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Detroit Edison



10CFR50.92

March 23, 1999
NRC-99-0025

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

Reference: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Proposed Technical Specification Change
(License Amendment) to Modify the Recirculation
Pump Discharge Valve Surveillance Requirement

Pursuant to 10CFR50.90, Detroit Edison hereby proposes to amend the Fermi 2 Plant Operating License NPF-43, Appendix A, Technical Specifications (TS). The proposed changes will modify TS Surveillance Requirement 4.4.1.1.1 to require each recirculation pump discharge valve be demonstrated OPERABLE at least once every 18 months and will delete footnote * that applies to TS 4.4.1.1.1 and state "* Not Used." The surveillance test frequency reflected in the current Technical Specifications and in the Improved Technical Specifications appears to be inconsistent with the requirements for other safety-related valves. Fermi 2 has initiated efforts to submit a traveler for the improved Standard Technical Specifications to address the generic issue of the surveillance test frequency.

Currently, performing the surveillance testing in accordance with the TS verifies the valves' ability to perform their safety function which is to close. However, when the valves are restored to their normally open position, minor leakage occurs through the valve packing. To minimize this leakage, backseating of the valves is performed which requires entry into the drywell. This can result in personnel being exposed to a high temperature environment and increased radiation exposure. It is Detroit Edison's intent to correct this situation during the next refueling outage currently scheduled for March 2000. As the proposed amendment is reviewed, the NRC staff will be apprised

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of our progress to improve the material condition of these valves. There are no new commitments made in this letter.

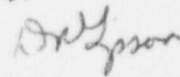
Enclosure 1 provides a description and evaluation of the proposed TS changes. Enclosure 2 provides an analysis of the issue of significant hazards consideration using the standards of 10CFR50.92. Enclosure 3 provides the marked up page of the existing TS to show the proposed changes and a typed version of the affected TS page with the proposed changes incorporated.

Detroit Edison has reviewed the proposed TS changes against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor significantly change the types or significantly increase the amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, Detroit Edison concludes that the proposed TS changes meet the criteria provided in 10CFR51.22(c) (9) for a categorical exclusion from the requirements for an Environmental Impact Statement or an Environmental Assessment.

Detroit Edison requests that the NRC approves and issues these changes by June 1, 1999, with a 90-day implementation time. The proposed amendment is needed to minimize personnel radiation exposure and industrial safety hazards if a plant shutdown to Mode 3 is required. These changes affect the content of the Fermi Improved Technical Specifications (ITS) that are currently under NRC review. The ITS submittal will be updated to reflect this proposal in the planned update of ITS Section 3.5 currently scheduled for June 1999.

Should you have any questions or require additional information, please contact Mr. Norman K. Peterson of my staff at (734) 586-4258.

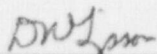
Sincerely,



Enclosures

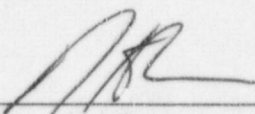
cc: A. J. Kugler
A. Vogel
NRC Resident Office
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

I, DOUGLAS R. GIPSON, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.



DOUGLAS R. GIPSON
Senior Vice President, Nuclear Generation

On this 23rd day of March, 1999 before me personally appeared Douglas R. Gipson, being first duly sworn and says that he executed the foregoing as his free act and deed.



Notary Public

NORMAN K. PETERSON
Notary Public, Monroe County, MI
My Commission Expires July 24, 2002

ENCLOSURE 1

**FERMI 2 NRC DOCKET NO. 50-341
OPERATING LICENSE NO. NPF-43**

REQUEST TO REVISE TECHNICAL SPECIFICATIONS:

**REVISION OF SURVEILLANCE REQUIREMENT FOR THE
RECIRCULATION PUMP DISCHARGE VALVES**

**DESCRIPTION AND EVALUATION OF
THE PROPOSED CHANGES**

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DESCRIPTION

The proposed changes to the Technical Specifications (TS) 4.4.1.1.1 will modify the frequency that each recirculation pump discharge valve is demonstrated OPERABLE by cycling each valve through at least one complete cycle of full travel from "each STARTUP* prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER," to "at least once per 18 months;" delete footnote * that applies to TS 4.4.1.1.1 and state "** Not Used "

TS surveillance requirement (SR) 4.4.1.1.1 requires that each recirculation pump discharge valve shall be demonstrated OPERABLE by cycling each valve through at least one complete cycle of full travel during each STARTUP* prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER. The footnote states, "*if not performed within the previous 31 days." TS Bases 3/4.4.1 for the recirculation system does not explicitly address this surveillance requirement.

Each recirculation pump discharge valve is a 28-inch, motor-operated gate valve located in the drywell. These valves have one passive and one active safety function. The passive function is to maintain the reactor coolant pressure boundary. The active function is to close in case of a large break loss of coolant accident (recirculation pipe break.) The accident analysis requires all of the following to occur in less than or equal to 72 seconds: emergency diesel generators start to provide power to the bus, the recirculation pump discharge valve in the selected loop is closed, low pressure coolant injection (LPCI) and core spray (CS) pumps are at rated flow, and the LPCI and CS injection valves are open. The valve associated with the selected loop will automatically close on a LPCI loop select logic signal to ensure LPCI injection flow. The LPCI loop select logic is discussed in further detail in the Updated Final Safety Analysis Report, Section 7.3.1.2.4. The recirculation pump discharge valves are discussed in UFSAR Tables 5.2-1 and 5.5-1, and Sections 6.2, 6.3, 7.1, 7.3, and 8.3.

The Fermi 2 Improved Technical Specifications (ITS), that are currently under NRC review, provide the following bases for SR 3.5.1.7 (same as current Fermi TS 4.4.1.1.1). "Cycling the recirculation pump discharge valves through one complete cycle of full travel demonstrates that the valves are mechanically OPERABLE and will close within the allowed accident analysis time frame." The bases for the performance frequency is, "The specified Frequency is once during each reactor startup before THERMAL POWER is >25% RTP [rated thermal power]. However, this SR is modified by a Note that states the Surveillance is only required to be performed if the last performance was more than 31 days ago. Verification during each reactor startup prior to reaching > 25% RTP is an exception to the normal Inservice Testing (IST) program generic valve cycling Frequency of 92 days, but is considered acceptable due to the demonstrated reliability of

these valves. If the valve is inoperable and in the open position, the associated LPCI subsystem must be declared inoperable."

The current TS SR is met by performing stroke time testing in accordance with the Fermi 2 IST Program requirements. The testing is normally performed during Cold Shutdown (Mode 4) or Refueling (Mode 5). Since this testing is performed within 31 days prior to reaching >25% RTP, this testing fulfills the TS requirements. Additional testing is performed by the motor-operated valves (MOV) testing program in accordance with Generic Letter 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves." Surveillance testing procedures specify how to time valve closure and how to verify valve position indication from the control room and from the valve location. If maintenance or a modification is performed on the recirculation pump discharge valves and/or their actuators that could affect valve performance, then MOV testing is normally required prior to returning the valve to service. In all practicality, if the unit does not have forced shutdowns during the operating cycle, the recirculation pump discharge valve surveillance testing is performed at the end of a refueling outage and not performed again until the next refueling outage resulting in a testing interval of approximately 18 months.

Historically, there were two failures to close of the "B" loop recirculation valve, reported in LER 88-032-01 and LER 93-015-01. In LER 88-032-01 failure of the valve to stroke closed was attributed to broken wires and inadequate setting and installation of the valve's torque switch. In LER 93-015-01 the failure resulted from loose or broken wires from the torque switch to the limit switch as a result of vibration induced fatigue. These conditions were corrected at the time of the events. Subsequent experience at Fermi 2 has not indicated any additional concern with the operability of these valves. Each recirculation pump discharge valve has successfully stroked at least 20 times since the 1993 LER.

The proposed change is being requested to bring the testing of the recirculation discharge valves into the same surveillance testing frequency of the LPCI system and to minimize testing that currently requires drywell entry to backseat the valves to minimize reactor coolant system leakage. During the last operating cycle, forced outages and operational events required entering Mode 2 ten times. Since several Mode 2 entries were within the 31 days allowed by the TS for performing recirculation valve closure testing, the discharge valves were stroke tested seven times to meet the current TS surveillance requirements.

EVALUATION OF THE PROPOSED CHANGES

The proposed changes to the Technical Specifications (TS) 4.4.1.1.1 will modify the frequency that each recirculation pump discharge valve is demonstrated OPERABLE by cycling each valve through at least one complete cycle of full travel from "each STARTUP* prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER," to "at least once per 18 months;" delete footnote * that applies to TS 4.4.1.1.1 and state "** Not Used."

This evaluation discusses the comparable TS requirements for the recirculation pump discharge valves and the LPCI system and the operational impact of performing testing in accordance with the current TS SR.

NUREG-1433, Revision 1, "Standard Technical Specifications (STS), General Electric Plants, BWR/4," moved the requirement to test the recirculation pump discharge valves to the Emergency Core Cooling System (ECCS) specifications, specifically SR 3.5.1.6 (Fermi Improved TS Section 3.5.1.7 and current TS 4.4.1.1.1.) The surveillance requirements for the recirculation pump discharge valves should serve a similar purpose to the surveillance requirements of the LPCI system valves since the accident analysis requires the recirculation pump discharge valves to close and the LPCI valves to open to ensure LPCI flow to the reactor vessel. A comparison of the current TS LPCI surveillance requirements and the need for a similar requirement for the recirculation pump discharge valves is presented below:

For the LPCI system SR 4.5.1.a requires at least every 31 days verifying each valve, manual, power operated or automatic, in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position. An exception allows an automatic valve to be in a different position for another mode of operation if the valve is capable of automatic return to its ECCS position when an ECCS signal is present. A 31-day position verification is not required since the recirculation pump discharge valves are automatic valves (MOV) that receive an ECCS (LPCI loop select logic) signal.

SR 4.5.1.c.1 requires at least once every 18 months the performance of a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded from this test. The recirculation pump discharge closure testing performed in accordance with the IST program as supplemented by the periodic MOV Testing Program fulfills this 18-month LPCI testing requirement.

According to the bases for STS SR 3.5.1.6 cycling of the valves demonstrates that the valves are mechanically operable. The reason for requiring the test to be performed during each startup, if it is not performed in the previous 31 days, is not clearly documented. As discussed in the following paragraphs, the TS as currently written can require more frequent testing that results in increased unidentified leakage (if valves are not backseated), longer forced outages, significant plant evolutions such as deinerting and inerting containment, additional costs associated with inerting, increased personnel radiation exposure, and increased industrial safety risks without a commensurate increase in nuclear safety.

Currently, the recirculation pump discharge valves have observable packing leaks. To mitigate this leakage, entries into the drywell are performed to manually backseat the valves after stroking. The backseat for these valves is not a wedging style seat. Current engineering calculations for these MOVs allow the application of approximately 30,000 pounds thrust loading into the

backseat. Ensuring the valves are backseated has contributed to very low leakage rates, typically less than 0.1 gallons per minute unidentified leakage. Low leakage rates from the packing of the discharge valves ensures other sources of unidentified leakage can be measured and are not masked by the packing leaks. Additionally, low leakage minimizes contamination in the vicinity of the valves. Last cycle, stroke testing was required during hot shutdown. This required entering the drywell to backseat the valve which contributed to increased personnel dose. The drywell cannot be entered when it is inerted. Deinerting and inerting the containment results in increases in outage times and additional costs associated with the volume of nitrogen required to inert. Because the temperature inside the drywell remains high during hot shutdown, there is an increased industrial safety risk.

The MOV program established as a result of Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," has increased the assurance of mechanical operability. The continued MOV periodic testing required by Generic Letter 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves," includes test frequencies that are based in part on the risk significance of the valves being tested and on the valve's performance. The current testing frequency for these valves in the MOV periodic testing program is every third refueling outage. The successful implementation of these programs support extending the surveillance testing frequency of the recirculation valves to an 18-month interval.

The Fermi IST Program for the first 10-year interval required performing stroke testing of these valves at every cold shutdown. This frequency will still be required with the proposed changes unless otherwise evaluated in accordance with 10 CFR 50.55a(f).

The test frequency as required by the IST program and supplemental MOV testing will provide reasonable assurance that the recirculation discharge valves can perform their required safety function.

The proposed TS change to delete footnote * that applies to TS 4.4.1.1.1 and state "** Not Used." is an administrative change since the footnote is no longer applicable based on the proposed wording of TS SR 4.4.1.1.1. There is no additional safety significance to the change that was not addressed during the discussion of SR 4.4.1.1.1.

ENCLOSURE 2

**FERMI 2 NRC DOCKET NO. 50-341
NRC LICENSE NO. NPF-43**

REQUEST TO REVISE TECHNICAL SPECIFICATIONS:

**REVISION OF SURVEILLANCE REQUIREMENT FOR THE REACTOR
RECIRCULATION PUMP DISCHARGE VALVES**

10CFR50.92 SIGNIFICANT HAZARDS CONSIDERATION

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In accordance with 10CFR50.92, Detroit Edison has made a determination that the proposed amendment involves no significant hazards consideration. The proposed Technical Specification (TS) changes described above do not involve a significant hazards consideration for the following reasons:

1. The change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to the Technical Specifications (TS) would modify the frequency of cycling the recirculation pump discharge valves from "each STARTUP* prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER" to "at least once per 18 months," and replace the footnote applicable to TS 4.4.1.1, "*If not performed in the previous 31 days" with " *Not Used." The change in testing frequency does not affect the probability of an accident since the valve testing is not related to accident initiation sequences. Consequences of accidents are not significantly increased because the proposed testing interval provides reasonable assurance that the valves will function. Testing of the valves will still be performed on a frequency that is allowed by TS if no events occur that require entry into Mode 3 or Mode 4. Therefore, the change will not involve a significant increase in the probability or consequences of an accident previously evaluated. Testing the valves in accordance with the inservice testing (IST) program on the same testing frequency as testing performed for the low pressure coolant injection system, provides adequate assurance that the valves can perform their safety function and will not increase the consequences of an accident previously evaluated. The change to the footnote is administrative in nature and will have no effect on the probability of an accident and will not increase any safety consequences.

2. The change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes revise performing the testing of the recirculation pump discharge valves from "prior to Startup* not to exceed 25% of rated thermal power." to "at least once per 18 months" and replace the footnote applicable to TS 4.4.1.1 " *If not performed in the previous 31 days" with " *Not Used" does not result in a new accident precursor since the test only verifies that the valve can close which is its safety function. Deleting the information contained in footnote "*" that applies to TS 4.4.1.1.1 and designating it as " * Not Used." is administrative in nature with no safety significance. Therefore, no different type of accident from any previously evaluated is introduced.

3. The change does not involve a significant reduction in the margin of safety.

The proposed changes revise the frequency of cycling the recirculation pump discharge valves from "each STARTUP* prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER" to "at least once per 18 months" and replace the footnote applicable to TS 4.4.1.1 "**If not performed in the previous 31 days" with " *Not Used." Altering the test frequency does not change valve stroke time or other performance or design characteristics related to the safety function of the valves. The potential for failure of the valve to close is not changed as a result of the proposed change since the same frequency is allowed by the current TS if no events occur that require entry into Mode 3 or Mode 4. Performing stroke time testing on a refueling outage basis and MOV testing on a periodic basis does not decrease the margin of safety associated with the valve performing its safety function. Revising footnote * is an administrative change and has no safety consequence. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.