

LICENSEE EVENT REPORT (LER)

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TITLE (4) **Emergency Equipment Cooling Water (EECW) Makeup Tank Isolation Valve Interlocks Potentially Preventing Operation of EECW from Dedicated Shutdown Panel**

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		
03	07	97	97	- 0 0 5 -	0 0	04	07	97	DOCKET NUMBER (5) 0 5 0 0 0		

OPERATING MODE (9) 4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)
POWER LEVEL (10) 0 0 0	<input checked="" type="checkbox"/> 10 CFR 50.73(a)(2)(i)(B) <input checked="" type="checkbox"/> OTHER - License Condition 2.C.9 (Specify in Abstract below and in text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
Mari Jaworsky - Compliance Engineer		AREA CODE 313 NUMBER 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	CAUSE	SYSTEM

SUPPLEMENTAL REPORT EXPECTED (14)	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	

ABSTRACT (16)

During an engineering review of Emergency Equipment Cooling Water (EECW) system, it was discovered on March 7, 1997 that the Reactor Building Closed Cooling Water (RBCCW) to EECW return and supply isolation valve interlocks are installed in the EECW makeup tank isolation valve circuit between the Dedicated Shutdown Panel transfer switch and the opening coil. The interlocks are not bypassed when the valve is in local control at the Dedicated Shutdown Panel. There is no assurance that the RBCCW to EECW return and supply isolation valves will close because they are not valves that can be operated from a Dedicated Shutdown Panel. Therefore, there is no assurance that the EECW makeup tank isolation valve can be operated properly from the Dedicated Shutdown Panel if the RBCCW to EECW return and supply isolation valves cannot be verified closed from the panel.

The event was caused by inadequate design of the EECW makeup tank isolation valve circuit. Contributing factors were inadequate design review and inadequate post modification testing. Currently, process barriers are in place to minimize the chance that this type of event can occur. A modification to the plant will be made to ensure that the operation of the EECW makeup tank isolation valve meets the operability requirements of Technical Specifications. Appropriate changes to the dedicated shutdown procedures will also be made. A review of the Dedicated Shutdown Panel circuits will be performed to assure that there are no other similar concerns. These actions will be completed prior to startup from the current outage.

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Initial Plant Condition:

Operational Condition: 4 (Cold Shutdown)
 Reactor Power: 0 Percent
 Reactor Pressure: 0 psig
 Reactor Temperature: 121 degrees Fahrenheit

Description of the Event:

A. Background

The Emergency Equipment Cooling Water (EECW) [BI] system provides cooling water to equipment required to be cooled under accident conditions. During normal plant operation, EECW loads are cooled by Reactor Building Closed Cooling Water (RBCCW) [CC]. Following an automatic start signal, the EECW pump [BI][P] starts, the RBCCW to EECW return and supply isolation valves [BI][ISV] close, and the EECW makeup tank [BI][TK] isolation valve opens. The EECW makeup tank isolation valve is interlocked so that it will not open until the RBCCW to EECW return and supply isolation valves are fully closed. Of these three valves, only the EECW makeup tank isolation valve can be operated from the Dedicated Shutdown Panel [JL][PL].

B. Description

During an engineering review of the EECW system, it was discovered on March 7, 1997 that the RBCCW to EECW return and supply isolation valve interlocks [BI][IEL] are installed in the EECW makeup tank isolation valve circuit between the Dedicated Shutdown Panel transfer switch [JL][HS] and the opening coil [JL][20][CL]. The interlocks are not bypassed when the valve is in local control at the Dedicated Shutdown Panel. There is no assurance that the RBCCW to EECW return and supply isolation valves will close because they are not valves that can be operated from a Dedicated Shutdown Panel and the control circuits [BI][ISV][CBL3] are not protected from potential fire damage such as hot shorts. As a result, there is no assurance that the EECW makeup tank isolation valve can be operated properly from the Dedicated Shutdown Panel if the RBCCW to EECW return and supply isolation valves cannot be verified closed from the panel.

Technical Specification 3.7.11.d requires an operable Appendix R "Alternative Shutdown" EECW makeup tank isolation valve control circuit. Therefore, because this circuit has been in place since 1987, this event is reportable in accordance with 10CFR50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications. This event is also reportable in accordance with License Condition 2.F. An Event Notification was made on March 6, 1997 at 1230 EST.

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Cause of the Event:

The event was caused by inadequate design of the EECW makeup tank isolation valve circuit. In 1986 a modification package was developed to relocate the EECW makeup tank isolation valve from the EECW main flow path to the makeup tank line. This package received a multi-disciplinary review which included a fire protection review. In 1987 a subsequent revision to the modification package added the RBCCW to EECW return and supply isolation valve interlocks to the EECW makeup isolation valve circuit. The interlocks were located between the Dedicated Shutdown Panel transfer switch and the opening coil.

Contributing factors were inadequate design review and inadequate post modification testing. When the revision to the modification package was issued to install the interlocks with the RBCCW to EECW return and supply isolation valves, a fire protection review was not performed. Post modification testing did not verify that the circuit would operate properly under all the possible system configurations listed in the Updated Final Safety Analysis Report.

Surveillances performed to check the function of Dedicated Shutdown Panel controls did not identify a problem because the procedure tests the EECW makeup tank isolation valve when Division 1 EECW is operating, i.e., isolated from RBCCW so that the interlock contacts are closed. The surveillance is performed with EECW operating to minimize the impact of testing on plant operation.

Analysis of the Event:

The Abnormal Operating Procedure for control of the plant from the Dedicated Shutdown Panel directs operators to take local control at the Dedicated Shutdown Panel and to open the EECW makeup tank isolation valve. If this cannot be performed from the dedicated shutdown panel, then the valve can readily be opened by other means. Due to the ease of access to the EECW makeup tank isolation valve and its close proximity to the Dedicated Shutdown Panel where it would be normally operated, the valve could have been successfully operated, if required, without significantly impacting response time to the design basis event. Therefore, this event was of minimal safety significance.

Corrective Actions:

A modification to the plant will be made to ensure that the operation of the EECW makeup tank isolation valve meets the operability requirements of Technical Specifications. Appropriate changes to the dedicated shutdown procedure will also be made. These actions will be completed prior to startup from the current outage.

A review of the Dedicated Shutdown Panel circuits will be performed to assure that there are no other similar concerns. This action will also be completed prior to startup from the current outage.

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Currently, process barriers are in place to minimize the chance that this type of event can occur. The Engineering Support Conduct Manual procedure for the conduct of design verification contains a checklist that requires a fire protection review when changes to circuitry occur. Furthermore, the Engineering Support Conduct Manual procedure for the preparation and control of engineering design packages requires that design acceptance tests "verify that the objectives of the modification are in fact met functionally, and to confirm that critical design parameters to the modification are satisfied. These functional requirements shall include test objectives, prerequisites, functional testing requirements, and acceptance criteria."

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. This review which was completed on May 13, 1996 revealed an incorrect assumption used in the Appendix R Fire Hazards Analysis. 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.

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 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. 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.