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Detroit Edison



A DTE Energy Company

10 CFR 50.73

May 30, 2002
NRC-02-0047

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

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

Subject: Licensee Event Report 02-002, "Fire Protection Dedicated
Shutdown Valve Accessibility Impacted by Field Modification"

Pursuant to the requirement in Section 2.F of the Fermi 2 Operating License, Detroit Edison is submitting the enclosed Licensee Event Report (LER) 02-002. This LER documents the discovery of a recent plant modification that hindered accessibility to a valve required to be closed to preclude losing Condensate Storage Tank (CST) water inventory to the Hotwell during a dedicated shutdown scenario. Although no compensatory measures were established to address valve accessibility, the absence of such compensatory measures would have only delayed the closure of the valve for a short time, therefore, this event resulted in no adverse effect on the health and safety of the public.

Should you have any questions or require additional information, please contact Mr. Norman K. Peterson of my staff at (734) 586-4258.

Sincerely,



cc: T. J. Kim
M. A. Ring
M. V. Yudas, Jr.
NRC Resident Office
Region III
Regional Administrator, Region III
Wayne County Emergency Management Division

IE22

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to: bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE
Fire Protection Dedicated Shutdown Valve Accessibility Impacted by Field Modification

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	19	2002	2002	002	00	05	30	2002	FACILITY NAME	DOCKET NUMBER
										05000
										05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)									
	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)						
10. POWER LEVEL 97	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)						
	20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)						
	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)						
	20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	X OTHER Specify in Abstract below or in NRC Form 366A						
	20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)							
	20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)							
	20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)							
	20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)							
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	License Section 2.F., "Violation of License Condition 2.C. (9)"							

12. LICENSEE CONTACT FOR THIS LER

NAME Sam Hassoun – Principal Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (734) 586-4287
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE).	NO			07	03	2002

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

As a result of a fire protection program self assessment, on May 2, 2002, Detroit Edison Company determined that a field modification performed on February 19, 2002 invalidated an inherent assumption in the procedure for controlling the plant from the dedicated shutdown panel. Specifically, the motor operator for motor operated valve (MOV) N2000F636, Condenser Hotwell Emergency Makeup Bypass Valve, was rotated 180 degrees to help alleviate an oil leakage problem. Rotating the MOV relocated the motor operator handwheel away from the first floor of the Turbine Building such that operators could not reasonably close the valve without the use of a ladder. Procedure 20.000.18, "Control of the Plant from the Dedicated Shutdown Panel," directs operators to de-energize and manually close N2000F636 to prevent losing Condensate Storage Tank (CST) water inventory to the Hotwell, in case a hot short caused the valve to open. Losing CST inventory threatens the ability to achieve safe shutdown conditions in the event of a fire. Therefore, this condition is reportable under Section 2.F of the Fermi 2 Operating License as a violation of License Condition 2.C.(9).

Based on the short delay associated with obtaining a ladder and closing the valve, this condition did not result in any adverse effect on the health and safety of the public.

A dedicated ladder has been staged near the valve and accessibility of other components requiring operator action has been verified. Other corrective actions are being finalized.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Initial Plant Conditions:

Mode 1
Reactor Power 97 percent

Description of the Event

As a result of a fire protection program self assessment, on May 2, 2002, Detroit Edison Company (DECo) determined that a field modification performed on February 19, 2002 invalidated an inherent assumption in the procedure for controlling the plant from the dedicated shutdown panel. Specifically, the motor operator for motor operated valve (MOV) N2000F636, Condenser Hotwell Emergency Makeup Bypass Valve [SD][ISV], was rotated 180 degrees to help alleviate an oil leakage problem from the motor operator. Rotating the MOV relocated the motor operator handwheel away from the first floor of the Turbine Building such that operators could not reasonably close the valve without the use of a ladder. A dedicated ladder had not been staged for this purpose. The Central Component (CECO) database identified this valve as a balance-of-plant component and did not associate it with the fire protection program.

Procedure 20.000.18, "Control of the Plant from the Dedicated Shutdown Panel," directs operators to de-energize power to and manually close valve N2000F636 to prevent losing Condensate Storage Tank (CST) [KA][TK] water inventory to the Hotwell [SG]. N2000F636 is normally closed; however, a hot short could potentially cause it to open. By rotating the handwheel away from the floor and not staging a dedicated ladder near the valve, operators would have had to obtain a ladder from another location for use in performing this procedural step. This would have required more time to complete the sequence of steps to isolate the CST from the Hotwell and could have resulted in losing more water from the tank than previously anticipated. Loss of water from the CST threatens the ability of the Standby Feedwater (SBFW) [SJ] system pumps to provide high pressure makeup water to the Reactor Pressure Vessel (RPV) [RPV] for the time period needed until shutdown cooling could be initiated. The dedicated shutdown system required by 10 CFR 50, Appendix R, Section III.G.3, relies on the SBFW system to inject water from the CST into the RPV in the case of a fire in certain fire zones.

Detroit Edison concluded that the field modification performed on N2000F636 increased the time required to isolate the CST from the Hotwell and could have adversely affected the ability to achieve safe shutdown conditions in the event of a fire.

Section 2.C.(9)(a) of the Fermi 2 Operating License states: "DECo may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire."

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Section 2.F of the Fermi 2 Operating License states: "Except as otherwise provided in the Technical Specifications or Environmental Protection Plan, DECo shall report any violations of the requirements contained in Section 2.C of this license in the following manner: initial notification shall be made within 24 hours to the NRC Operations Center via the Emergency Notification System with written followup within thirty days in accordance with the procedures described in 10 CFR 50.73(b), (c) and (e)."

Cause of the Event

The cause of this event was the failure to properly identify the association of MOV N2000F636 with the fire protection program and failure to identify the impact of rotating the motor operator on the dedicated shutdown scenario. Had the impact been recognized, compensatory measures such as staging a dedicated ladder would have been taken to ensure that safe shutdown requirements were not impacted.

Analysis of the Event

Valve N2000F636 is an eight-inch motor operated valve in the condensate transfer piping. The open valve provides a direct pathway from the CST through the emergency hotwell pump to the condenser hotwell.

In the event a fire causes sufficient damage to require entry into Abnormal Operating Procedure (AOP) 20.000.18, certain plant equipment is transferred over to local control and is locally operated to recover reactor coolant inventory and maintain hot shutdown, establish torus and drywell cooling, and initiate the shutdown cooling mode of the Residual Heat Removal (RHR) [BO] system within ten hours. If a loss of offsite power occurs, the Combustion Turbine Generator (CTG) 11-1 is started from the local Dedicated Shutdown Panel and the breakers are lined up to power the SBFW pumps. The CST provides the water inventory for operation of the SBFW system in the Dedicated Shutdown scenario.

In the unlikely event of an Appendix R fire which induced a hot short and repositioned the closed N2000F636 valve such that the CST had an open path to the Hotwell, it is anticipated that the operators would take action to obtain one of the Appendix R dedicated ladders staged along the lighted path to the valve and close the valve. Additionally, the Dedicated Shutdown Panel provides the appropriate indications to apprise the operators of the CST level. During the time that CST water is required to achieve shutdown, before shutdown cooling has been initiated, the operators would have recognized the need for adding water to the CST and would have taken actions to make up the amount of water needed to remotely shutdown and cooldown the reactor. Potential makeup water sources include water from the Condensate Return Tank (CRT) or the Hotwell; however, actions for obtaining a ladder or adding water to the CST are not described in procedure 20.000.18.

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

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Corrective Actions

Upon discovery of this event, a dedicated ladder was staged at the valve to provide access for manually closing the valve as directed by procedure 20.000.18. All other components requiring operator action in procedure 20.000.18 were verified to be accessible.

This event has been documented in the Fermi 2 corrective action program (CARD 02-12412). The corrective actions will be tracked and implemented commensurate with the established processes and priorities of the program. Further corrective actions being considered include the identification of fire protection program components in the CECO database and analysis of operator actions in procedure 20.000.18 to validate the capability of manually achieving and maintaining safe shutdown conditions from outside the control room.

This LER will be supplemented with additional information when the evaluation of this event is completed.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Additional Information

- A. Failed Components: None
- B. Previous LERs on Similar Problems

LER 99-006

On October 27, 1999, it was determined that a deficiency existed in the dedicated shutdown procedure used for plant shutdown in the event of fires in certain areas of the plant. The dedicated shutdown procedure did not include a required action for fires in all fire zones for which the action would be required. The dedicated shutdown procedure requires isolation of the control air supply for the High Pressure Coolant Injection (HPCI) system test return line control valve, E41F011, only for some fires in some of the fire zones where the action is required. Isolation of the control air supply is required to prevent fire induced spurious opening of the HPCI test return line control valve which, in combination with fire induced spurious opening of two other valves, could result in Standby Feedwater (SBFW) flow being bypassed to the Condensate Storage Tank (CST), reducing flow to the reactor vessel. The cause of this event was not having adequate involvement of a fire protection engineer in the development and review of procedure changes.

LER 98-003

On March 18, 1998, it was determined that fire induced multiple hot shorts could cause spurious valve operations which could reopen closed valves and result in Condensate Storage Tank (CST) inventory to drain to Condenser Hotwell. This could have resulted in a loss of CST inventory necessary for safe shutdown following a fire. Procedures were revised to de-energize appropriate valves to prevent this drain path. The cause of this event was inadequate cross-discipline review of assumptions made in the fire protection program safe shutdown evaluation.

LER 96-019

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 to meet Appendix R requirements. The water supply for SBFW is from a nine foot standpipe in the Condensate Storage Tank (CST). Technical Specification (TS) 3.7.11 required an operable SBFW system consisting of two operable SBFW pumps and an operable flow path from the CST to the reactor vessel. The cause of this event was an inadequate design review of the Appendix R Dedicated Shutdown Method during design development in 1984. Appropriate operating procedures were revised to maintain the required volume of water in the CST at greater than 22 feet.