



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 60 TO FACILITY OPERATING LICENSE NO. NPF-43

DETROIT EDISON COMPANY

FERMI-2

DOCKET NO. 50-341

1.0 INTRODUCTION

By letter dated February 1, 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 change Trip Setpoints and Allowable Values for Isolation Actuation Instrumentation which are listed in TS Table 3.3.2-2, Isolation Actuation Instrumentation Setpoints. The affected setpoints are currently indicated to be initial setpoints since the operational information necessary to finalize the setpoints came from the startup test program which was completed in November 1988. The licensee proposes to finalize the setpoints which will reflect the startup test program information. In order to enhance safe plant operation, some of the affected setpoints will be changed from their initial values. The affected setpoints are for the following trip functions:

Primary Containment Isolation - Main Steam Tunnel Temperature - High

Secondary Containment Isolation - Fuel Pool Ventilation Exhaust
Radiation - High

Reactor Water Cleanup System Isolation - Heat Exchanger/Pump/High Energy
Piping Area Temperature - High

Reactor Water Cleanup System Isolation - Heat Exchanger/Pump Area/Phase
Separator Area Ventilation Delta
Temperature - High

Reactor Core Isolation Cooling (RCIC) System Isolation - RCIC Equipment Room
Temperature - High

High Pressure Coolant Injection (HPCI) System Isolation - HPCI Equipment Room
Temperature - High

2.0 EVALUATION

The proposed TS finalizes the setpoints for three trip functions with the same setpoint as initially provided in the TS. The trip functions in this category are the Primary Containment Isolation on Main Steam Tunnel high temperature and the Reactor Water Cleanup System (RWCU) isolation on piping area high temperature and ventilation delta temperature.

The Main Steam Line Tunnel Temperature - High Signal acts to initiate a primary Containment isolation of the Main Steam System in the event of a high energy piping rupture in the steam tunnel. The automatic closure of these valves act both to prevent the excessive loss of reactor coolant and to prevent the release of a significant amount of radioactive material from the reactor coolant boundary.

The two RWCU system Temperature signals act to isolate the RWCU system from the nuclear process system upon indication of a pipe break in the areas monitored. The signal closes the primary containment isolation valves to preclude the loss of water inventory in the reactor.

The licensee has validated the existing Trip Setpoints and Allowable Values for these three Trip Functions. Startup testing information has confirmed that the existing setpoint values ensure that the trip functions occur prior to exceeding the values for the parameters used in any accident analysis and that an acceptable margin exist from normally expected operating temperatures to avoid spurious isolation actuation.

Therefore the proposed TS deletes the ** footnote notation, which denotes that the setpoint is an initial value, from the Trip Setpoint and Allowable Value for these trip functions. The staff finds the proposed changes acceptable.

The Secondary Containment Isolation setpoint for Fuel Pool exhaust radiation level is proposed to be lowered from its initial value. The Fuel Pool Ventilation Exhaust Radiation - High signal acts to initiate a secondary containment isolation, start the Standby Gas Treatment System (SGTS) and shift the Control Room Emergency Filtration System (CCHVAC) to the recirculation mode.

The licensee has determined that the limiting consideration for the Trip Setpoint and Allowable Value for the Fuel Pool Ventilation Exhaust Radiation - High signal is that of ensuring that the signal terminates a radiation release at a point conservative with respect to the radiation limits in 10 CFR Part 20. The revised Off-site Dose Calculation Manual (ODCM) submitted to the staff on October 14, 1984 committed to adjusting this trip set point to levels conservative to 10 CFR Part 20. In order to assure that 10 CFR Part 20 limits are not exceeded the trip setpoint and allowable value for this signal must be reduced from their initial values of ≤ 10 millirem/hr and ≤ 15 millirem/hr respectively. The proposed final trip setpoint is ≤ 5 millirem/hr with an allowable value of ≤ 6 millirem/hr.

The proposed changes enhance safety by lowering the trip setpoint and allowable value causing the isolation of secondary containment and the starting of the SGTS and placing the CCHVAC in the recirculation mode at lower radiation levels. These lower levels assure that the limits of 10 CFR Part 20 are not exceeded. Therefore the staff finds the proposed changes to the TS acceptable.

The licensee has determined that the equipment room high temperature setpoints for the HPCI and RCIC systems should be increased to avoid spurious isolation actuation during normal system operation. The initial trip setpoints of $\leq 150^{\circ}\text{F}$ are proposed to be finalized at $\leq 154^{\circ}\text{F}$. The associated allowable values are proposed to be finalized at $\leq 162^{\circ}\text{F}$.

These signals act to isolate the respective system from the nuclear process system upon indication of a break of the HPCI or RCIC systems in the areas monitored. The signals close the appropriate system primary containment isolation valves. In the event of a steam line break in the affected room during system operation, the small setpoint increase could delay the isolation actuation slightly. However, any such delay has been determined to have insignificant impact upon the isolation function. The rate of room temperature increase during a steam line break is extremely rapid. As a result, the time required to reach the isolation setpoint is essentially unchanged by the small setpoint increase.

The proposed TS provide a safety improvement by reducing the probability of a spurious isolation actuation of the system during normal operation. The change eliminates unnecessary challenges to the isolation valves and associated equipment. In addition, the change increases the systems availability and reduces the probability that the system will fail to perform when required. Therefore the staff finds the proposed change to be acceptable.

In its application the licensee stated that the instrumentation used to detect temperature increase in the RCIC and the HPCI pump rooms are not taken credit for in any accident analysis. The staff strongly disagrees with this position. The staff does not have a problem with the proposed change to the TS for increasing the alarm set points of the instrumentation as indicated above; however the staff will issue a series of questions concerning the Fermi-2 statement on the use of the temperature sensors in the licensee's design basis accident analysis.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. We have determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents which may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

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.

Principal Contributor: John Stang

Date: October 12, 1990