



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 17 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 January 29, 1988, the Detroit Edison Company (DECo or the licensee) requested amendment to the Technical Specifications appended to Facility Operating License No. NPF-43 for Fermi-2. The proposed amendment would modify the Technical Specifications to add two sets of automatic containment isolation valves for the primary containment radiation monitor (PCRM).

2.0 BACKGROUND

The Fermi-2 Containment Leakage Detection System includes a PCRM configured in parallel with the Drywell Hydrogen/Oxygen Sampling System panel. Both systems normally operate during reactor operation and sample the drywell atmosphere from five zones through containment penetrations. The initial isolation design for the PCRM and the Drywell Hydrogen/Oxygen Sampling System is described in Section 6.2.4 of the Fermi-2 Updated Safety Analysis Report. Containment isolation requirements of 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 56, were achieved using a single remote manual isolation valve and a closed piping system outside the containment, instead of one automatic isolation valve inside and one automatic isolation valve outside containment. As stated in Section 6.2.4 of the Commission's Safety Evaluation Report for Fermi-2 (NUREG-0798), this design is acceptable. The design intent was that the PCRM would operate following a loss-of-coolant accident (LOCA) and that the PCRM would be in compliance with the closed system requirements approved as an alternative to GDC 56.

In January 1984, DECo determined that the PCRM did not meet the closed system design requirements for a containment design pressure of 56 psig. Seismic and material certifications provided by the PCRM vendor also were found to be deficient. Two actions were taken by DECo as a result of these findings: (1) the PCRM was reclassified as nonessential following a LOCA and, as such, should be isolated automatically upon receipt of a LOCA signal (the Drywell Hydrogen/Oxygen Sampling panel retained its essential classification); and (2) one automatic isolation valve and one local manual valve were added to each of two branch lines to the PCRM to provide isolation of the reclassified nonessential PCRM. The automatic isolation valve was designed to close on a high drywell pressure signal from the Reactor Protection System.

Following this modification, the configuration provided two barriers in the event of a LOCA, one barrier consisting of the automatic isolation valve and the second barrier was the remote manual isolation valve. DECo later discovered that the use of a remote manual isolation valve as a barrier for a nonessential system (such as the current PCRM design) is not an acceptable alternative to the requirements of GDC 56. By letter dated October 27, 1987, as supplemented by letters dated October 29 and November 2, 1987, DECo requested a temporary exemption from the requirements of GDC 56 of Appendix A to 10 CFR Part 50 until such time as it could complete modifications to the PCRM by providing two barriers, each consisting of two sets of automatic containment isolation valves to meet fully GDC 56 requirements (scheduled to be complete prior to startup from a planned local leak rate test in March 1988).

By letter dated January 29, 1988, DECo submitted proposed Technical Specification changes to upgrade the PCRM isolation design to meet GDC 56.

3.0 EVALUATION

The PCRM is considered as a system important to safety, is one of three systems which is used during normal operation to detect drywell primary system leakage, and is required by Technical Specifications to be operable. The system was originally considered as a closed system. However, a detailed evaluation by DECo showed that the system did not meet all the requirements of a closed system. As a result, valves F450 and F451, along with local manual valves, were added to the system in 1984. Also, at that time, the system was recognized as a non-essential system.

The inlet tap-off line, after the change, consisted of a local manual valve (F063), the added automatic valve (F450), a system isolation valve (F040) located on the skid of the radiation monitor, and the radiation monitor. The system valve is considered as non-safety related, however, it is an automatic valve receiving a high drywell pressure signal. The purpose of this valve is to protect the radiation monitor from excess pressure. The return tap-off has a similar valve arrangement consisting of a manual valve (F064) and automatic valves F451 and F046. Both the inlet and return lines are 3/4" in diameter.

By letters dated October 27, 29, and November 2, 1987, DECo submitted a request for a temporary exemption from the provisions of GDC 56. The exemption request concerned the isolation provisions for the PCRM. The deviations included the lack of a second automatic valve and diversity of isolation signals on the existing automatic valve. By letter dated November 13, 1987, the Commission granted the temporary exemption request.

The exemption permitted postponement of full compliance with GDC 56 for the PCRM isolation until startup following the planned local leak rate testing in March 1988.

By letter dated January 29, 1988, DECo submitted proposed Technical Specification changes to upgrade the PCRM isolation design to meet GDC 56. The proposed Technical Specification changes would modify Technical Specification 3/4.6.3, "Primary Containment Isolation Valves," Table 3.6.3-1, to denote four automatic isolation valves for the PCRM System. The four valves (T50-F450, T50-F451, T50-F455 and T50-456) would provide automatic isolation on both high drywell pressure and low reactor vessel water level (level 2).

The NRC staff has reviewed DECo's proposed changes and finds that the changes would bring the PCRM isolation provisions into compliance with GDC 56. The changes would provide for diverse signals (high drywell pressure or low reactor water level) and provide redundant automatic isolation valves supplied by different essential electrical divisions. Therefore, the staff finds the proposed changes bring the PCRM design into full compliance with GDC 56 and the proposed TS changes are acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation and use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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.

5.0 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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Dated: March 29, 1988