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May 5, 2023
NRC-23-0010

10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Fermi 2 Power Plant
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: License Amendment Request to Correct Non-Conservative Technical
Specification 3.4.5, "RCS Pressure Isolation Valve (PIV) Leakage".

Pursuant to Title 10 of the Code of Federal Regulations Section 50.90 (10 CFR 50.90), DTE Electric Company (DTE) is submitting a request for an amendment to the Technical Specifications (TS) for Fermi Unit 2. The proposed TS change modifies the Note for TS 3.4.5 Action A.1 to remove the word "check" and clarify that the Action is to be met by all valves required to meet the action and is not limited to check valves. Comparison of the Fermi 2 TS to the NRC-approved Standard TS (STS) in NUREG-1433 identified that the STS do not contain the word "check" in the Note. The requirement that the valve used to meet the action has to meet SR 3.4.5.1 applies regardless of whether that valve is a closed manual, de-activated automatic, or check valve. The associated Fermi 2 TS Bases is also being revised along with an editorial change to provide one spelling correction in TS Bases B 3.4.5 where "value" is changed to "valve".

Enclosure 1 provides a description and assessment of the proposed changes. Enclosure 2 provides the existing TS pages marked to show the proposed changes. Enclosure 3 provides revised (clean) TS pages. Enclosure 4 provides the marked-up TS Bases pages and is provided for information only.

Approval of the proposed amendment is requested within one year of the NRC acceptance date. Once approved, the amendment shall be implemented within 45 days.

No new commitments are being made in this submittal.

In accordance with 10 CFR 50.91, a copy of this application, with enclosures, is being provided to the designated Michigan State Official.

Should you have any questions or require additional information, please contact Mr. Eric Frank, Manager – Nuclear Licensing, at (734) 586-4772.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 5, 2023

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Dietrich', written in a cursive style.

Peter Dietrich
Senior Vice President and Chief Nuclear Officer

Enclosures:

1. Evaluation of the Proposed License Amendment
2. Marked-up Page of Existing Fermi 2 TS
3. Clean Page of Fermi 2 TS with Changes Incorporated
4. Marked-up Pages of Existing Fermi 2 TS Bases (For Information Only)

cc: NRC Project Manager
NRC Resident Office
Regional Administrator, Region III
Michigan Department of Environment, Great Lakes, and Energy

**Enclosure 1 to
NRC-23-0010**

**Fermi 2 NRC Docket No. 50-341
Operating License No. NPF-43**

**License Amendment Request to Correct Non-Conservative Technical Specification 3.4.5,
"RCS Pressure Isolation Valve (PIV) Leakage".**

Evaluation of the Proposed License Amendment

Evaluation of the Proposed License Amendment

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1.0 SUMMARY DESCRIPTION

In accordance with the provisions of 10 Code of Federal Regulation (CFR) 50.90, "Application for amendment of license, construction permit, or early site permit," DTE Electric Company (DTE) is submitting a request for an amendment to the Technical Specifications (TS) for Fermi 2 (Operating License NPF-43).

The proposed amendment would remove the word "check" from the Note for TS 3.4.5 Action A.1 so that the Required Action refers to all valves, not just check valves. Comparison of the Fermi 2 TS to the NRC-approved Standard TS (STS) in NUREG-1433 identified that the STS do not contain the word "check" in the Note. The requirement that the valve used to meet the Action has to meet SR 3.4.5 applies regardless of whether that valve is a closed manual, de-activated automatic, or check valve. The Fermi 2 TS Bases discussion of the Note has the same variation from the STS (i.e., includes the word "check"), so the word "check" will be removed from this location as well.

TS Bases B 3.4.5 also has a typographical error; the word "value" should be "valve." This editorial correction is included for information only and will not be addressed in the Technical Evaluation or Regulatory Analysis that follows.

2.0 DETAILED DESCRIPTION

2.1 System Design and Operation

The function of Reactor Coolant System (RCS) Pressure Isolation Valve (PIV)s is to separate the high pressure RCS from an attached low pressure system. This protects the RCS pressure boundary described in 10 CFR 50.2, 10 CFR 50.55a(c), and GDC 55 of 10 CFR 50, Appendix A. PIVs are designed to meet the testing requirements of ASME Code for Operation and Maintenance of Nuclear Power Plants. During their lives, these valves can produce varying amounts of reactor coolant leakage through either normal operational wear or mechanical deterioration.

The RCS PIV LCO allows RCS high pressure operation when leakage through these valves exists in amounts that do not compromise safety. The PIV leakage limit applies to each individual valve. Leakage through these valves is not included in any allowable LEAKAGE specified in LCO 3.4.4, "RCS Operational LEAKAGE."

The limits for the RCS PIVs are to prevent overpressure failure of the low pressure portions of connecting systems. The leakage limit is an indication that the PIVs between the RCS and the connecting systems are degraded or degrading. PIV leakage could lead to overpressure of the low pressure piping or components.

PIVs are provided to isolate the RCS from the following connected systems: Residual Heat Removal (RHR) System; Core Spray System; High Pressure Coolant Injection System; and Reactor Core Isolation Cooling System.

2.2 Current Technical Specifications Requirements

Fermi 2 Technical Specification (TS) 3.4.5 contains Required Action A.1 to isolate the high pressure portion of the affected system from the low pressure portion by use of one other closed manual, de-activated automatic, or check valve in the event that a flow path has leakage that exceeds the limits for the pressure isolation valves (PIVs) in that flow path. Required Action A.1 is modified by a Note that each check valve used to satisfy Required Action A.1 must have been verified to meet SR 3.4.5.1 at the last refueling outage or after the last time the valve was disturbed, whichever is more recent. The Required Action has a completion time of 4 hours.

2.3 Reason for the Proposed Change

The current wording in the Fermi 2 TS which varies from the STS could be mis-interpreted to allow a closed manual valve or de-activated automatic valve to be used to isolate the flow path without ensuring that the valve meets the SR 3.4.5.1 requirements. Matching the STS will help to ensure that any valve used as a compensatory measure for leakage of another valve complies with the TS. There is not a technical basis for the difference between the Fermi 2 TS and the STS, so the use of the word “check” in the Note for Required Action A.1 of Fermi 2 TS 3.4.5 is non-conservative, and therefore should be removed.

2.4 Description of the Proposed Change

The proposed change modifies the Fermi 2 TS 3.4.5 “RCS Pressure Isolation Valve (PIV) Leakage” to remove the word “check” from this section so that this requirement applies to all valves, not just check valves. The corresponding TS Bases section will also be revised in the same way to remove the word “check”.

The proposed TS changes are shown in Enclosure 2 as marked-up pages. Revised (clean) TS pages are shown in Enclosure 3. Proposed TS Bases changes are shown in Enclosure 4 as marked-up pages. Changes to the existing TS Bases, consistent with the technical and regulatory analyses, will be implemented under the Technical Specification Bases Control Program and are provided for information only.

3.0 TECHNICAL EVALUATION

3.1 Background

The reactor coolant system and associated auxiliary, control, and protection systems shall be designed with sufficient margin to assure that the design conditions of the reactor coolant pressure boundary are not exceeded during any condition of normal operation, including anticipated operational occurrences.

Criterion 15 Conformance - The reactor coolant system consists of the RPV and appurtenances, the reactor circulation system, the nuclear system pressure relief system, the main steam lines, the reactor core isolation cooling (RCIC) system, and the residual heat removal (RHR) system. These systems are designed, fabricated, erected, and tested to meet stringent quality requirements and appropriate codes and standards that ensure high integrity of the RCPB throughout the plant lifetime. The reactor coolant system is designed and fabricated to meet the requirements of the ASME B&PV Code Section III, as required by 10 CFR 50.55a, including special waiver provisions.

The auxiliary, control, and protection systems associated with the reactor coolant system act to provide sufficient margin to ensure that the design conditions of the RCPB are not exceeded during any condition of normal operation, including anticipated operational occurrences. As described in the evaluation of Criterion 13, instrumentation is provided to monitor essential variables to ensure that they are within prescribed operating limits. If the monitored variables exceed their predetermined settings, the auxiliary control and protection systems automatically respond to maintain the variables and systems within allowable design limits.

3.2 Technical Analysis and Justification

The requirement that the valve used to meet the action has to meet SR 3.4.5.1 applies regardless of whether that valve is a closed manual, de-activated automatic, or check valve. In the case of the Fermi 2 Note, the Note could be interpreted to allow a closed manual valve or de-activated automatic valve to be used to isolate the flow path without ensuring that the valve meets the SR 3.4.5.1 requirements. Therefore, removing the word “check” so that this SR applies to all valves, not just check valves, will be more conservative than the current requirements and is justified as a change for improved safety.

4.0 REGULATORY ANALYSIS

4.1 Applicable Regulatory Requirements/Criteria

Changes described in this license amendment request comply with and continue to meet the following regulations.

Title 10 of the Code of Federal Regulations (10 CFR) Section 50.36, “Technical Specifications,” establishes the requirements related to the content of the TS. Pursuant to 10 CFR 50.36(c) TS will include items in the following categories: (1) safety limits, limiting safety system settings, and limiting control settings, (2) LCOs, (3) surveillance requirements, (4) design features; and (5) administrative controls.

Appendix A to 10 CFR 50, “General Design Criteria for Nuclear Power Plants,” includes criteria related to reactor coolant system design.

Directly Impacted NRC Design Criteria:

General Design Criteria (GDC) 15, “Reactor Coolant System Design”, states that the reactor coolant system and associated auxiliary, control, and protection systems shall be designed with sufficient margin to assure that the design conditions of the reactor coolant pressure boundary are not exceeded during any condition of normal operation, including anticipated operational occurrences.

Fermi 2 UFSAR:

Criterion 15 Conformance - The reactor coolant system consists of the RPV and appurtenances, the reactor circulation system, the nuclear system pressure relief system, the main steam lines, the reactor core isolation cooling (RCIC) system, and the residual heat removal (RHR) system. These systems are designed, fabricated, erected, and tested to meet stringent quality requirements and appropriate codes and standards that ensure high integrity of the RCPB throughout the plant lifetime. The reactor coolant system is designed and fabricated to meet the requirements of the ASME B&PV Code Section III, as required by 10 CFR 50.55a, including special waiver provisions.

The auxiliary, control, and protection systems associated with the reactor coolant system act to provide sufficient margin to ensure that the design conditions of the RCPB are not exceeded during any condition of normal operation, including anticipated operational occurrences. As described in the evaluation of Criterion 13, instrumentation is provided to monitor essential variables to ensure that they are within prescribed operating limits. If the monitored variables exceed their predetermined settings, the auxiliary control and protection systems automatically respond to maintain the variables and systems within allowable design limits.

The proposed change does not affect compliance with these regulations or guidance and will ensure that the lowest functional capabilities or performance levels of equipment required for safe operation are met.

4.2 Precedent

Examples of precedent for this specific change to the types of RCS PIV valves covered under the TS Surveillance Requirements were not found; however, comparable examples of NCTS changes have been approved in similarly updated technical specifications.

- Beaver Valley Power Station, Unit 1 & 2 – October 2021 (Reference 6.5)
- H.B. Robinson Steam Electric Plant, Unit 2 – August 2022 (Reference 6.6)

4.3 No Significant Hazards Consideration

DTE requests an amendment to the TS for Fermi 2 (Renewed Operating License NPF-43). The proposed amendment would remove the word “check” from the Note for TS 3.4.5 Action A.1 so that the Required Action refers to all valves, not just check valves. Comparison of the Fermi 2 TS to the NRC-approved Standard TS (STS) in NUREG-1433 identified that the STS do not contain the word “check” in the Note.

DTE has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, “Issuance of amendment,” as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed TS change does not alter the capability of the Reactor Coolant System (RCS) and its supporting systems to perform their intended function as described in the UFSAR. The proposed TS change would provide more restrictive criteria for Fermi 2 TS 3.4.5 by requiring that all valves are covered under SR 3.4.5.1, not just the check valves. The proposed TS change does not impact the initiators of an analyzed event, nor do they adversely impact the mitigation of accidents since the proposed change would provide more restrictive acceptance criteria for certain RCS IPV surveillance tests.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change would provide more restrictive acceptance criteria for existing RCS PIV TS surveillance tests that demonstrate the capability of the valves to perform their Design Function. The proposed change does not involve a physical alteration of the plant; no new or different kind of equipment will be installed. The proposed change does not create any new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change would provide more restrictive acceptance criteria for RCS PIV surveillance tests. The conduct of the surveillance tests on safety-related plant equipment is a means of assuring that the equipment is capable of maintaining the margin of safety established in the safety analyses. The proposed amendment does not affect RCS protection as described in the design basis analyses. The proposed change does not change limits established in the accident analysis.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

4.4 Conclusion

Based on the above, DTE concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

6.0 REFERENCES

- 6.1 NRC Regulatory Guide 1.239, “Licensee Actions to Address Nonconservative Technical Specifications, dated November 2020.
- 6.2 NEI 15-03, “Licensee Actions to Address Nonconservative Technical Specifications, Revision 3, dated March 2020, Section 3.
- 6.3 NUREG-1433, Revision 5, “Standard Technical Specifications, General Electric BWR/4 Plants, Volume 1, Specifications,” dated April 2012 (ML12104A192)

- 6.4 NRC Administrative Letter 98-10, “Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety,” dated December 29, 1998
- 6.5 Letter from NRC to Energy Harbor Nuclear Corp., “Beaver Valley Power Station, Unit Nos. 1 and 2 – Issuance of Amendment Nos. 312 and 202 re: Atmospheric Dump Valves (EPID L-2020-LLA-0229)
- 6.6 Letter from NRC to Duke Energy Progress, “H. B. Robinson Steam Electric Plant, Unit No. 2, Issuance of Amendment No. 271 Regarding Correction to Non-Conservative Technical Specifications Figure 3.4.3-2, Pressure/Temperature Limit Cooldown Curves (EPID L-2021-LLA-0223)
- 6.7 Fermi 2 UFSAR, Revision 24 (ADAMS Accession No ML22313A186)

**Enclosure 2 to
NRC-23-0010**

**Fermi 2 NRC Docket No. 50-341
Operating License No. NPF-43**

**License Amendment Request to Correct Non-Conservative Technical Specification 3.4.5,
"RCS Pressure Isolation Valve (PIV) Leakage".**

Marked-Up Page of Existing Fermi 2 TS

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.5 The leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1 and 2.
MODE 3, except valves in the residual heat removal (RHR) shutdown cooling flow path when in, or during the transition to or from, the shutdown cooling mode of operation.

ACTIONS

- NOTES-----
1. Separate Condition entry is allowed for each flow path.
 2. Enter applicable Conditions and Required Actions for systems made inoperable by PIVs.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each check valve used to satisfy Required Action A.1 must have been verified to meet SR 3.4.5.1 at the last refueling outage or after the last time the valve was disturbed, whichever is more recent.</p> <p>-----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one other closed manual, de-activated automatic, or check valve.</p>	<p>4 hours</p>

(continued)

**Enclosure 3 to
NRC-23-0010**

**Fermi 2 NRC Docket No. 50-341
Operating License No. NPF-43**

**License Amendment Request to Correct Non-Conservative Technical Specification 3.4.5,
"RCS Pressure Isolation Valve (PIV) Leakage".**

Clean Page of Fermi 2 TS with Changes Incorporated

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.5 The leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1 and 2.
MODE 3, except valves in the residual heat removal (RHR) shutdown cooling flow path when in, or during the transition to or from, the shutdown cooling mode of operation.

ACTIONS

- NOTES-----
1. Separate Condition entry is allowed for each flow path.
 2. Enter applicable Conditions and Required Actions for systems made inoperable by PIVs.
-

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more flow paths with leakage from one or more RCS PIVs not within limit.</p>	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 must have been verified to meet SR 3.4.5.1 at the last refueling outage or after the last time the valve was disturbed, whichever is more recent.</p> <p>-----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one other closed manual, de-activated automatic, or check valve.</p>	<p>4 hours</p>

(continued)

**Enclosure 4 to
NRC-23-0010**

**Fermi 2 NRC Docket No. 50-341
Operating License No. NPF-43**

**License Amendment Request to Correct Non-Conservative Technical Specification 3.4.5,
"RCS Pressure Isolation Valve (PIV) Leakage".**

Marked-Up Page of Existing Fermi 2 TS Bases (For Information Only)

BASES

ACTIONS (continued)

leakage limits exceeded provide appropriate compensatory measures for separate affected RCS PIV flow paths. As such, a Note has been provided that allows separate Condition entry for each affected RCS PIV flow path. Note 2 requires an evaluation of affected systems if a PIV is inoperable. The leakage may have affected system OPERABILITY, or isolation of a leaking flow path with an alternate valve may have degraded the ability of the interconnected system to perform its safety function. As a result, the applicable Conditions and Required Actions for systems made inoperable by PIVs must be entered. This ensures appropriate remedial actions are taken, if necessary, for the affected systems.

A.1

If leakage from one or more RCS PIVs is not within limit, the flow path must be isolated by at least one closed manual, deactivated automatic, or check valve within 4 hours.

Required Action A.1 is modified by a Note stating that ~~check~~ valves used for isolation must meet the same leakage requirements as the PIVs (i.e., meet SR 3.4.5.1). Furthermore, the leakage must have been verified at the last refueling outage or after the last time the ~~valve~~ was disturbed (i.e., maintenance activities that could affect the leak tightness of the valve), whichever is more recent.

Four hours provides time to reduce leakage in excess of the allowable limit and to isolate the flow path if leakage cannot be reduced while corrective actions to reseal the leaking PIVs are taken. The 4 hours allows time for these actions and restricts the time of operation with leaking valves.

valve

B.1 and B.2

If leakage cannot be reduced or the system isolated, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours and MODE 4 within 36 hours. This action may reduce the leakage and also reduces the potential for a LOCA outside the containment. The Completion Times are reasonable, based on operating experience, to achieve the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.