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Detroit Edison

January 28, 1998
NRC-98-0006

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

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

Subject: Proposed Technical Specification Change (License Amendment) - Extension of the Pressure Isolation Valves' (PIVs) Leak Rate Test Surveillance Interval

In accordance with 10CFR50.90, Detroit Edison Company is proposing to amend Operating License No. NPF-43 for the Fermi 2 plant by modifying Technical Specification Section 4.4.3.2.2.a. This application is requesting to change the surveillance interval in TS 4.4.3.2.2.a. by extending it from the current 18 month testing interval to a 24 month testing interval to be consistent with American Society of Mechanical Engineers (ASME) code requirements for surveillance testing and improve the flexibility of scheduling Local Leak Rate Testing (LLRT) of the reactor coolant system pressure isolation valves (PIVs).

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Enclosure 1 provides a description and evaluation of the proposed change.

Enclosure 2 provides the significant hazards consideration assessment using the standards in 10CFR50.92.

Enclosure 3 provides a marked up page of the existing Technical Specification to show the proposed change and a typed version of the affected Technical Specification page with the proposed change incorporated.

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Detroit Edison has evaluated the proposed Technical Specification change against the criteria of 10CFR50.92 and determined that No Significant Hazards Consideration is involved. The proposed change is consistent with the Improved Technical Specification requirements. The Fermi 2 Onsite Review Organization has reviewed and recommends approval of the proposed changes. The Nuclear Safety Review Group has reviewed the proposed Technical Specification change and concurs with the enclosed determination. The proposed change will support an extended start date for the plant's next refueling outage. Approval of this License Amendment is needed by June 30, 1998. Detroit Edison is requesting 60 days following issuance to implement the License Amendment. In accordance with 10CFR50.91, Detroit Edison has provided a copy of this letter to the State of Michigan.

If you have any questions, please contact Norman K. Peterson (734) 586-4258.

Sincerely,

Enclosures

cc: A. B. Beach
B. L. Burgess
G. A. Harris
A. J. Kugler
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 28th day of January 1998 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

ROSALIE A. ARMETTA
NOTARY PUBLIC - MONROE COUNTY, MI
MY COMMISSION EXPIRES 10/11/99

ENCLOSURE 1

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

REQUEST TO EXTEND PIVs TS SURVEILLANCE INTERVAL

DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

INTRODUCTION:

Detroit Edison requests that the Technical Specification (TS) contained in Appendix A to the Fermi 2 Operating License NPF-43 be amended to revise TS Section 4.4.3.2.2.a. The amendment includes extending the leak rate test surveillance requirements for the reactor coolant system (RCS) pressure isolation valves (PIVs) from (the current) 18 month to a 24 month test interval.

This License Change Application provides a discussion, description and evaluation of the proposed TS change, a safety assessment of the proposed change, information supporting a finding of No Significant Hazards Consideration, and information supporting an Environmental Assessment.

DISCUSSION AND DESCRIPTION OF THE PROPOSED CHANGE

The proposed change involves revising TS Section 4.4.3.2.2.a by extending the RCS PIVs leak rate test surveillance interval from 18 to 24 months. TS Section 4.4.3.2.2.a states, "Each reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1 shall be demonstrated OPERABLE by leak testing pursuant to Specification 4.0.5 and verifying the leakage of each valve to be within the specified limit at least once per 18 months." This section is revised by extending the surveillance frequency (shown underlined) from, "... at least once per 18 months" to "... at least once per 24 months". As described above, this is only a change to the surveillance frequency, it does not affect a change to any surveillance requirements nor does it change the way in which the surveillance is performed. Furthermore, the proposed change does not involve any physical changes to plant systems or components.

PIVs perform an isolation function between the high pressure and low pressure portions of systems connected to the RCS. There are several safety systems connected to the reactor coolant pressure boundary that have design pressures below the rated reactor pressure. The low pressure portion of these systems are protected from over pressurization by the PIVs placed in series to form the interface between the high pressure and low pressure portions of these systems. The low pressure portions of these systems are also equipped with relief valves and alarms in the control room that alert the operator of PIV leakage. Leak tight integrity of the PIVs is maintained at acceptable values to prevent over pressurization of the low pressure portions of systems connected to the RCS. Past inservice test (IST) results provide verification that the subject PIVs (refer to Table 1 for listing), comply with TS leakage requirements, as described below.

Based on the above discussion, it is concluded that the proposed change will have a negligible impact on the ability of the PIVs to function as designed. Detroit Edison, therefore, proposes that the Fermi 2 TS Section 4.4.3.2.2.a be revised to reflect the change to the surveillance frequency of the RCS PIVs.

EVALUATION

The proposed Technical Specification change revises the testing periodicity in TS Section 4.4.3.2.2.a from at least once per 18 months to at least once per 24 months. This change provides consistency with the requirements of ASME Section XI of the Boiler and Pressure Code as implemented by Technical Specification 4.0.5 for surveillance testing. This revision allows Detroit Edison greater flexibility for adopting cost-effective scheduling methods for setting intervals to comply with regulatory requirements.

Fermi's ISI/IST Program is committed to ASME Section XI 1980 Edition, Winter 1980 Addenda. The PIVs are classified as Category "A" valves which require a seat leakage test to demonstrate the functional adequacies of the valves. ASME Section XI Paragraph IWV-3422 states that the seat leak tightness tests shall be conducted at least once every 2 years. By extending the test frequency from every 18 months to every 24 months the PIVs will be on the same periodicity as other Category "A" valves. This change only affects the frequency at which the PIVs will be seat leak tested; no other changes are being made to the testing methodology.

Extending the test frequency can increase the probability that an increase in PIV seat leakage will not be detected. Based on past test results, Detroit Edison considers any risk imposed from an increase in seat leakage to be minimal. A review of past test results from 1986 through the present, excluding post maintenance testing, shows a 94.5% passing rate for PIVs (92 tests with 5 failures). The five failures were inboard horizontal swing check valves. One was due to a packing leak that resulted in the loss of the pressure boundary. The valves ability to check flow and protect the low pressure piping was not impacted by the packing leak. The remaining four failures were the result of the inboard low pressure coolant injection check valves failing to close sufficiently during the leakage tests. A corrective action report was written for the failures, the valves were disassembled, and repaired and tested on each occasion. During the fourth refuel outage, the testing methodology for these valves was changed to more accurately represent actual plant conditions. Since the change in testing methodology, these valves have been good performers and there is no reason to believe they will not close and provide the pressure isolation function.

These failures were not of a type that would be detected by a degrading trend under the present testing interval. There have been no instances where both the inboard and outboard valves have failed on the same penetration; thus, there are no cases where the minimum leakage path would have exceeded Technical Specification limits.

Excluding failures, the as-found leakage on PIVs has ranged from 0.001 gpm to 0.576 gpm with the average as-found leakage of 0.119 gpm. These leakage rates are well below the TS Table 3.4.3.2-1 maximum leakage. This shows that there is very little, if any, degradation during the present testing periodicity. The majority of these valves have gone

repeated cycles with no corrective maintenance required to restore the leak tightness of their seats. This further reinforces that extending the testing periodicity from 18 months to 24 months will have very little, if any, impact on PIV seat leakage.

Furthermore, the 24 month testing frequency is supported by NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," which recommends that leak-tests for Category "A" and "A/C" valves be at a frequency of once every two years. Additionally, the "Operation and Maintenance of Nuclear Power Plants" ASME/ANSI OM Part 10 in Subsection 4.2.2.3.(a) also states that leakage rates for other than containment isolation valves shall be tested at a frequency of at least once every 2 years.

SIGNIFICANT HAZARDS CONSIDERATION

In accordance with 10CFR50.92, Detroit Edison has made a determination that the proposed amendment involves no significant hazards considerations. To make this determination, Detroit Edison must establish that operation in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

ENVIRONMENTAL IMPACT

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

CONCLUSION

Based on the evaluation above: 1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and 2) such activities will be conducted in compliance with the Commission's regulations and proposed amendments will not be inimical to the common defense and security or the health and safety of the public. The proposed change is consistent with the Improved Technical Specification requirements. Detroit Edison is requesting 60 days following issuance to implement the License Amendment.

Table 1: Listing of Reactor Coolant System Pressure Isolation Valves by Valve Number

E11-F015A

E11-F015B

E11-F050A

E11-F050B

E11-F008

E11-F009

E11-F608

E21-F005A

E21-F005B

E21-F006A

E21-F006B

E41-F006

E41-F007

E51-F012

E51-F013

ENCLOSURE 2

FERMI 2
NRC DOCKET 50-341
OPERATING LICENSE NPF-43

REQUEST TO REVISE TECHNICAL SPECIFICATIONS:

10CFR50.92 EVALUATION

BASIS FOR SIGNIFICANT HAZARDS DETERMINATION:

The proposed Technical Specification change described in Enclosure 1 does not involve a significant hazards consideration for the following reasons:

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

   The proposed change revises the periodicity of TS Surveillance Requirement (SR) 4.4.3.2.2.a from "At least once per 18 months" to "At least once per 24 months." This change revises the testing periodicity only; no other testing methodology is being affected. The testing periodicity is being revised to be consistent with other Category "A" valves since the Pressure Isolation Valves (PIVs) are classified as Category "A" valves. Both ASME Section XI and NUREG-1482 require Category "A" valves to be leak tested on a periodicity of at least once every 2 years.

   The function of the PIVs is to protect the low pressure portions of safety systems from the RCS pressure. Periodic valve leak rate testing is performed on the PIVs to assure system integrity is maintained and to prevent the design pressure of the low pressure systems from being exceeded. The frequency of the inservice test could increase the probability that an increase in PIV seat leakage may occur. If this were to occur and the leakage was significant (assuming leakage through both the inboard and outboard valves of the same penetration), the excess leakage would be detected by the system leakage detection instrumentation which would require corrective actions to be taken to assure that leakage remained within allowable limits. Considering that past test results show very minimal seat leakage changes over years

of service, the consequences and probabilities resulting from the proposed change is considered minimal.

The proposed change does not impose or eliminate any testing requirements. This change is only a change to the frequency (testing interval) for measuring the seat leakage through the PIVs. The PIVs will continue to be tested in accordance with ASME Code Section XI. This change does not affect any of the parameters or conditions that could contribute to the initiation of any accidents previously evaluated and therefore cannot increase the consequences or probabilities of any accident previously evaluated.

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

The proposed change does not involve a change to the plant design or operation. As a result, the proposed change does not affect any of the parameters or conditions that could contribute to the initiation of any accidents. This change only involves the lengthening of the PIVs' testing frequency from 18 months to 24 months. The method for performing the actual tests are not changed. No new accident scenarios are created by extending the testing intervals. No safety-related equipment or safety functions are altered as a result of this change. Therefore, extending the test frequency does not create the possibility of a new or different kind of accident or malfunction from those previously analyzed.

3. **The proposed TS change does not involve a significant reduction in a margin of safety.**

The proposed change only affects the frequency of the PIVs' seat leakage tests. The frequency is proposed to be extended to reflect the ASME Section XI, 1980 Edition, Winter 1980 Addenda, Section IWV-3422 seat leakage testing periodicity requirement of 24 months. No other testing methodology is being changed. The allowable leakage limits will not be affected by this change. The margin of safety as defined in the bases of any Technical Specification will, therefore, not be reduced by extending the testing periodicity of the subject valves.