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10 CFR 50.55a

April 5, 2016
NRC-16-0028

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

- References:
- 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
 - 2) Detroit Edison's Letter to NRC, "Submittal of the Inservice Testing Program Relief Requests for Pumps and Valves- Third Ten-year Interval," NRC-09-0064, dated November 3, 2009 (ML093140302)
 - 3) NRC Letter to Detroit Edison, "Fermi 2 – Evaluation of Relief Request Nos: PRR-004, PRR-005, PRR-007, and PRR-010 for the Third 10-Year Interval Inservice Program (TAC Nos. ME2552, ME2553, ME2554, ME2559)," dated July 6, 2010 (ML101670372)

Subject: Submittal of Revised Relief Request No. PRR-007
for the Inservice Testing Program Third 10-Year Interval

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (z)(1), DTE Electric Company (DTE) hereby requests NRC approval of the enclosed revision to relief request, PRR-007, for the Fermi 2 Power Plant.

In Reference 2, DTE submitted relief requests for the third Inservice Testing (IST) Program 10-year interval at Fermi 2 for NRC review and approval. Specifically, PRR-007 requested relief from the American Society of Mechanical Engineers (ASME) OM Code Sections ISTB-5123 and ISTB-5223, which address comprehensive pump testing. The NRC's approval of relief request PRR-007 in Reference 3 stated that certain identified pumps would be tested within +/- 20% of the pump best efficiency point flow rate while the rest of the identified pumps would be tested within +/- 20% of the pump design accident flow rate. DTE has determined that the Residual Heat Removal (RHR) Service Water pumps which were previously classified in References 2 and 3 as being tested within +/- 20% of pump design accident flow rate should instead be tested within +/- 20% of pump best efficiency point flow rate. Therefore, DTE is hereby submitting a revision to relief request

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PRR-007. NRC approval of the proposed alternative is requested for the remaining duration of the Fermi 2 third IST 10-year interval which started on February 17, 2010.

DTE requests NRC approval of this relief request within one calendar year of the date of this letter.

No new commitments are being made in this submittal.

Should you have any questions or require additional information, please contact Mr. Alan I. Hassoun of my staff at (734) 586-4287.

Sincerely,



Keith J. Polson
Site Vice President

Enclosure: Revised Relief Request PRR-007 for the IST Third 10-Year Interval

cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 5, Region III
Regional Administrator, Region III
Michigan Public Service Commission
Regulated Energy Division (kindschl@michigan.gov)

**Enclosure to
NRC-16-0028**

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

Revised Relief Request PRR-007 for the IST Third 10-Year Interval

10 CFR 50.55a Relief Request PRR-007, Revision 1
Relief from Comprehensive Pump Testing
Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1)
Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump No.	Description	ASME Class	Vertical Line Shaft Pump
E1102C002A	RHR Pump A	2	No
E1102C002B	RHR Pump B	2	No
E1102C002C	RHR Pump C	2	No
E1102C002D	RHR Pump D	2	No
E1151C001A	RHR Service Water Pump A	3	Yes
E1151C001B	RHR Service Water Pump B	3	Yes
E1151C001C	RHR Service Water Pump C	3	Yes
E1151C001D	RHR Service Water Pump D	3	Yes
E4101C001	High Pressure Coolant Injection Pump	2	No
P4400C001A	Emergency Equip Cooling Water Div 1 Pump	3	No
P4400C001B	Emergency Equip Cooling Water Div 2 Pump	3	No
P4500C002A	Emergency Equip Service Water South Pump	3	Yes
P4500C002B	Emergency Equip Service Water North Pump	3	Yes
R3001C005	EDG 11 DG Service Water Pump	3	Yes
R3001C006	EDG 12 DG Service Water Pump	3	Yes
R3001C007	EDG 13 DG Service Water Pump	3	Yes
R3001C008	EDG 14 DG Service Water Pump	3	Yes
T4100C040	South CCHVAC Chilled Water Pump	3	No
T4100C041	North CCHVAC Chilled Water Pump	3	No

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Edition, No Addenda

3. Applicable Code Requirement

ISTB-5123 – Comprehensive Pump Testing for Centrifugal Pumps

ISTB-5223 – Comprehensive Pump Testing for Vertical Line Shaft Pumps

10 CFR 50.55a Relief Request PRR-007, Revision 1
Relief from Comprehensive Pump Testing

4. Reason for Request

Pursuant to 10 CFR 50.55a, “Codes and Standards,” paragraph (z)(1), relief is requested from the requirements of ASME OM Code ISTB-5123 and ISTB-5223. The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

Table ISTB-3400-1 specifies a biennial frequency for Comprehensive Pump Testing (CPT) for Group A and Group B pumps. ISTB-5123 describes the specific requirements for performance of CPT for centrifugal pumps. Performance of the biennial CPT on the identified pumps are unnecessary since the existing quarterly pump tests are performed at sufficient flow rate to adequately monitor for pump degradation.

5. Proposed Alternative and Basis for Use

Fermi 2 proposes to perform the quarterly testing of these pumps individually at their existing test flow-rates or higher using 0.5 % accuracy requirements for determining pump differential pressure (DP). Furthermore, Fermi 2 will utilize a maximum acceptable DP limit of 106% or lower for quarterly testing which is also consistent with recent Code changes applicable to CPT.

The 2004 edition of the ASME OM Code (Section ISTB-3300) requires that CPT be performed within 20% of the design flow rate. This can be interpreted as either the design accident flow rate, design point, or the best efficiency point provided that the testing is performed in a region of the pump curve where there is a linear flow to head relationship. This is necessary to properly monitor for degradation. Table 1 below describes where each of the pumps is tested with respect to pump curve or design requirements.

Table 1

Pump	+/- 20% Design Accident Flow Rate	+/- 20% Best Efficiency Point Flow Rate	Linear Region of Pump Curve
RHR	✓		✓
RHR Service Water		✓	✓
High Pressure Coolant Injection	✓		✓
Emergency Equipment Cooling Water	✓		✓
Emergency Equipment Service Water		✓	✓
DG Service Water		✓	✓
CCHVAC Chilled Water	✓		✓

10 CFR 50.55a Relief Request PRR-007, Revision 1
Relief from Comprehensive Pump Testing

ASME Code Case OMN-18 will allow owners to perform a Group A test in lieu of the CPT if the Group A test is conducted at the CPT flow rate using pressure instruments that meet the CPT accuracy requirements. The basis behind this change is that quarterly Group A pump testing performed at the CPT flow rate is more effective in assessing the pumps' operational readiness, through trending, than a Group A test at lower flows in conjunction with a biennial CPT. Quarterly testing at CPT equivalent flow rates provides accurate data eight times as often as the CPT for trending purposes. This data is on a linear sloped portion of the pump curve where small changes in pump hydraulic performance are more easily detected. Therefore, when the actual CPT is identical to what would amount to a Group A test with the same instrumentation, there is no added value in performing a separate CPT with reduced required action limits.

In conclusion, using the provisions of this relief request as an alternative to the specific CPT requirements of ISTB-5123 and ISTB-5223 will provide adequate indication of pump performance, permit early detection of component degradation, and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(z)(1), Fermi 2 requests relief from the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the remainder of the third 120 month interval.

7. Precedents

- ASME has approved Code Case OMN-18 which will allow for the substitution of quarterly Group A pump testing in lieu of CPT. As a conservative exception to OMN-18, Fermi 2 will be imposing a tighter maximum DP acceptance criteria of 106% to quarterly testing.
- Fermi 2 – Evaluation of Relief Request Nos: PRR-004, PRR-005, PRR-007, and PRR-010 for the Third 10-Year Interval Inservice Program (TAC Nos. ME2552, ME2553, ME2554, ME2559), dated July 6, 2010 (ML101670372)