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Detroit Edison

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10CFR50.73

December 19, 1996
NRC-96-0106

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

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

Subject: Licensee Event Report (LER) No. 96-019

Pursuant to 10CFR50.73, Detroit Edison is submitting the enclosed LER No. 96-019 regarding the inoperability of the Standby Feedwater system flow path for an 10CFR50, Appendix R application as required by Technical Specification 3.7.11, "Appendix R Alternative Shutdown Auxiliary Systems."

There are no specific commitments being made in this LER.

If you have any questions, please contact Mari Jaworsky, Compliance Engineer, at (313) 586-1427.

Sincerely,

DRG

cc: A. B. Beach
M. J. Jordan
A. J. Kugler
A. Vegel
M. V. Yudasz, Jr.
Region III
Wayne County Emergency Management Division

IE22

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Fermi 2	0 5 0 0 0 3 4 1	1 OF 4

TITLE (4) Inoperable Standby Feedwater System Flow Path for a 10CFR50, Appendix R Application

EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MON	DAY	YR	YR	SEQUENTIAL NUMBER	REVISION NUMBER		MON	DAY	YR	FACILITY NAMES	DOCKET NUMBER (S)
11	19	96	96	- 0 1 9 -	0 0		12	19	96		0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9)	POWER LEVEL (10)
4	0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)

X 10 CFR 10CFR50.73(a)(2)(i)(B)

OTHER -

(Specify in Abstract below and in text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER AREA CODE	TELEPHONE NUMBER
Mari Jaworsky - Compliance Engineer	313	586-1427

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
[ ] YES (If yes, complete EXPECTED SUBMISSION DATE)	[X] NO				

ABSTRACT (16)

On November 15, 1996 a Deviation Event Report (DER) was initiated to investigate the adequacy of the water supply for the Standby Feedwater (SBFW) system for an Appendix R application. The water supply for SBFW is from a nine foot standpipe in the Condensate Storage Tank (CST). Technical Specification (TS) 3.7.11 requires an operable SBFW system consisting of two operable SBFW pumps and an operable flow path from the CST to the reactor vessel. Action 2.a of this TS requires restoration of this system, if inoperable, within 7 days or to be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours. On November 19, 1996, based on an engineering evaluation and a review of historical records, it was determined that for periods of time greater than that allowed by TS, the level in the CST has not been maintained at an appropriate level to supply the SBFW system.

The cause of this event was an inadequate design review of the Appendix R Dedicated Shutdown Method during design development in 1984. In the unlikely event of an Appendix R fire requiring control room evacuation, the Dedicated Shutdown Panel provides the appropriate indications of the CST level. Thus, the operators would have had sufficient time to recognize the potential lack of water and to take actions to make up the amount of water needed to remotely shutdown the reactor. The immediate corrective action taken was to perform a calculation to determine the exact amount of water needed for the Appendix R application of the SBFW system. Appropriate Operating procedures were revised to maintain the required volume of water in the CST at greater than 22 feet.

Initial Plant Condition:

Operational Condition:	4 (Cold Shutdown)
Reactor Power:	0 Percent
Reactor Pressure:	0 psig
Reactor Temperature:	126 degrees Fahrenheit

Description of the Event:

On November 15, 1996, during a review of the Updated Final Safety Analysis Report (UFSAR) as part of a licensing basis review for an unrelated UFSAR change, a concern was identified with respect to required levels in the Condensate Storage Tank (CST)[KA][TK]. A Deviation Event Report (DER) was initiated to investigate the adequacy of the water supply for the Standby Feedwater (SBFW)[SJ] system for an Appendix R application. At Fermi 2 SBFW would be used to cool the reactor in the event a reactor shutdown must be performed from the Dedicated Shutdown Panel [JL][PL] due to a control room [NA] evacuation. The water supply for SBFW is from a nine foot standpipe in the CST. Operations Department rounds sheets provided guidance to maintain the level between 10 feet and 33 feet with the level typically greater than 14 feet. However, to ensure that the Reactor Core Isolation Cooling (RCIC)[BN] and High Pressure Cooling Injection (HPCI)[BJ] systems will have an adequate supply of cooling water to operate as designed, a standpipe was installed to maintain a minimum level of nine feet in the CST.

As part of the technical specification applicability reportability review for this condition, since the SBFW system performs a function analogous to RCIC, it was assumed that a minimum of 150,000 gallons of water was needed to perform its Appendix R function. A review of historical records demonstrated that the level was at times as low as 10.5 feet which would have been less than the assumed 150,000 gallons.

Technical Specification (TS) 3.7.11, "Appendix R Alternative Shutdown Auxiliary Systems", requires an operable SBFW system consisting of two operable SBFW pumps and an operable flow path from the CST to the reactor vessel. Action 2.a of this TS requires restoration of this system, if inoperable, within 7 days or to be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours. A review of historical records determined that for periods of time greater than that allowed by TS, the level in the CST has not been maintained at an appropriate level to supply the SBFW system. Therefore, based on the above evaluation, on November 19, 1996, this situation was determined to be reportable in accordance with 10CFR50.73(a)(2)(i)(B) which requires reporting any operation or condition prohibited by Technical Specifications.

Cause of the Event:

The cause of this event was an inadequate design review during the development of the Appendix R Dedicated Shutdown Method. A minimum amount of water needed for the SBFW system for Appendix R purposes was not specified.

A contributing factor is that the cross disciplinary review of the design may not have been adequate. In the 1984 and 1985 time frame when the Dedicated Shutdown Method was designed, the cross disciplinary (design verification) review process was not formalized. An assumption was made that the SBFW system was essentially equivalent to the RCIC system; however, no provisions were made to ensure an adequate water supply would be available. Additionally, the SBFW system was already installed and only being modified for the Appendix R application from an electrical standpoint by providing SBFW system controls at the Dedicated Shutdown Panel, and a mechanical design review may not have been performed.

A reliance on consultant work for preparation of the Appendix R design without a detailed review by Detroit Edison employees was also identified as a contributing factor. An assumption was made at the time that the contractor's QA program was sufficient to ensure the adequacy of the design calculations and a detailed Detroit Edison review was not considered necessary.

Analysis of the Event

The systems identified in TS 3.7.11 are those utilized for Appendix R Dedicated Shutdown but not included in other sections of the TS. According to the TS bases, the action statements assure that the auxiliary systems will be operable or that acceptable alternative means are established to achieve the same objective.

Had an Appendix R fire occurred when the CST was at its lowest level, then the Dedicated Shutdown Panel would provide the appropriate indications to apprise the operators of the CST level. Thus, the operators would have sufficient time to recognize the potential lack of water and to take actions to make up the amount of water needed to remotely shutdown the reactor and allow it to cooldown to a point when shutdown cooling could be initiated. A sequence of events was reviewed by Operations and it was determined that there would be sufficient time to provide the CST with the appropriate volume of water from either the Condensate Return Tank or from the Hotwell prior to reaching top of active fuel. It was also determined that power would be available from the Combustion Turbine Generator (CTG) 11-1 to power the appropriate components to perform these operations. However, these actions were not proceduralized.

Therefore, based on the above discussion, the health and safety of the public is not adversely affected by this condition.

Corrective Actions

The immediate corrective action taken was to perform a calculation to determine the exact amount of water needed for the Appendix R application of the SBFW system. The required CST tank level was determined to be approximately 21 feet. Based on this calculation, appropriate operating procedures were revised prior to plant startup from the fifth refueling outage to maintain the CST level greater than 22 feet.

Currently, Fermi 2 administrative procedures for engineering design package preparation require a cross-disciplinary review in both the development and in the design verification stages for modifications that impact Detroit Edison classified QA Level I and QA Level 1M systems, structures, and components. Furthermore, Fermi 2 policy now requires that contractor work be reviewed and approved by Detroit Edison employees prior to implementation. Therefore, there are now barriers in place to prevent the situation identified in this LER.

Detroit Edison is considering the need for additional design reviews of the Fermi 2 Appendix R design as a part of an effort to ensure ongoing conformance with the Fermi 2 Design and Licensing Basis.

Additional Information:

A. Failed Components

None

B. Previous LER's on Similar Problems

LER 96-008

Following a plant housekeeping tour, a concern was raised about the fire wrap in the Auxiliary Building Basement, elevations 551 feet and 562 feet. This prompted a review of the 10CFR50, Appendix R assumptions used for this area. Further investigation identified a portion of Division 2 cable trays which are not fire-wrapped in their entirety and these trays are located near equipment which can be considered intervening combustibles, i.e., combustible material within 20 feet of redundant shutdown divisions. An engineering design modification was installed to bring this area into compliance with 10CFR50, Appendix R.