



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

January 18, 2017

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

SUBJECT: FERMI 2 - RELIEF FOR VRR-014 FROM THE REQUIREMENTS OF THE  
ASME OM CODE (CAC NO. MF7491)

Dear Mr. Fessler:

By letter dated March 16, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16077A216), DTE Electric Company (the licensee) submitted request for relief VRR-014 to the U.S. Nuclear Regulatory Commission (NRC), proposing an alternative to certain requirements of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code), for the inservice testing (IST) program at Fermi 2 for the remainder of the third 10-year IST program interval, which started on February 17, 2010.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, paragraph 50.55a(z)(1), the licensee requested to use the proposed alternative in VRR-014 on the basis that the alternative provides an acceptable level of quality and safety.

As set forth in the enclosed safety evaluation, the NRC staff determines that for alternative request VRR-014 for Fermi 2, the proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1) for request VRR-014 for Fermi 2. Therefore, the NRC staff authorizes alternative request VRR-014 for Fermi 2 for the remainder of the third 10-year IST program interval, which began on February 17, 2010.

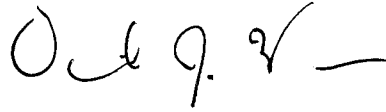
All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request remain applicable.

P. Fessler

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If you have any questions, please contact the Project Manager, Ms. Sujata Goetz at 301-415-8004 or via e-mail at [Sujata.Goetz@nrc.gov](mailto:Sujata.Goetz@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "D. J. Wrona", followed by a horizontal line.

David J. Wrona, Chief  
Plant Licensing Branch III  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosure:  
Safety Evaluation

cc w/encl: Distribution via ListServ



UNITED STATES  
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO RELIEF REQUEST VRR-014 FOR THE

THIRD 10-YEAR INTERVAL OF THE INSERVICE TESTING PROGRAM

DTE ELECTRIC COMPANY

FERMI 2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated March 16, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16077A216), DTE Electric Company (DTE), the licensee, submitted request for relief VRR-014 to the U.S. Nuclear Regulatory Commission (NRC), proposing an alternative to certain requirements of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code), for the inservice testing (IST) program at Fermi 2 for the remainder of the third 10-year IST program interval, which started on February 17, 2010.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, paragraph 50.55a(z)(1), the licensee requested to use the proposed alternative in VRR-014 on the basis that the alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

The regulations under 10 CFR 50.55a(f), "Inservice testing requirements," require, in part, that IST of certain ASME Code Class 1, 2, and 3 components must meet the requirements of the ASME OM Code and applicable addenda, except where alternatives have been authorized pursuant to paragraphs 10 CFR 50.55a(z)(1) or 10 CFR 50.55a(z)(2).

The regulations under 10 CFR 50.55a(z), state, in part, that alternatives to the requirements of 10 CFR 50.55a(f) may be authorized by the NRC if the licensee demonstrates that: (1) the proposed alternative provides an acceptable level of quality and safety, or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. In accordance with 10 CFR 50.55a(z)(1), relief request VRR-014 stated that the proposed alternative would provide an acceptable level of quality and safety.

Enclosure

Based on the above, and subject to the NRC's findings with respect to authorizing the proposed alternative to the ASME OM Code given below, the NRC staff concludes that regulatory authority exists for the licensee to request and the Commission to authorize the alternative requested by the licensee.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Licensee's Alternative Request VRR-014

##### Applicable Code Edition and Addenda

The Fermi 2 third 10-year IST interval began on February 17, 2010. The applicable ASME OM Code Edition for the Fermi 2 third 10-year IST program interval is the 2004 Edition, no addenda.

##### Code Requirements

ASME OM Code Mandatory Appendix I, paragraph I-1320(a), requires that Class 1 pressure relief valves be periodically tested at least once every 5 years, with a minimum of 20 percent of the valves tested within any 24 months, where the 20 percent shall be previously untested valves, if they exist.

The required test ensures that the main steam safety relief valves (SRVs), which are located on each of the main steam lines between the reactor vessel and the first isolation valve within the drywell, will open at the pressures assumed in the safety analysis.

##### Reason for Request

The licensee requested relief from the OM Code requirements of Mandatory Appendix I for testing the 15 main steam SRVs:

B2104F013A	B2104F013B	B2104F013C
B2104F013D	B2104F013E	B2104F013F
B2104F013G	B2104F013H	B2104F013J
B2104F013K	B2104F013L	B2104F013M
B2104F013N	B2104F013P	B2104F013R

Given the current 18-month refuel cycle at Fermi 2, the licensee is required to remove and test five of the SRVs every refueling outage in order to ensure that all valves are removed and tested in accordance with the ASME OM Code 5-year test requirement. With the current 5-year interval, Fermi 2 is required to remove all 15 SRVs over three refuel cycles (approximately 4.5 years). Extending the test interval to 6 years would reduce the number of SRVs removed during an individual outage by one, such that the full scope of 15 SRVs would be tested over four refuel cycles while still complying with the other Code requirement to test 20 percent of the valves within any 24-month period. Additionally, a 6-month grace period would allow flexibility in the scheduling of set-pressure testing to account for the variability of refuel outage dates.

Test history for the main steam SRVs at Fermi 2 (Target Rock Model 7567F) from April 2000 to present indicates that of the 165 SRVs tested, 151 valves successfully passed the ASME OM

Code and Technical Specification as-found lift set-point acceptance criteria within plus or minus 3 percent. Of the 14 that failed, at no time were the ASME overpressure analyses challenged. In addition, within that time frame, there have been no plant shutdowns related to SRV performance. This historical Fermi 2 test data is consistent with the reliable and sustained performance of the Target Rock Model 7567F SRV.

### Proposed Alternative

Since Fermi 2 operates on an 18-month refueling outage cycle, the licensee proposed that the main steam SRVs be tested periodically at least once every 6.5 years (i.e., 6 years with a grace period of 6 months). A minimum of 20 percent of the pressure relief valves will be tested within any 24-month interval and the test interval for any individual valve will not exceed 6.5 years. This alternative is consistent with the alternative provided in ASME Code Case OMN-17, "Alternative Rules for Testing ASME Class I Pressure Relief/Safety Valves."

In its letter dated March 16, 2016, the licensee stated, in part, that:

DTE has historically removed a full complement of SRV pilots each refueling outage and shipped them to an ASME OM Code-certified vendor to perform as-found testing. If a full complement is removed, the removed valves would be as-found tested within the Code required 24 month time frame. If a partial [complement] is removed, then the valves would be shipped to an ASME OM Code-certified vendor to perform as-found testing prior to resumption of electric power generation, and to determine if any expansion testing is required. The vendor also performs the inspection, refurbishment, and as-left testing that meets the maintenance requirements specified in subparagraph (d) of OMN-17. For these reasons, the proposed alternative complies with paragraph (b) of Code Case OMN-17.

A DTE approved vendor procedure is used for disassembly and inspection of the SRVs. This procedure requires that each SRV be disassembled and inspected upon removal from service, regardless of the as-found test results. The procedure identifies the critical components that are required to be inspected for wear and defects, and the critical dimensions that are required to be measured during the inspection. If components are found worn or outside of the specified tolerance(s), the components are either reworked to within the specified tolerances, or replaced. DTE is notified by the vendor of all components that are either defective, outside of tolerance, or reworked/replaced. The SRV is then re-assembled, the as-left test is performed, and the SRV is returned to Fermi 2.

### 3.2 NRC Staff Evaluation

The Fermi 2 main steam SRVs are ASME Code Class 1 pressure relief valves that provide overpressure protection for the reactor coolant pressure boundary to prevent unacceptable radioactive release and exposure to plant personnel. ASME OM Code, Mandatory Appendix I requires that Class 1 pressure relief valves be tested at least once every 5 years. However, Mandatory Appendix I does not require that pressure relief valves be disassembled and inspected as part of the 5-year test requirement. In lieu of the 5-year test interval, the licensee

proposed to implement the requirements of ASME OM Code Case OMN-17, which allows a test interval of 6 years plus a 6-month grace period. The ASME committee on OM developed Code Case OMN-17 and published it in the 2009 Edition of the ASME OM Code. However, ASME OM Code Case OMN-17 imposes an additional special maintenance requirement to disassemble and inspect each pressure relief/safety valve to verify that parts are free from defects resulting from time-related degradation or service-induced wear coincident with each required test during the interval. The purpose of this maintenance requirement is to reduce the potential for pressure relief valve set-point drift.

ASME OM Code Case OMN-17 has been added to NRC Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," and included in 10 CFR 50.55a rulemaking, although this rulemaking is not finalized at this time. However, the NRC has allowed licensees to use ASME OM Code Case OMN-17, provided all requirements in the Code Case are met. Consistent with the special maintenance requirement in ASME OM Code Case OMN-17, each main steam SRV at Fermi 2 will be disassembled and inspected to verify that internal surfaces and parts are free from defects or service induced wear prior to the start of the next test interval. This maintenance will also help to reduce the potential for setpoint drift, and increase the reliability of these SRVs to perform their design requirement functions. Consistent with the special maintenance requirement in ASME OM Code Case OMN-17, critical components will be inspected for wear and defects.

Additionally, a review of recent setpoint testing results shows that the SRV maintenance practices employed at Fermi 2 have been effective as evidenced by the test history for these SRVs.

Based on the historical performance of the set-point testing of the main steam SRVs at Fermi 2 and disassembly and inspection of the main steam SRVs prior to use, the NRC staff finds that the proposed alternative test frequency for the testing of the main steam SRVs at Fermi 2, in lieu of the requirements of the 2004 Edition, no Addenda, Mandatory Appendix I, Section 1320 of the ASME OM Code, provides an acceptable level of quality and safety.

#### 4.0 CONCLUSION

As set forth above, the NRC staff determines that for alternative request VRR-014 for Fermi 2, the proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1) for request VRR-014 for Fermi 2. Therefore, the NRC staff authorizes alternative request VRR-014 for Fermi 2 for the remainder of the third 10-year IST program interval, which began on February 17, 2010.

All other ASME OM Code requirements for which relief was not specifically requested and approved in the subject request remain applicable.

Principal Contributor: John Billerbeck

Date: January 18, 2017

P. Fessler

- 2 -

If you have any questions, please contact the Project Manager, Ms. Sujata Goetz at 301-415-8004 or via e-mail at [Sujata.Goetz@nrc.gov](mailto:Sujata.Goetz@nrc.gov).

Sincerely,

*/RA/*

David J. Wrona, Chief  
Plant Licensing Branch III  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-341

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Safety Evaluation

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