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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

DETROIT EDISON COMPANY

WOLVERINE POWER SUPPLY COOPERATIVE, INCORPORATED

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

Fermi-2 Inservice Test (IST) program of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda, as required by 10 CFR 50.55a(g). However, 10 CFR 50.55a(g)(6)(i) authorizes the Commission to grant relief from ASME Code requirements upon making the necessary findings.

By letter dated September 26, 1989, Detroit Edison Company (DECo) requested relief from ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition, Winter Addendum 1981. The relief is sought from the exercising frequency requirements of Paragraph IWV-3522 for check valves E11-F408 and E11-F409. The licensee's proposal and NRC staff evaluation is presented below.

2.0 RELIEF REQUEST

The licensee has requested relief from the exercising frequency requirements of Section XI, Paragraph IWV-3522, for check valves E11-F408 and E11-F409 which perform a thermal relief function for the piping between valve E11-F008 and parallel valves E11-F009 and E11-F608, and proposed to verify flow through these valves during the performance of Appendix J, Type C testing at reactor refueling outages.

2.1 Licensee's Basis for Requesting Relief

Both of these valves are non-testable check valves located inside primary containment and have no remote flow or position indication. Disassembly of these valves for inspection is impractical due to them having seal welded bonnets. Testing these valves inside the drywell with the reactor operating would result in significant radiation doses to test personnel inconsistent with the concept of ALARA in addition to imposing unacceptable personnel hazards associated with entering a nitrogen inerted containment/drywell. Additional problems associated with testing these valves during operations involve the potential exposure of test personnel to reactor pressure when the vent valves are opened and potentially decreasing RHR system reliability by taking the system out of service by closing a normally locked open maintenance valve, E11-F067, isolating that portion of the system.

It is proposed that these check valves be exercised while the penetration is isolated for the required 10 CFR Part 50, Appendix J leak rate tests. Testing these check valves at this time would accomplish the following:

1. Maximize RHR availability.

2. Minimize time spend in the drywell consistent with the concept of ALARA.

3. Existing leak rate test procedures would easily facilitate the air testing/exercising of these check valves.

4. Minimize personnel hazards associated with the test.

5. Provide a large pressure drop across the valves insuring the valves will perform their design function and virtually assuring the valves are exercised fully open.

These valves serve as thermal relief path and as such have no design flow. All that is required is that they open to relieve the hydraulic pressure between E11-F009, E11-F008 and E11-F608 (approximate volume of 280 gallons) produced by the thermal expansion of water in an isolated volume.

Since these valves are designed such that they begin to unseat at approximately 1 psid and are fully open at 4 psid, the application of Type C pressure/flow across the valves (56.5 psig) provides assurance that the valves are exercised fully open and insures these valves are capable of performing their design function.

Specifically, these valves will be tested by applying Type C pressure upstream of the check valves and verifying flow their associated vent valves (E11-F425, E11-F091) are opened.

These valves will be tested open during reactor shutdown for refueling, or at other convenient intervals, but in no case at intervals greater than two years.

2.2 Evaluation

IWV-3520 requires check valves be exercised to their safety function position(s) quarterly, if practical, or during cold shutdowns. These are simple check valves which do not have position indication or external operators or other means to force the obturator open. These valves are also located inside containment and inaccessible during power operation, therefore, it would be necessary to establish flow through these valves in order to exercise them open quarterly. It is impractical to establish flow through these check valves during power operations because they are located on a section of piping that is isolated by normally closed motor operated valves which must remain closed during power operations to prevent overpressurization of low pressure RHR system piping from the higher pressure reactor coolant system.

During cold shutdowns, it is impractical to exercise these valves open with flow because the associated system is in use for residual heat removal operations and the necessary system configuration sets up a reverse flow differential pressure across these valves which prevents them from opening.

It would be possible to establish flow through these valves by entering containment and operating manual isolation and vent valves, however, this is not practical because the containment normally has an inerted atmosphere during cold shutdowns of a short duration which would make containment entry a personnel hazard. It is impractical to disassemble, inspect, and manually exercise these valves because the valve bonnets are seal welded. Disassembly would required grinding off the seal welds and then rewelding after completing the procedure, this process could result in valve damage.

The licensee's proposal to exercise these valves with air flow during the performance of the Appendix J, Type C, leak rate test of the associated containment isolation valves verifies that these valves are capable of opening to relieve pressure in the isolated header. This test does not provide a quantified flow rate that assures the valves are exercised to their full open position, however, given their safety function, this test provides a reasonable assurance of the valves ability to perform their safety function.

Based on the impracticality of exercising valves E11-F408 and E11-F409 quarterly or during cold shutdowns, the burden on the licensee if these Code requirements were imposed, and considering the proposed alternate testing, relief should be granted from the Section XI requirements as requested.

3.0 CONCLUSION

Based on the review summarized herein, the staff concludes that the relief and alternative testing of valves E11-F408 and E11-F409 imposed through this document provide reasonable assurance that the acceptable level of quality and safety intended by the ASME Code will be satisfied. The staff has determined that pursuant to 10 CFR 50.55a(g)(6)(i) granting relief where the testing requirements are impractical is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest considering the burden that could result if the requirements were imposed on the facility.

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Date: February 1, 1990