



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 38 TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

WOLVERINE POWER SUPPLY COOPERATIVE, INCORPORATED

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated May 11, 1989, the Detroit Edison Company (DECo or the licensee) requested amendment to the Technical Specifications (TS) appended to Facility Operating License No. NPF-43 for Fermi-2. The proposed amendment would revise the TS to reflect the use of sodium pentaborate enriched with the Boron-10 isotope to meet the requirements of the Anticipated Transient Without Scram (ATWS) rule. The proposed changes also correct inconsistencies between Action Statements in TS Sections 3/4.1.5 and 3/4.8.4.5.

2.0 EVALUATION

The requirement to resolve the issue of anticipated transients without scram for Fermi-2 was originally described and reviewed by the staff during the Operating License review process. The results of this review were documented in the staff's Safety Evaluation Report (SER) NUREG-0798 in 1981. Subsequent to that review, the NRC in July 1984 published the ATWS Rule and General Electric prepared a response generic to the NRC ATWS Rule. The staff accepted the General Electric proposed options in 1986. The proposed TS change for Fermi-2 is intended to update the SLCS to conform to presently approved requirements.

The proposed TS changes for Fermi-2 will, in part, ensure that the SLCS will be equivalent in control capacity with an 86 gpm injection rate, using 13 weight percent unenriched sodium pentaborate solution, in a system with a 251 inch diameter reactor vessel. Of the several proposed approaches presented in the General Electric Report, and approved by the NRC, the licensee has chosen to use enriched (in B-10) boron. Use of the equivalency control calculation methods results in a minimum concentration of 9.0 weight percent sodium pentaborate when using an enrichment of 65 atom percent Boron-10 and an injection rate of 41.2 gpm with a reactor vessel diameter of 251 inches. The approach taken by the licensee and the resulting parameter values are reasonable and acceptable.

The changed value of boron enrichment leads to a proposed change in TS Figure 3.1.5.2 identifying required sodium pentaborate solution concentration as a function of gross volume of solvent in the SLCS tank. Temperature requirements to address precipitation concerns require changes to the Surveillance Requirements in TS Section 3/4.1.5 to identify a reduction in the required temperature of the sodium pentaborate solution from 70°F to 48°F. This reduction is allowed since the use of enriched boron leads to a lower concentration and therefore lowers the solution's saturation temperature. The temperature margin between the reactor building's heating system design basis minimum temperature (65°F) and the proposed 40°F is 25 degrees which is reasonable and acceptable.

In a related matter, the licensee has proposed deletion of the reference to SLCS heat tracing in Table 3.8.4.5-1 of TS 3/4.8.4.5. The margin to precipitation of 8 degrees between the TS temperature limit (48°F) and the existing solution's maximum concentration saturation temperature (40°F) is retained and is met without the use of SLCS tank heaters. Since the reduced TS temperature limit of 48°F may be met without the supplemental heat tracing this proposal is acceptable. As a result of this change, references to heat tracing have been deleted from Surveillance Requirements 4.1.5a.3, 4.1.5.d.3 and a footnote to 4.1.5.d.3. The words "reactor vessel" have been replaced with "explosive valves" in Surveillance Requirement 4.1.5.d.3. These changes are made to be consistent with the LCO changes and are acceptable.

By selection of the enriched boron option of compliance with the ATWS Rule, the licensee, following an approved approach, has elected to have the sodium pentaborate formulated at the chemical vendor's facility. The boron enrichment test will therefore be done prior to acceptance for use on the site. The appropriate content of the SLCS will then be verified by monitoring the system volume, concentration and temperature using existing TS 4.4.5 a and b surveillance requirements. These are all acceptable procedures. An additional surveillance requirement 4.1.5.e has been proposed which requires periodic checks of the Boron-10 enrichment in the SLCS. This is in accordance with discussions during the GE topical report review and is acceptable.

The licensee has proposed a modification to TS 3.8.4.5 ACTION b which allows one SLCS isolation device (tank heater circuit breaker) identified in TS Table 3.8.4.5-1 to be removed from service under the proposed condition that other requirements of the ACTION Statement are met. Since the tank heaters are only used during mixing operations to establish the required solution operating parameters, the requirement to declare one redundant SLCS component inoperable will not unnecessarily lead to a system level ACTION statement in TS 3.1.5. Based on the reduced need for maintaining the elevated temperature and the infrequent activity involved, the staff finds the proposal acceptable.

The TS BASES Section have been revised to correctly reflect the proposed LCO and Surveillance Requirement changes.

Based on the above evaluation, the staff finds the proposed changes to the TS are acceptable since they are based on an approval of a generic response to the ATWS Rule.

3.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact have been prepared and published in the Federal Register on August 31, 1989 (54 FR 36071). Accordingly, based upon the environmental assessment, we have determined that the issuance of this amendment will not have a significant effect on the quality of the human environment.

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that (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 the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: September 1, 1989