from compliance in Section 2.D below);
 - E. DTE Electric Company is technically qualified to engage in the activities authorized by this renewed license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;
 - F. DTE Electric Company had satisfied the applicable provisions of 10 CFR Part 140 "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

¹ The Detroit Edison Company name was changed to DTE Electric Company as of January 1, 2013. Historic reference to The Detroit Edison Company is not changed.

- G. The issuance of this renewed license will not be inimical to the common defense and security or to the health and safety of the public;
 - H. After weighing the environmental, economic, technical and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this Renewed Facility Operating License No. NPF-43, subject to the conditions for protection of the environment set forth in the Environmental Protection Plan attached as Appendix B, is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied;
 - I. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this renewed license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40, and 70; and
 - J. Actions have been identified and have been or will be taken with respect to (1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1); and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by this renewed license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3, for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accord with the Act and the Commission's regulations.
2. Pursuant to approval by the Nuclear Regulatory Commission at a meeting on July 10, 1985, the License for Fuel Loading and Low Power Testing, License No. NPF-33, issued on March 20, 1985, to Detroit Edison Company* and the Wolverine Power Supply Cooperative, Incorporated,** was superseded by Facility Operating License No. NPF-43. On December 15, 2016, the Nuclear Regulatory Commission issues Renewed Facility Operating License No. NPF-43 to DTE Electric Company (the licensee) and reads as follows:
- A. The renewed license applies to Fermi-2, a boiling water nuclear reactor and associated equipment (the facility), owned by DTE Electric Company. The facility is located in Frenchtown Township, Monroe County, Michigan, and is described in the licensee's "Final Safety Analysis Report", as supplemented and amended, and in the licensee's Environmental Report, as supplemented and amended.

* The Detroit Edison Company name was changed to DTE Electric Company as of January 1, 2013. Historic reference to The Detroit Edison Company is not changed.

** Effective February 21, 1990, the ownership interest of Wolverine Power Supply Cooperative, Incorporated in Fermi-2 was purchased by The Detroit Edison Company.

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

- (1) DTE Electric Company, pursuant to Section 103 of the Act and 10 CFR Part 50, to possess, use, and operate the facility at the designated location in Monroe County, Michigan, in accordance with the procedures and limitations set forth in this renewed license;
- (2) Deleted.
- (3) DTE Electric Company, pursuant to the Act and 10 CFR Part 70, to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
- (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 renewed 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 conditions specified herein and in Attachment 1 to this renewed license. The items identified in Attachment 1 to this renewed license shall be completed as specified. Attachment 1 is hereby incorporated into this renewed license.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 204, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated into this renewed 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

Consumers Power Company as specified in a letter from The Detroit Edison Company 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.

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(6) Deleted

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(8) Deleted

(9) Modifications for Fire Protection (Section 9.5.1, SSER #5 and SSER #6)*

DTE Electric Company 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) DTE Electric Company 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.

* 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.

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

DTE Electric Company 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 DTE Electric Company established limits and which could degrade crankshaft bearing performance, DTE Electric Company 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.

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(20) The licensee is authorized by Amendment No. 134 to relocate certain Technical Specification requirements included in Appendix A to licensee-controlled documents as described in the licensee's application dated April 3, 1998, as supplemented by letters dated September 28, October 19, and December 10, 1998, and January 8, January 26, February 24, March 30, April 8, April 30, May 7, June 2, June 24, June 30, July 7, July 13, July 26, August 4, August 17, August 25, and September 8, 1999 and evaluated in the NRC staff's safety evaluation dated September 30, 1999, enclosed with the amendment. Implementation of Amendment No. 134 shall include the relocation of these requirements to the appropriate documents, which shall be completed within 90 days of the date of the amendment. The relocations to the Updated Final Safety Analysis Report and the Technical Requirements Manual shall be included in the next required update of these documents in accordance with 10 CFR 50.71(e).

(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 inleakage 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.
- (26) License Renewal License Conditions
 - (a) The information in the Updated Final Safety Analysis Report (UFSAR) supplement, submitted pursuant to 10 CFR 54.21(d), as revised during the license renewal application review process, and licensee commitments as reiterated in Appendix A to the "Safety Evaluation Report Related to the License Renewal of Fermi 2," are collectively the "License Renewal UFSAR Supplement." This supplement is henceforth part of the UFSAR which will be updated in accordance with 10 CFR 50.71(e). As such, the licensee may make changes to the programs, activities, and commitments described in this Supplement, provided the licensee evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59, "Changes, Tests and Experiments," and otherwise complies with the requirements in that section.
 - (b) The License Renewal UFSAR Supplement, as updated by license condition (a) above, describes certain programs to be implemented and

activities to be completed before the period of extended operation (PEO), as follows:

1. The applicant shall implement those new programs and enhancements to existing programs no later than 6 months prior to the PEO.
2. The applicant shall complete those activities by the 6-month date before the PEO or the end of the last refueling outage prior to the PEO, whichever occurs later.

The applicant shall notify the NRC in writing within 30 days after having accomplished item (b)1. above and include the status of those activities that have been or remain to be completed in item (b)2. above.

- (c) DTE Electric Company shall fully implement the Boraflex rack replacement approved in Amendment No. 141 before the PEO (i.e., March 20, 2025), so that the Boraflex material in the spent fuel pool will not be required to perform a neutron absorption function. DTE Electric Company shall submit a letter to the NRC, within 60 days following completion of the removal of the Boraflex material and installation of the Boral material, as described in Amendment No. 141, confirming the removal of the Boraflex material and discontinued reliance on its neutron absorption function.
- D. Exemptions from certain requirements of Appendices E and J to 10 CFR Part 50, are described in supplements to the SER. These include: (a) an exemption from the requirement of Section IV.F of Appendix E that a full participation emergency planning exercise be conducted within one year before issuance of the first operating license for full power and prior to operation above five percent of rated power (Section 13.3 of SSER #6); (b) an exemption from the requirement of Paragraph III.C.2(b) of Appendix J, the testing of the main steam isolation valves at the peak calculated containment pressure associated with the design basis accident (Section 6.2.7 of SSER #5); and (c) an exemption from the requirement of Paragraph III.D.2(b)(ii) of Appendix J, the testing of containment air locks at times when containment integrity is not required (Section 6.2.7 of SSER #5). These exemptions are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. Therefore, these exemptions are hereby granted pursuant to 10 CFR 50.12. With the granting of these exemptions, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.
- E. The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Fermi 2 Physical Security Plan, Security Training and Qualification Plan, and

Safeguards Contingency Plan" submitted by letter dated September 9, 2004, and supplemented on October 7, 2004, and October 14, 2004, November 18, 2005, and May 18, 2006. The licensee shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Fermi 2 CSP was approved by License Amendment No. 185, as supplemented by License Amendment 200.

F. Deleted

G. The licensee shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.

H. This renewed license is effective as of the date of issuance and shall expire at Midnight on March 20, 2045.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

William M. Dean, Director
Office of Nuclear Reactor Regulation

Attachments/Appendices:

1. Attachment 1 - Work Items to be Completed
2. Attachment 2 - Emergency Response Capabilities
3. Appendix A - Technical Specifications (NUREG-1141)
4. Appendix B - Environmental Protection Plan

Date of Issuance: December 15, 2016

Renewed License No. NPF-43