



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 45 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 October 7, 1988, the Detroit Edison Company (DECo or the licensee) requested an amendment to the Technical Specifications (TSs) appended to Facility Operating License No. NPF-43 for Fermi-2. The proposed amendment would delete the requirement to perform response time testing of the High Drywell Pressure actuation of the High Pressure Coolant Injection (HPCI) system. The change will eliminate unnecessary operation of the HPCI system and thus enhances overall HPCI system reliability.

2.0 EVALUATION

Inspection Report 50-341/87044, described a deficiency in the Fermi-2 surveillance program in that surveillance procedures for response time testing of High Pressure Coolant Injection (HPCI) system did not adequately test the High Drywell Pressure actuation response time.

DECo subsequently modified the appropriate procedures and completed the necessary testing. Upon further review, it was determined that testing both the High Drywell Pressure and the Low Reactor Water Level actuation channels every 18 months would lead to undesirable multiple starts of the HPCI system in order to complete the necessary testing. DECo also found the response time testing of the High Drywell Actuation of HPCI to be unnecessary.

The Fermi-2 Emergency Core Cooling System (ECCS) analysis does not take credit for the High Drywell Pressure actuation of HPCI; the system initiation is assumed to be caused by the Low Reactor Water Level actuation signal. Across the spectrum of analyzed line break sizes the High Drywell Pressure signal has been found to precede the Low Reactor Water Level signal. Therefore, a response time surveillance of the HPCI system based upon the water level actuation provides a conservative verification that the system capability meets the plant design bases.

8912120049 891127
PDR ADCK 05000341
P PDC

The HPCI start logic consists of 2 parallel logic strings for High Drywell Pressure and Low Reactor Water - Level 2. Each logic string ends with a relay contact which starts the HPCI turbine. Thus, response time testing of both logic strings requires additional HPCI starts. This has the following negative effects beyond the number of HPCI starts:

1. Additional time that HPCI will be in a test configuration which reduces its availability for its safety function since each test is done at power.
2. Each test is done at power, and represents a potential for either inadvertent HPCI flow to the RPV or Feedwater diversion to the Condensate Storage Tank from mis-operation during the test.

The proposal tests HPCI response time on a system basis instead of on an initiating signal basis. Standard TS designate a response time for ECCS actuation on a system basis. It is proposed to use the low water level signal for the HPCI response time, since this signal follows the High Drywell Pressure signal during all postulated line breaks for which HPCI response is required. Thus, the High Drywell Pressure signal is a diverse anticipatory signal for the low water level signal. Testing the response time for the low water level signal; thus, provides a conservative test of the HPCI system response time.

The change removes a requirement to measure the response time of a portion of the logic string for High Drywell Pressure. This portion of circuitry does not contain components which perform a time delay function. Such components typically fail in a manner which will be detected by functional testing (which is retained as a TS requirement). That is, they fail by loss-of-function versus a slowing-of-function. There are no time delay adjustments which are not tested. The principal threat to cause a slow response of the HPCI system is the mechanical components of the system reaching rated flow once a start signal relay is actuated. The frequency of response time testing of this portion of the system is not diminished.

Based upon the above evaluation, the staff finds deleting the response time surveillance requirement for the High Drywell Pressure channel of the HPCI system by making the appropriate change to Technical Specification Table 3.3.3-3 is acceptable. Functional testing of the High Drywell Pressure HPCI actuation channel and calibration of the associated instrumentation will remain TS requirements.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and a change to the surveillance requirements. The staff has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) 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

Dated: November 27, 1989