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

January 24, 2020

Mr. Peter Dietrich
Senior Vice President and
Chief Nuclear Officer
DTE Electric Company
Fermi 2 - 260 TAC
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: FERMI 2 - ISSUANCE OF RELIEF RE: PROPOSED ALTERNATIVE REQUEST NOS. VRR-002, VRR-003, VRR-006, VRR-008, AND VRR-009 ASSOCIATED WITH FOURTH TEN YEAR INTERVAL INSERVICE TESTING OF VARIOUS VALVES (EPID L-2019-LLR-0048, EPID L-2019-LLR-0049, EPID L-2019-LLR-0057, EPID L-2019-LLR-0051 AND EPID L-2019-LLR-0059)

Dear Mr. Dietrich:

By letters dated May 29, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19149A329), and June 14, 2019 (ADAMS Accession No. ML19165A134), and supplemented by letter dated December 6, 2019 (ADAMS Accession No. ML19340A250), DTE Electric Company (DTE, the licensee) submitted relief requests (RRs) Nos. VRR-002, VRR-003, VRR-006, VRR-008 and VRR-009,[1] to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), for certain valves at Fermi 2 associated with the fourth 10-year interval inservice testing program.

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternative in RRs VRR-002, VRR-003, VRR-006, VRR-008 and VRR-009, on the basis that the proposed alternative will provide an acceptable level of quality and safety. During NRC staff review of RRs VRR-002 and VRR-008, the staff noted that the requests will be reviewed in accordance with 10 CFR 50.55a(z)(2) on the basis that the ASME OM Code requirements present an undue hardship without a compensating increase in the level of quality or safety.

As set forth above, the NRC staff finds that the proposed alternatives described in RRs VRR-003, VRR-006, and VRR-009, provide an acceptable level of quality and safety for components listed in Tables 2, 3, and 5 of this safety evaluation. 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).

[1] DTE's May 29, 2019 letter requested RR Nos. VRR-001, VRR-002, VRR-003, VRR-005 and VRR-008. By letter dated October 3, 2019 (ADAMS Accession No. ML19248C707), the NRC approved RR Nos. VRR-001 and VRR-005. DTE's June 14, 2019 letter requested RR Nos. VRR-004, VRR-006, VRR-007 and VRR-009. By letter dated August 7, 2019 (ADAMS Accession No. ML19219A104), DTE withdrew RR Nos. VRR-004 and VRR-007.

As set forth above, the NRC staff determined that the proposed alternatives RRs VRR-002 and VRR-008 provide reasonable assurance that the components listed in Tables 1 and 4 of this SE are operationally ready. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(z)(2).

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

Therefore, the NRC staff authorizes the proposed alternatives in RRs VRR-002, VRR-003, VRR-006, VRR-008, and VRR-009, for the fourth 10-year IST interval at Fermi 2 which is currently scheduled to start on February 17, 2020, and end on February 16, 2030.

If you have any questions, please contact the project manager, Booma Venkataraman, at (301) 415-2934 or Booma.Venkataraman@nrc.gov.

Sincerely,

/RA Scott P. Wall for/

Nancy L. Salgado, Chief,
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-341

Enclosure:
Safety Evaluation

cc: Listserv

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO RELIEF REQUEST NOS. VRR-002, VRR-003, VRR-006, VRR-008 AND VRR-009 FOR THE FOURTH 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

DTE ELECTRIC COMPANY

FERMI 2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letters dated May 29, 2019, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19149A329), and June 14, 2019 (ADAMS Accession No. ML19165A134), and supplemented by letter dated December 6, 2019 (ADAMS Accession No. ML19340A250), DTE Electric Company (DTE, the licensee) submitted relief requests (RRs) Nos. VRR-002, VRR-003, VRR-006, VRR-008 and VRR-009,[2] to the U.S. Nuclear Regulatory Commission (NRC) for the use of alternatives to the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code), for certain valves at Fermi 2 associated with the fourth 10-year interval inservice testing (IST) program.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1), the licensee requested to use the proposed alternative in RRs VRR-002, VRR-003, VRR-006, VRR-008 and VRR-009 on the basis that the proposed alternative will provide an acceptable level of quality and safety. During NRC staff review of RRs VRR-002 and VRR-008, the staff noted that the requests will be reviewed in accordance with 10 CFR 50.55a(z)(2) on the basis that the ASME OM Code requirements present an undue hardship without a compensating increase in the level of quality or safety.

2.0 REGULATORY EVALUATION

Regulation 10 CFR 50.55a(f), "Inservice Testing Requirements," requires, 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 10 CFR 50.55a(z)(1) or 10 CFR 50.55a(z)(2).

[2] DTE's May 29, 2019 letter requested RR Nos. VRR-001, VRR-002, VRR-003, VRR-005 and VRR-008. By letter dated October 3, 2019 (ADAMS Accession No. ML19248C707), the NRC approved RR Nos. VRR-001 and VRR-005. DTE's June 14, 2019 letter requested RR Nos. VRR-004, VRR-006, VRR-007 and VRR-009. By letter dated August 7, 2019 (ADAMS Accession No. ML19219A104), DTE withdrew RR Nos. VRR-004 and VRR-007.

In proposing alternatives, a licensee must demonstrate that the proposed alternatives provide an acceptable level of quality and safety according to 10 CFR 50.55a(z)(1) or compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety according to10 CFR 50.55a(z)(2).

3.0 TECHNICAL EVALUATION

3.0.1 Applicable ASME OM Code

The following requests are an alternative test plan in lieu of certain IST requirements of the 2012 Edition of the ASME OM Code for the IST program at Fermi 2 for the fourth interval which is currently scheduled to start on February 17, 2020.

3.1 Licensee's Request for Alternative, RR VRR-002

ASME OM Code Requirements

ISTC-3700, "Position Verification Testing," states, in part, that "Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated."

Regulation 10 CFR 50.55a(b)(3)(xi), "OM condition: Valve Position Indication," states that when implementing ASME OM Code, 2012 Edition, Subsection ISTC-3700, "Position Verification Testing," licensees shall verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation, to provide assurance of proper obturator position.

ASME Code Components Affected

Alternative testing is requested for the following valves:

Table 1

Valve ID	Function	ASME Code Class	OM Valve Category
C5100F002A	Traversing In-Core (TIP) Channel A Ball Valve	2	A
C5100F002B	TIP Channel B Ball Valve	2	A
C5100F002C	TIP Channel C Ball Valve	2	A
C5100F002D	TIP Channel D Ball Valve	2	A
C5100F002E	TIP Channel E Ball Valve	2	A
E11F412	Residual Heat Removal (RHR) Division II Primary Containment Monitoring Isolation Valve	2	A
E11F413	RHR Division II Primary Containment Monitoring Isolation Valve	2	A
E11F414	RHR Division I Primary Containment Monitoring Isolation Valve	2	A
E11F415	RHR Division I Primary Containment Monitoring Isolation Valve	2	A
E41F400	Primary Containment Monitoring (PCM) Suppression Pool Valve	2	A

	Table 1		
Valve ID	Function	ASME Code Class	OM Valve Category
E41F401	PCM – Suppression Pool Valve	2	A
E41F402	PCM – Suppression Pool Valve	2	A
E41F403	PCM – Suppression Pool Valve	2	A
P34F401A	Post Accident Sampling (PAS) V13-7360	1	A
P34F401B	PAS V13-7364	1	A
P34F403A	PAS V13-7364	2	A
P34F403B	PAS V13-7365	2	A
P34F404A	PAS V13-7374	2	A
P34F404B	PAS V13-7375	2	A
P34F405A	PAS V13-7366	2	A
P34F405B	PAS V13-7367	2	A
P34F406A	PAS V13-7376	2	A
P34F406B	PAS V13-7377	2	A
P34F407	PAS V13-7368	2	A
P34F408	PAS V13-7369	2	A
P34F409	PAS V13-7378	2	A
P34F4010	PAS V13-7379	2	A
T50F412A	Primary Containment Torus Level Monitoring Division I	2	A
T50F412B	Primary Containment Torus Level Monitoring Division II	2	A
T50F450	Primary Containment Radiation Monitoring System Inlet Isolation Valve	2	A
T50F451	Primary Containment Radiation Monitoring System Outlet Isolation Valve	2	A
T50F458	Primary Containment Atmospheric Monitoring (PCAM) Division 2 Penetration X-27F Remote Manual Solenoid Valve (SOV)	2	A

Duration of the Alternative:

The Fermi 2 fourth 10-year IST program interval begins on February 17, 2020, and is scheduled to end on February 16, 2030.

Reason for Request

The licensee, states, in part:

> The ASME OM Code (Section ISTC-3700) and 10 CFR 50.55a(b)(3)(xi) require that a Position Indication Test (PIT) and obturator verification be performed every two years. The PIT would also require positive verification of the obturator position. This would result in operators and test personnel entering the radiological areas to perform observations and install monitoring equipment. In addition to the PIT, operators and test personnel are required to enter these radiological areas to install test equipment and to perform leakage testing at the Appendix J frequency. Combining the PIT and leakage testing and performing them together at the Appendix J frequency will reduce labor and overall dose.

Licensee's Proposed Alternative

The licensee states, in part:

> In accordance with ISTC-3700, where local observation is not possible, other indications shall be used to verify valve position. The method used at Fermi 2 is a pressure test using the local leakage rate testing equipment. This method involves pressurizing the containment penetration volume to approximately 56.5 psig [per square inch gauge], and verifying the penetration remains pressurized while the valve is indicating closed on the main control room (MCR) board. The valve is then opened using the control switch in the MCR. A decrease in pressure is then verified along with valve position indicating open in the MCR. This method satisfies the requirement for position indication verification, obturator verification, and the required leakage rate testing at the same time.
>
> The subject valves are all OM valve category A and are all containment isolation valves per the plant safety analysis. All of the subject valves have a safety function to close in order to isolate containment during a Loss of Coolant Accident (LOCA) when required. Since these valves are containment isolation valves, they are each individually seat leakage tested in accordance with 10 CFR 50 Appendix J.
>
> Each of the subject valves is a solenoid operated valve designed such that the position of the valve is not locally observable. The design of these valves is such that the coil position is internal to the valve body and not observable in either the energized or de-energized state.
>
> For the subject valves, Fermi 2 will perform the position indication and obturator verification in conjunction with the seat leakage test at a frequency in accordance with 10 CFR 50 Appendix J Option B. This interval may be adjusted to a frequency of testing commensurate with Option B of 10 CFR 50 Appendix J Type C leakage testing based on valve seat leakage performance. 10 CFR 50.55a(b)(3)(xi) for Valve Position Indication states "When implementing ASME OM Code, 2012 Edition, Subsection ISTC-3700, "Position Verification Testing," licensees shall verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation, to provide assurance of proper obturator position."
>
> Since each of these valves is seat leakage tested using local leakage rate testing equipment, the current leakage rate tests have been modified to also perform the position indication verification test at the same time. The individual valve being tested must have its system properly drained, vented, and aligned correctly prior to performing the seat leakage test or the position indication verification. Allowance of an extended frequency for ISTC-3700 and 10 CFR 50.55a(b)(3)(xi) will allow for all tests to be performed as part of the same activity. Radiation exposure and the time and labor for Operations and test personnel will be significantly reduced by performing the position indication verification test (as well as obturator verification) at the same interval as the Appendix J seat leakage test.
>
> The Fermi 2 program which implements Appendix J, Option B requires individual containment isolation valves to pass three successful seat leakage tests before they can be placed on extended seat leakage testing frequency. The majority of the listed valves are in good performer status, requiring a seat leakage test every 4 refueling outages

(18 month refueling cycle) or 3 refueling outages (2 year refueling cycle).

In conclusion, the ability to detect degradation and ensure the operational readiness of the subject valves to perform their intended function is not jeopardized by performing the position indication and obturator verification test at the same frequency as specified by Option B. This frequency of testing provides reasonable assurance of the operational readiness of the subject valves and provides an acceptable level of quality and safety. The testing also ensures that the indicating system accurately reflects the valve disc position.

NRC Staff Evaluation

The ASME OM Code requires active and passive valves to be periodically tested in accordance with Section ISTC-3500, "Valve Testing Requirements." Active valves are exercised at a frequency determined by Section ISTC-3510, "Exercising Test Frequency". Valves are nominally exercised every 3 months except where the exercise is not practicable when the plant is operating. During the valve exercise, valve obturator movement is verified by Section ISTC-3530, "Valve Obturator Movement." ISTC-3530 allows the use of remote position indicating lights that signal the required change of obturator position to complete this test. However, the use of remote position indicating lights does not provide a positive verification that the valve operation is accurately indicated. To address this, the ASME OM Code developed Section ISTC-3700, "Position Verification Testing," which requires local observation of the valve exercise every 2 years to verify valve operation is accurately indicated. The ASME OM Code is not specific on how this is completed. The NRC issued a condition in 10 CFR 50.55a(b)(3)(xi), which requires the Position Verification Testing to be supplemented with other indications, such as flow meters or other suitable instrumentation, to provide assurance of proper obturator position and valve operation.

The licensee has proposed an alternative test in lieu of the requirements of the 2012 Edition of the ASME OM Code Section ISTC-3700 and the condition 10 CFR 50.55a(b)(3)(xi) for valves listed in Table 1 of this safety evaluation (SE). Specifically, the licensee proposes to functionally test and verify valve operation is accurately indicated on a 10 CFR 50 Appendix J Option B schedule. Valves would initially be tested at the required interval schedule which is currently every refueling outage (RFO) or 2 years as specified by ASME OM Code Section ISTC-3700. Valves that have demonstrated good performance for two consecutive cycles may have their test interval extended, not to exceed 75 months. Any position indication verification test failure would require the component to return to the initial interval of every RFO or 2 years until good performance can again be established.

The NRC staff reviewed the operational history of the valves listed in Table 1 of this SE and found no occurrences of valve stem disk separation. Additionally, these valves are exercised on a quarterly or cold shutdown frequency and are subject to the preventive maintenance program where non-metallic parts of these SOVs are periodically replaced. Any maintenance that is performed which might affect position indication will be followed by applicable post maintenance testing including position indication test and obturator verification. Extending the test interval based on good performance is a logical progression to a performance-based program.

The licensee requested the alternative relief of 10 CFR 50.55a(z)(1), to provide an acceptable level of quality and safety. However, the licensee's primary reason for the alternative proposal was dose reduction, as low as reasonably achievable which is considered a hardship. To

maintain the current RFO or 2-year leakage test interval represents an undue hardship without an increase in the level of quality and safety which is applicable to 10 CFR 50.55a(z)(2). Testing valves on a performance-based schedule provides reasonable assurance that the component is operationally ready. Because of this, the NRC staff reviewed the alternative request in accordance with 10 CFR 50.55a(z)(2) on the basis that the ASME OM Code requirements present an undue hardship without a compensating increase in the level of quality or safety.

The licensee is authorized to perform position indication verification and supplemental verification for the valves listed in Table 1 of this SE in conjunction with the seat leakage test at a frequency in accordance with 10 CFR 50, Appendix J, Option B. This interval may be adjusted to a frequency of testing commensurate with Option B of 10 CFR 50, Appendix J, Type C, leakage testing based on valve seat leakage performance.

3.2 Licensee's Request for Alternative, RR VRR-003

ASME OM Code Requirements

ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," states, in part, that "Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J, program shall be tested to verify their seat leakages are within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied."

ISTC-3630(a), "Frequency," states that "Tests shall be conducted at least once every 2 years."

ASME Code Components Affected

Alternative testing is requested for the following valves:

Table 2

Valve ID	Function	ASME Code Class	OM Valve Category
E1100F050A	Residual Heat Removal (RHR) Div. 1 Inboard Isolation Testable Check Valve	1	A/C
E1100F050B	RHR Div. 2 Inboard Isolation Testable Check Valve	1	A/C
E1150F008	RHR Div. 1 & 2 Shutdown Cooling Outboard Cont. Isolation Valve	1	A
E1150F009	RHR Div. 1 & 2 Shutdown Cooling Inboard Cont. Isolation Valve	1	A
E1150F015A	RHR Div. 1 Low Pressure Coolant Injection (LPCI) Inboard Isolation Valve	1	A
E1150F015B	RHR Div. 2 Low Pressure Coolant Injection (LPCI) Inboard Isolation Valve	1	A
E1150F608	RHR Shutdown Cooling Inboard Inlet Isolation Bypass Valve	1	A
E2100F006A	Core Spray (CS) Div. 1 Inboard Primary Containment (PC) Check Valve	1	A/C

Table 2			
Valve ID	Function	ASME Code Class	OM Valve Category
E2100F006B	CS Div. 2 Inboard Primary Containment (PC) Check Valve	1	A/C
E2150F005A	CS Div.1 Inboard Isolation Valve	1	A
E2150F005B	Core Spray (CS) Div.2 Inboard Isolation Valve	1	A
E4150F006	High Pressure Coolant Injection (HPCI) Main Pump Outlet to Feedwater Isolation Valve	1	A
E4150F007	HPCI Main Pump Discharge Isolation Valve	1	A
E5150F012	Reactor Core Isolation Cooling (RCIC) Pump Discharge Isolation Valve	1	A
E5150F013	RCIC Pump Supply to Feedwater Header Isolation Valve	1	A

Duration of the Alternative

The Fermi 2 fourth 10-year IST program interval begins on February 17, 2020, and is scheduled to end on February 16, 2030.

Reason for Request

The licensee states, in part:

> ISTC-3630(a) requires that leakage rate testing (water) for pressure isolation valves (PIV) be performed at least once every two years. The radiation exposure and the personnel time involved will be significantly reduced by performing the PIV and position indication test (PIT) at the same interval (frequency) as the 10 CFR 50 Appendix J "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Option B "Performance-Based Requirements," seat leakage test. Historical data collected during the third 10-year interval identified that PIV testing alone each refueling outage (each 18 months) incurs a total dose of approximately 900 mRem [millirem]. The reason for this relief request is to reduce outage dose and to align the PIV test frequency to the Appendix J, Option B test frequency.

Licensee's Proposed Alternative

The licensee states, in part:

> Pressure Isolation Valves (PIVs) are not included in the scope for performance-based testing as provided for in 10 CFR 50 Appendix J, Option B. The concept behind the Option B alternative for containment isolation valves is that licensees should be allowed to adopt cost effective methods for complying with regulatory requirements. NEI [Nuclear Energy Institute] 94-01 describes the risk-informed basis for the extended test intervals under Option B. That justification shows that for valves which have demonstrated good performance by passing their leak rate tests for three consecutive cycles, further failures appear to be governed by the random failure rate of the component. NEI 94-01 also presents the results of a comprehensive risk analysis, including the statement that "the risk impact associated with increasing [leak rate] test

intervals is negligible (less than 0.1% of total risk)." The valves identified in this relief request are all in water applications. The PIV testing is performed with water pressurized to normal plant operating pressures. This relief request is intended to provide for a performance-based scheduling of PIV tests at Fermi 2.

NUREG-0933, “Resolution of Generic Safety Issues,” Issue 105, “Interfacing Systems LOCA at LWRs [light-water reactors],” discussed the need for PIV leak rate testing based primarily on three pre-1980 historical failures of applicable valves industry-wide. These failures all involved human errors in either operations or maintenance. None of these failures involved inservice equipment degradation. The performance of PIV leak rate testing provides assurance of acceptable seat leakage with the valve in a closed position. Typical PIV testing does not identify functional problems which may inhibit the valves ability to re-position from open to closed. For check valves, such functional testing is accomplished per ASME OM Code Section ISTC-3522 “Category C check Valves,” ISTC-5221 “Valve Obturator Movement,” and ISTC-5222 “Condition-Monitoring Program.” Motor-operated valves are routinely full stroke tested in accordance with ASME OM Code Section ISTC-5120, “Mower Operated Valves,” to ensure their functional capabilities. At Fermi 2, these functional tests for PIVs have historically been performed at a Quarterly, Cold Shutdown or Refuel outage frequency. In the fourth interval, the motor operated valves will follow the frequencies and testing required by Mandatory Appendix III, “Preservice and In-service Testing of Active Electric Motor Operated Valve Assemblies in Light-Water Reactor Power Plants.” The functional testing of the PIVs is adequate to identify any abnormal condition that might affect closure capability. Performance of the separate 18-month PIV leak rate testing does not contribute any additional assurance of functional capability as it only verifies the seat tightness of the closed valves.

Fermi 2 proposes to perform PIV testing at intervals (frequencies) ranging from every 30 months up to every 75 months. The specific interval for each valve would be a function of its seat leakage performance and would be established in a manner consistent with the Containment Isolation valves (CIVs) process under 10 CFR 50 Appendix J Option B. Eleven of the fifteen valves listed are classified as CIVs and nine of those valves are leak rate tested with air at intervals determined by 10 CFR 50 Appendix J, Option B (hereto referred to as Option B). IST Leak Rate Program guidance will be established such that if any of those nine valves fail either their CIV test or their PIV test, the test interval for both tests will be reduced to every 30 months until they can be re-classified as good performers per the 10 CFR 50 Appendix J, Option B requirements.

The test intervals for the valves with a PIV-only function will be determined in the same manner as is done for CIV testing under Option B. That is, the test interval may be extended up to every four refueling outages (not to exceed 75 months) upon completion of three consecutive periodic PIV tests with results within prescribed acceptance criteria. Any PIV test failure will require a return to the initial (every 30 months) interval until good performance can be re-established.

The primary basis for this relief request is the historically good performance of the PIVs. There have been no PIV failures due to seating surface condition of the valves. Several of the valves covered by this relief request have passed the as found PIV water test but experienced failures of as found CIV air leakage tests due to seat imperfections. There is industry-wide consensus that CIV air-testing is a more challenging and accurate measurement of seat condition, and more likely to identify any seat condition

degradation.

NUREG/CR-5928, "Final Report of the NRC-sponsored ISLOCA [intersystem loss of coolant accident] Research Program", evaluated the likelihood and potential severity of ISLOCA events in BWRs [boiling-water reactors] and PWRs [pressurized-water reactors]. The BWR design used as a reference for this analysis was a BWR-4 with a Mark 1 containment. Fermi 2 was listed in Section 4.1 of the document as one of the applicable plants. The applicable BWR systems were individually analyzed and in each case this report concluded that the system was not at risk with respect to ISLOCA risk. Section 4.3 concluded the BWR portion of the analysis by saying "ISLOCA is not a risk concern for the BWR plant examined here."

On March 9, 2017, Fermi 2 received approval of License Amendment No. 205 (ADAMS Accession No. ML16351A460) to implement NEI 94-01, Revision 3-A (ADAMS accession No. ML12221A202) and the conditions and limitations specified in NEI 94-01, Revision 2-A, to implement the performance-based leakage-testing program in accordance with 10 CFR 50 Appendix J, Option B. This License Amendment increased the containment isolation valves leakage test intervals (i.e., Type C tests) from 60 months to 75 months. Valves whose leakage test results indicate good performance may have their interval of testing increased based on these test results. The Fermi 2 program which implements 10 CFR 50 Appendix J, Option B requires individual containment isolation valves be good performers before they can be placed on extended seat leakage testing frequency. Based on the data contained in relief request application, almost all of the listed valves have passed their last three PIV Leak Rate Tests and would currently qualify for extended frequency.

Summary of bases and rationale for this relief request:

- Performance-based PIV testing would yield a dose reduction of approximately 2700 mRem over a 75-month period based on historical data.
- Performance of functional stroke testing of PIVs is per the ASME Code.
- PIV testing for the applicable valves has excellent historical performance results.
- There is a very low likelihood of valve mispositioning during power operations (procedures, interlocks).
- Some valves are also air tested and degrading seat conditions are identified much sooner with air testing.
- The low pressure piping typically has relief valves. These relief valves may not provide ISLOCA mitigation for inadvertent PIV mispositioning (gross leakage) but their relief capacity can easily accommodate conservative PIV seat leakage rates.
- Alarms are typically provided to identify high pressure to low pressure leakage. Operators are highly trained to recognize symptoms of a present or incipient ISLOCA and to take appropriate actions.

The intent of this relief request is to allow a performance-based approach to the scheduling of PIV leakage testing. Fermi 2 PIVs have an excellent performance history in terms of seat leakage testing. The risks associated with extending the leakage test interval to a maximum of 75 months are extremely low. This relief will provide significant reductions in radiation dose.

NRC Staff Evaluation

The licensee has proposed an alternative test in lieu of the requirements found in 2012 Edition of the ASME OM Code Section ISTC-3630(a) for 15 pressure isolation valves (PIVs) noted in Table 2 of this SE. Specifically, the licensee proposes to functionally test and verify the leakage rate of these PIVs using 10 CFR 50 Appendix J Option B performance-based schedule. Valves would initially be tested at the required interval schedule which is every RFO or 2 years as specified by ASME OM Code Section ISTC-3630(a). In transitioning to an Appendix J, Option B, schedule as detailed in NEI 94-01, Revision 3-A, the licensee proposes to perform PIV testing at intervals (frequencies) ranging from every 30 months up to every 75 months. Valves that have demonstrated good performance for three consecutive cycles may have their test interval extended up to 75 months. Any PIV leakage test failure would require the component to return to the initial interval of every 30 months until good performance can again be established.

PIVs are defined as two valves in series within the reactor coolant pressure boundary which separate the high pressure reactor coolant system from an attached lower pressure system. Failure of a PIV could result in an over-pressurization event which could lead to a system rupture and possible release of fission products to the environment. This type of failure event was analyzed under NUREG/CR-5928, ISLOCA research program. The purpose of NUREG/CR-5928 was to quantify the risk associated with an ISLOCA event. NUREG/CR-5928 analyzed BWR and PWR designs. Specifically, NUREG/CR-5928 reviewed BWR/4 design which included Fermi 2. The conclusion of the analysis resulted in ISLOCA not being a risk concern for BWR/4 design.

As stated in the licensee's request, this is a continuation of a recently approved alternative request (ADAMS Accession No. ML17354B002) for the third 10-year interval which is currently scheduled to end February 16, 2020. The NRC staff has reviewed the proposed alternative RR VRR-003 request and has concluded that nothing has changed from the previous safety evaluation. Consequently, there are no changes to the analysis performed on the previous SE. The proposed alternative provides an acceptable level of quality and safety.

3.3 Licensee's Request for Alternative, RR VRR-006

ASME OM Code Requirements

Mandatory Appendix III, Section III-3200, "Preservice Test," which states, in part, that "Each MOV [motor operated valve] shall be tested during the preservice test period or before implementing inservice testing. These tests shall be conducted under conditions as near as practicable to those expected during subsequent inservice testing."

Mandatory Appendix III, Section III-6100, which states, in part, that "The Owner shall establish methods to determine acceptance criteria for the operational readiness of each MOV within the scope of this Mandatory Appendix. Acceptance criteria shall be based upon the minimum amount by which available actuator output capability must exceed the valve operating requirements. Thrust, torque, or other measured engineering parameters correlated to thrust or torque consistent with paras. III-6100 through III-6500 may be used to establish the acceptance criteria. Motor control center (MCC) testing is acceptable if correlation with testing at the MOV has been established."

ASME Code Components Affected

Alternative testing is requested for the following valves:

Table 3			
Valve ID	Function	ASME Code Class	OM Valve Category
T4803F601	Containment Atmospheric Control (CAC) N_2 Inerting Drywell Air Purge Inlet Supply Valve	2	A
T4803F602	CAC N_2 Inerting Drywell Inboard Exhaust Isolation Valve	2	A

Duration of the Alternative

The Fermi 2 fourth 10-year IST program interval begins on February 17, 2020, and is scheduled to end on February 16, 2030.

Reason for Request

The licensee states, in part:

> Preservice testing that meets the requirements of Paragraph III-6100 has not yet been performed for these valves. This testing requires plant cold conditions. The next testing opportunity is the next refueling outage, which is scheduled for the spring of 2020 (vs. an Appendix III required implementation date of 2/17/2020).

Licensee's Proposed Alternative

The licensee states, in part:

> The proposed alternative is to measure torque during a static diagnostic test during the first refueling outage after Appendix III implementation for each valve. The first refueling outage is planned for the spring of 2020. This test will serve as the preservice test for each valve.
>
> T4803F601 and T4803F602 are butterfly valves. T4803F601 and T4803F602 are not practicable to test under dynamic conditions. The valves are all Class A under the Joint Owner's Group (JOG) periodic verification approach. Bearing degradation was addressed by applying the JOG threshold coefficient of friction (COF) to these valves.
>
> Design basis testing for each valve to meet Generic Letter (GL) 89-10 requirements consisted of a diagnostic test conducted under static conditions. During GL 89-10 implementation, valve travel in both directions was interrupted by a limit switch. A torque switch was included in the control circuit. Torque measured at torque switch trip was corrected and compared to the minimum required torque under design basis conditions to demonstrate margin was available.
>
> Subsequent to GL 89-10 testing, a plant modification was implemented to remove the torque switch from the valve control circuit for the listed valves. Thus, the original testing

methodology of measuring torque at torque switch trip was no longer possible. Since the valves have significant margin between actuator capability and valve operating requirements, a combination of condition monitoring from periodic motor control center testing and local leak rate testing is used to monitor for valve/actuator degradation. While this practice provides acceptable monitoring of valve/actuator condition, it does not meet Appendix III Section 6100 requirements for acceptance criteria.

Motor control center testing, preventive maintenance activities, stroke timing and periodic exercising and leak rate testing have been conducted for these valves. No anomalies or adverse trends have been identified from the motor control center testing. Stroke times have been consistent. No adverse findings have been identified in the preventive maintenance activities. While some local leak rate results have necessitated corrective actions, the causes of the leakage were not related to actuator capability or valve operational capability. This provides confidence that these valves and actuators will remain capable of meeting design basis requirements until the preservice test is performed.

NRC Staff Evaluation

ASME OM Code Mandatory Appendix III establishes the requirements for preservice and IST to assess the operational readiness of active MOVs in LWR power plants. Section III-3100, "Design Basis Verification Test." requires a one-time test to be conducted to verify the capability of each MOV to meet its safety-related design basis requirements. Section III-3200, "Preservice Test," requires each MOV to be tested during the preservice test period or before implementing IST. Section III-6100, "Acceptance Criteria," states, in part, that the Owner shall establish methods to determine acceptance criteria for the operational readiness of each MOV within the scope.

The licensee proposed alternative states that preservice testing has not been completed for the valves listed in Table 3 of this SE. In response to a request for additional information, (ADAMS ML19340A250) the licensee stated that the valves were determined to be Class B per the JOG program and that appropriate inservice test interval for these low risk valves will be determined following testing in the upcoming refueling outage in accordance with Appendix III requirements. To justify the alternative approach to perform required testing at a later date, the licensee stated that the current valve design calculations incorporate Electric Power Research Institute (EPRI) methodology assuming the JOG threshold coefficient of friction value. This resulted in a total dynamic torque value that was greater than the breakaway torque test results provided by the valve vendor. The valve vendor provided documentation that torque versus differential pressure curves included bearing and packing torque contributions in the breakaway torque value. This demonstrates that the use of the JOG threshold value is bounding for the two valves listed in Table 3 of this SE. NRC staff has evaluated the final JOG program methodology and has approved it for use, with conditions, in a SE dated September 25, 2006 (ADAMS Accession No. ML061280315).

The licensee also noted that condition monitoring, motor control testing, preventive maintenance activities, stroke timing, leak rate testing, and periodic exercising have been conducted for these valves and no adverse anomalies or trends have been found. The combination of performing diagnostic test activities along with valve leak rate testing is effective in monitoring valve operational readiness until the appropriate preservice testing can be completed. The NRC staff has determined that the proposed alternative approach provides an acceptable level of quality and safety for components listed in Table 3 of this SE.

3.4 Licensee's Request for Alternative, RR VRR-008

ASME OM Code Requirements

ISTC-3630, "Leakage Rate for Other Than Containment Isolation Valves," states, in part, that "Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J, program, shall be tested to verify their seat leakages are within acceptable limits."

ISTC-3630(a), "Frequency," states that "Tests shall be conducted at least once every 2 years."

ASME Code Components Affected

Alternative testing is requested for the following valves:

Table 4

Valve ID	Function	ASME Code Class	OM Valve Category
T23F400A	Drywell-to-Torus Vacuum Breaker T2300F400A Solenoid Valve (SOV)	2	A
T23F400B	Drywell-to-Torus Vacuum Breaker T2300F400B SOV	2	A
T23F400C	Drywell-to-Torus Vacuum Breaker T2300F400C SOV	2	A
T23F400D	Drywell-to-Torus Vacuum Breaker T2300F400D SOV	2	A
T23F400E	Drywell-to-Torus Vacuum Breaker T2300F400E SOV	2	A
T23F400F	Drywell-to-Torus Vacuum Breaker T2300F400F SOV	2	A
T23F400G	Drywell-to-Torus Vacuum Breaker T2300F400G SOV	2	A
T23F400H	Drywell-to-Torus Vacuum Breaker T2300F400H SOV	2	A
T23F400J	Drywell-to-Torus Vacuum Breaker T2300F400J SOV	2	A
T23F400K	Drywell-to-Torus Vacuum Breaker T2300F400K SOV	2	A
T23F400L	Drywell-to-Torus Vacuum Breaker T2300F400L SOV	2	A
T23F400M	Drywell-to-Torus Vacuum Breaker T2300F400M SOV	2	A

Duration of the Alternative

The Fermi 2 fourth 10-year IST program interval begins on February 17, 2020, and is scheduled to end on February 16, 2030.

Reason for Request:

The licensee states, in part:

> The normally closed solenoid valves, which control the testing actuators for the drywell-to-torus vacuum breakers, have a passive safety function in the closed direction because they form part of the primary containment inboard closed boundary associated with penetrations X-204A through X-204M. This results in an OM Code requirement (ISTC-3630) to demonstrate the leak tight integrity of the solenoids every 2-years to ensure the penetration piping meets the requirements of a closed system.

Testing for these valves involves entry into the torus which is a confined space, high risk foreign material (FME) exclusion zone, and high radiation dose area.

Licensee's Proposed Alternative

The licensee states, in part:

It is proposed to test the solenoid valves at the Appendix J frequency (performance-based frequency up to 75 months) with the related outboard containment isolation valves (T4800F416 through T4800F427). The seat leakage test for the related outboard containment isolation valves use the solenoid valves as part of the test boundary. This requires entry into the torus to test the outboard containment isolation valves. It is beneficial to perform the leakage testing for the outboard primary containment valves and the solenoid valves at the same time for the following reasons:

1. Alignment of the testing will reduce dose to testing operators.
2. There will be less entries into an area that is classified as both a confined space and a high risk FME exclusion zone.
3. There will be less manipulation of the solenoids. Testing of the solenoids and the related outboard containment isolation valves both require removal of the exhaust nozzle, plugging the exhaust port, and disconnecting the nitrogen tubing of the solenoid valve.

In 1996, Fermi 2 received approval of License Amendment 108 (ADAMS Accession No. ML020730597) to implement Option B of the 10 CFR 50 Appendix J program. This program permits the extension of the Appendix J seat leakage testing to a frequency corresponding to the specific valve performance. Valves whose leakage test results indicate good performance may have their interval of testing increased based on these test results.

On March 9, 2017, Fermi 2 received approval of License Amendment No. 205 (ADAMS Accession No. ML16351A460) to implement NEI 94-01, Revision 3-A (ADAMS Accession No. ML12221A202) and the conditions and limitations specified in NEI 94-01, Revision 2-A, to implement the performance-based leakage-testing program in accordance with 10 CFR 50 Appendix J, Option B. This License Amendment increased the containment isolation valves leakage test intervals from 60 months to 75 months.

The risk for extending the frequency of the solenoid leakage test to the Appendix J frequency is considered to be low because the performance-based testing frequency and methodology used for the Appendix J valves has been proven to be effective. In addition, satisfactory testing history exists for the solenoid valves which were not previously included in the IST Program scope. The results of the last three leakage tests have all been satisfactory.

NRC Staff Evaluation

The licensee has proposed an alternative test in lieu of the requirements found in 2012 Edition of the ASME OM Code Section ISTC-3630(a) for 12 SOVs noted in Table 4 of this SE. Specifically, the licensee proposes to functionally test and verify the leakage rate of these SOVs using 10 CFR 50, Appendix J, Option B, performance-based schedule. Valves would initially be tested at the required interval schedule which is every refueling outage or 2 years as specified by ASME OM Code Section ISTC-3630(a). In transitioning to an Appendix J, Option B,

schedule as detailed in NEI 94-01, Revision 3-A, SOV testing shall be performed at intervals (frequencies) ranging from every 30 months up to every 75 months. Valves that have demonstrated good performance for two consecutive cycles may have their test interval extended up to 75 months. Any SOV leakage test failure would require the component to return to the initial interval of every 30 months until good performance can again be established.

Regulation 10 CFR 50, Appendix J, Option B, is a performance-based leakage test program. Guidance for implementation of acceptable leakage rate test methods, procedures, and analyses is provided in Regulatory Guide (RG) 1.163, "Performance Based Containment Leak Test Program" (ADAMS Accession No. ML003740058). RG 1.163 endorses NEI Topical Report (94-01, Revision 0, "Industry Guideline For Implementing Performance Based Option of 10 CFR 50, Appendix J," dated July 26, 1995, with the limitation that Type C components test interval cannot extend greater than 60 months. The current version of NEI 94-01 is Revision 3-A which allows Type C containment isolation valves test intervals to be extended to 75 months with a permissible extension for non-routine emergent conditions of 9 months (84 months total). The NRC staff concluded that the guidance in NEI 94-01, Revision 3-A, to be acceptable (ADAMS Accession Nos. ML121030286 and ML12226A546), with the following conditions for containment isolation valves local leak rate testing (LLRT):

1) Extended interval for Type C LLRTs may be increased to 75 months with the requirement that a licensee's post outage report include the margin between Type B and Type C leakage rate summation and its regulatory limit. In addition, a corrective action plan shall be developed to restore the margin to an acceptable level. Extensions of up to nine months (total maximum interval of 84 months for Type C tests) are permissible only for non-routine emergent conditions. This provision (nine-month extension) does not apply to valves that are restricted and/or limited to 30-month intervals in Section 10.2 (such as BWR MSIVs) or to valves held to the base interval (30 months) due to unsatisfactory LLRT performance.

2) When routinely scheduling any LLRT valve interval beyond 60-months and up to 75-months, the primary containment leakage rate testing program trending or monitoring must include an estimate of the amount of understatement in the Type B & C total and must be included in a licensee's post-outage report. The report must include the reasoning and determination of the acceptability of the extension, demonstrating that the LLRT totals calculated represent the actual leakage potential of the penetrations.

The 12 SOVs are currently being leak tested every RFO or 2 years. The licensee requested alternative on the basis of 10 CFR 50.55a(z)(1), the proposed alternative would provide an acceptable level of quality and safety. However, the licensee's primary reason for the alternative proposal was dose reduction/as low as reasonably achievable which is considered a hardship. To maintain the current RFO or 2-year leakage test interval represents an undue hardship without an increase in the level of quality and safety which is applicable to 10 CFR 50.55a(z)(2). As noted in the licensee alternative request proposal, the valves have a maintained a history of good performance. Extending the leakage test interval based on good performance is a logical progression to a performance-based program. Therefore, the NRC staff concludes that the licensee's proposed alternative provides reasonable assurance that the components are operationally ready. Because of this, the NRC staff reviewed the alternative request in accordance with 10 CFR 50.55a(z)(2) on the basis that the ASME OM Code requirements present an undue hardship without a compensating increase in the level of quality or safety.

The licensee is authorized to implement a performance-based program for the 12 SOVs listed in Table 4 at Fermi 2. The performance-based program interval shall not exceed 75 months with the exception that non-routine emergent conditions may extend the program interval nine months.

3.4 Licensee's Request for Alternative, RR VRR-009

ASME OM Code Requirements

Mandatory Appendix III, Section III-3200, "Preservice Test," which states, in part, that: "Each MOV shall be tested during the preservice test period or before implementing inservice testing. These tests shall be conducted under conditions as near as practicable to those expected during subsequent inservice testing."

Mandatory Appendix III, Section III-6100, which states, in part, that: "The Owner shall establish methods to determine acceptance criteria for the operational readiness of each MOV within the scope of this mandatory appendix. Acceptance criteria shall be based upon the minimum amount by which available actuator output capability must exceed the valve operating requirements. Thrust, torque, or other measured engineering parameters correlated to thrust or torque consistent with paragraphs III-6100 through III-6500, may be used to establish the acceptance criteria. Motor control center testing is acceptable if correlation with testing at the MOV has been established."

ASME Code Components Affected

Alternative testing is requested for the following valves:

Table 5			
Valve ID	Function	ASME Code Class	OM Valve Category
T4804F601A	Containment Atmospheric Control (CAC) H_2 Recombiner to Torus Division 1 H_2 Control Return Isolation Valve	2	A
T4804F601B	CAC H_2 Recombiner to Torus Division 2 H_2 Control Return Isolation Valve	2	A
T4804F602A	CAC H_2 Recombiner Division 1 H_2 Control Torus Suction Isolation Valve	2	A
T4804F602B	CAC H_2 Recombiner Division 2 H_2 Control Torus Suction Isolation Valve	2	A
T4804F603A	CAC H_2 Recombiner Division 1 H_2 Control Drywell Suction Isolation Valve	2	A
T4804F603B	CAC H_2 Recombiner Division 2 H_2 Control Drywell Suction Isolation Valve	2	A
T4804F604A	CAC H_2 Recombiner Division 1 H_2 Control Return Outboard Isolation Valve	2	A
T4804F604B	CAC H_2 Recombiner Division 2 H_2 Control Return Outboard Isolation Valve	2	A
T4804F605A	CAC H_2 Recombiner Division 1 Drywell Outboard Suction Isolation Valve	2	A
T4804F605B	CAC H_2 Recombiner Division 2 Drywell Outboard Suction Isolation Valve	2	A
T4804F606A	CAC H_2 Recombiner Division 1 Torus Outboard Suction Isolation Valve	2	A
T4804F606B	CAC H_2 Recombiner Division 2 Torus Outboard Suction Isolation Valve	2	A

Duration of the Alternative

The Fermi 2 fourth 10-year IST program interval begins on February 17, 2020, and is scheduled to end on February 16, 2030.

Reason for Request

The licensee states, in part:

> Motor Control Center (MCC) testing is utilized for the subject valves. Appendix III, Paragraph III-6100 allows MCC testing to be used if correlation with testing at the MOV has been established. Correlation with thrust or torque has not been performed for the subject valves. Relief from Appendix III, Paragraph III-6100 is needed to utilize MCC testing for the subject valves without prior correlation with thrust or torque.

Licensee's Proposed Alternative

The licensee states, in part:

The proposed alternative is to conduct periodic MCC testing for these valves to demonstrate operational readiness without prior correlation with thrust or torque. Margin will be expressed in terms of calculated actuator output capability and calculated valve operating requirements. MCC testing will identify any performance-related degradation and analysis of this data will ensure the inservice test interval is appropriate.

The listed valves are all butterfly valves. The valves have high margin between calculated actuator capability and valve operating requirements. The valves are only required to operate under static conditions to meet their design basis function. The valves are classified as Class A under the MOV Joint Owner's Group Periodic Verification (JOG PV) approach since they are only required to operate under static conditions and have bearing and shaft materials that were covered by the JOG PV. Thus, per the JOG PV, these valves are not susceptible to degradation. The valves are low risk per the JOG PV, corresponding to a low safety significant component (LSSC) per III-3720.

The valves are controlled by a limit switch in both directions; the torque switch is removed from the control circuit. Thus, actuator output capability is calculated vs. being determined from torque measurement taken at the torque switch trip event.

Since these valves are only required to operate under static conditions, each static stroke demonstrates their capability to operate under design basis conditions. Only that portion of the closing stroke beyond cessation of motor power (valve seating) would not be monitored by MCC testing as compared to torque measurement at the valve. However, MCC testing includes monitoring during valve unseating. MCC testing can identify newly developed anomalies as well as small changes in valve and actuator performance. Significant changes in valve and/or actuator performance would be necessary to compromise operational capability since margin is high. These anomalies and adverse trends can be detected and assessed without the need for torque measurement.

Fermi 2 has and will continue to conduct numerous MCC tests on each of these valves as well as other plant MOVs. The testing has provided Fermi 2 with the historical data and experience necessary to identify anomalies and/or adverse conditions.

Thus, periodic MCC testing will provide assurance that the valves remain capable of performing under design basis conditions throughout each testing interval.

NRC Staff Evaluation

ASME OM Code Mandatory Appendix III establishes the requirements for preservice and IST to assess the operational readiness of active MOVs in LWR power plants. Section III-3100, "Design Basis Verification Test," requires a one-time test to be conducted to verify the capability of each MOV to meet its safety-related design basis requirements. Section III-3200, "Preservice Test," requires each MOV to be tested during the preservice test period or before implementing IST. Section III-6100, "Acceptance Criteria," states, in part, that the Owner shall establish methods to determine acceptance criteria for the operational readiness of each MOV within the scope.

The licensee proposed alternative states that current testing of the valves listed in Table 5 of this SE is completed by performing diagnostic testing at the MCC. The diagnostic testing uses data acquired from the MCC (e.g., voltage, current) to determine the condition and operability of the MOV. Data acquisition systems use patented algorithms to determine the motor output

torque during a valve stroke. With the addition of prior at the valve diagnostic testing, users can correlate the data to determine the stem thrust and/or torque of the valve using only the measured electrical parameters. Data acquisition systems can also perform condition monitoring by using frequency domain analysis. Parameters that can be monitored include motor speed, drive sleeve rotation frequency, motor pinion frequency, rotor bar frequency, motor slip pole frequency, stator slot frequency, and worm gear tooth mesh frequency.

The licensee has proposed to conduct diagnostic testing to demonstrate valve operational readiness by performing testing at the MCC. In lieu of developing at the valve correlation test data, the licensee will monitor valve parameters for degradation using MCC diagnostic testing and rely on the calculated actuator capability and the calculated valve operating requirements. These calculated values use conservative values that are based on the results of the final JOG testing program which determined these style valves are not susceptible to valve degradation over time. The NRC staff reviewed the final JOG testing program and approved its use with conditions (ADAMS Accession No. ML061280315). Confidence in using the calculated values is assured since the valves are only required to operate under static conditions (no pressure or flow) and that valve operation is validated at least once every 2 years per the exercise requirement of Mandatory Appendix III, Section III-3610, “Normal Exercising Requirements.” The NRC staff concludes that the proposed alternative provides an acceptable level of quality and safety.

4.0 CONCLUSION

As set forth above, the NRC staff finds that the proposed alternatives described in RRs VRR-003, VRR-006, and VRR-009, provide an acceptable level of quality and safety for components listed in Tables 2, 3, and 5 of this SE. Accordingly, the NRC staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

As set forth above, the NRC staff determined that the proposed alternatives VRR-002 and VRR-008 provide reasonable assurance that the components listed in Tables 1 and 4 of this SE are operationally ready. Accordingly, the staff concludes that the licensee has adequately addressed all the regulatory requirements set forth in 10 CFR 50.55a(a)(z)(2).

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

Therefore, the NRC staff authorizes the proposed alternatives in RRs VRR-002, VRR-003, VRR-006, VRR-008, and VRR-009, for the fourth 10-year IST interval at Fermi 2 which is currently scheduled to start on February 17, 2020, and end on February 16, 2030.

Principle Contributor: Michael Farnan, NRR

Date: January 24, 2020

SUBJECT: FERMI 2 - ISSUANCE OF RELIEF RE: PROPOSED ALTERNATIVE REQUEST NOS. VRR-002, VRR-003, VRR-006, VRR-008, AND VRR-009 ASSOCIATED WITH FOURTH TEN YEAR INTERVAL INSERVICE TESTING OF VARIOUS VALVES (EPID L-2019-LLR-0048, EPID L-2019-LLR-0049, EPID L-2019-LLR-00457, EPID L-2019-LLR-0051 AND EPID L-2019-LLR-0059) DATED JANUARY 24, 2020

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