

NORTHEAST UTILITIES



The Connecticut Light And Power Company
Western Massachusetts Electric Company
Holyoke Water Power Company
Northeast Utilities Service Company
Northeast Nuclear Energy Company

General Offices: Seiden Street, Berlin Connecticut

P. O. BOX 270

HARTFORD, CONNECTICUT 06414-0270

(203) 666-5000

Re: 10CFR50.73(a)(2)(i)

July 2, 1991

MP-91-545

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

Reference: Facility Operating License No. DPR-65
Docket No. 50-336
Licensee Event Report 90-022-01

Gentlemen:

This letter forwards Licensee Event Report 90-022-01 required to be submitted within thirty (30) days pursuant to paragraph 50.73(a)(2)(i), any operation or condition prohibited by the plant's Technical Specifications.

Please note that this LER is being submitted late due to an oversight in the Plant Incident Report/Licensee Event Report Process.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: Stephen E. Scace
Director, Millstone Station

BY: *John S. Keenan*
John S. Keenan
Millstone Unit 2 Director

SES/GEK:ljs

Attachment: LER 90-022-01

cc: T. T. Martin, Region I Administrator
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)										MILLSTONE Nuclear Power Station Unit 2										DOCKET NUMBER (2)										PAGE (3)									
TITLE (4)										Service Water Headers Cross-Tied										0 5 0 0 0 3 3 6 1 OF 0 3																			
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)																													
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER		REVISION NUMBER		MONTH	DAY	YEAR	FACILITY NAMES										0 5 0 0 0 1 1																		
1	1	5	9	0	9	0	0	2	2	0	1	0	7	0	2	9	1	0 5 0 0 0 1 1																					
OPERATING MODE (9)			THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following: (11))																																				
POWER LEVEL (10)			20.402(b)				20.402(c)				60.72(a)(2)(iv)				73.71(c)																								
0 7 5			20.405(a)(1)(i)				60.36(c)(1)				60.72(a)(2)(iv)				73.71(d)																								
			20.405(a)(1)(ii)				60.36(c)(2)				60.72(a)(2)(iv)				OTHER: (Specify in Abstract below and in Text: NRC Form 388A)																								
			20.405(a)(1)(iii)				60.73(a)(2)(i)				60.72(a)(2)(iv)(A)																												
			20.405(a)(1)(iv)				60.73(a)(2)(ii)				60.72(a)(2)(iv)(B)																												
			20.405(a)(1)(v)				60.73(a)(2)(iii)				60.72(a)(2)(iv)(C)																												
LICENSEE CONTACT FOR THIS LER (12)																																							
NAME										TELEPHONE NUMBER																													
Gary E. Komosky, Engineer, Ext. 4725										2 0 3 - 4 4 7 - 1 5 9 1																													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																							
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC																														
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)																													
X YES (if yes, complete EXPECTED SUBMISSION DATE)										1 2 3 1 9 2																													
NO																																							

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

Similar LERs: None.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

Estimated burden per response to comply with this information collection request: 60.0 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch (p-535), U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LED NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Millstone Nuclear Power Station Unit 2	0 5 0 0 0 3 3 6 9 0	0	2	2	0	1 0 2 OF 0 3

TEXT: If more space is required, use additional NRC Form 366A's (17)

I. Description of Event

On November 15, 1990, at 1330, with the plant in MODE 1 (75% power, 565°F, 2270 psig), Service Water header cross-tie valve, 2-SW-97A was found open by a plant engineering technician while performing a routine intake structure inspection. The control room was notified and an operator manually closed the valve. At the time, the plant was returning to service following refueling.

The Service Water (SW) system is configured with three supply pumps, the 'A', 'B', and 'C' and two supply headers, the A and B. The 'B' pump is the swing pump and can be aligned to either the A or B SW header. Cross-tie valves are situated between the 'A' and 'B' pumps (2-SW-97A) and between the 'B' and 'C' pumps (2-SW-97B) to facilitate the swing feature of the 'B' pump. Normal system operation has the 'A' pump on the A header and the 'C' pump on the B header with one of the cross-tie valves closed and the 'B' pump out of service.

At the time of the event, the plant was returning to service after a refueling outage. During the outage both of the cross-tie valves were removed from the piping system. The cross-tie valve in question, 2-SW-97A, was removed from the system, for the duration of the A and B header outages, so that one header at a time could be removed from service for repairs without affecting the seismic integrity of the remaining operable header. The other cross-tie valve, 2-SW-97B, was also removed from the system, for the duration of the B header outage, while the adjacent piping was replaced. Valve 2-SA-97B was re-installed during the B header outage. Valve 2-SW-97A was re-installed on October 30, 1990 after the Service Water system repairs were completed. This re-installation included the connection of electrical leads and instrument air tubing. Instrument air was restored to the valve. Due to an unrelated problem with the control board switches for 2-SW-97A and 2-SW-97B, control power was isolated. As a result, the remote control and indication from the control room for both cross-tie valves and the interlock feature between them was not operational. Subsequent to October 30, 1990, complete restoration of the controls and indication for valves 2-SW-97A and 2-SW-97B was hampered by necessary SW flow testing. After November 3, 1990, the restoration was precluded by the removal of the 'C' SW pump. Consequently, the valves were operated manually with local indication of their position throughout the period.

Operations Surveillance Procedure 2612C-1 was performed on October 30, 1990 which verified that valve 2-SW-97A was open since a flow path through the valve was required to support operation of the 'B' Service Water pump on the 'A' Service Water header. On November 2, 1990 the 'A' SW pump was returned to service on the 'A' SW header and the 'B' SW pump was switched to the 'B' SW header as directed by Operations Procedure OP 2326A. During these system iterations, the appropriate Operations Surveillance Procedures were performed. Also on November 2, 1990, a clearance was written to allow Maintenance to work on a separate valve. Instrument air was isolated to prevent operation of this valve while men were working on it. Isolating instrument air to it also isolated instrument air to 2-SW-97A. Work was completed and instrument air was restored on the following day, November 3, 1990. Upon restoration of instrument air, 2-SW-97A stroked open. This valve movement went unnoticed as the remote indication for 2-SW-97A was out of service. The PEO restoring the instrument air supply was in a different area of the intake structure while opening the instrument air isolation valve, and was not expecting any movement of 2-SW-97A or any other valves. On November 15, 1990, valve 2-SW-97A was found open thus identifying the cross-tieing of both Service Water facilities.

II. Cause of Event

The root cause of the event is equipment design deficiency. The valve control system operation, upon restoration from a loss of instrument air, does not maintain the valve in the as failed position. Review of vendor technical details on the solenoid valve and details of the pneumatic valve controls, which govern the position of 2-SW-97A, indicated that 2-SW-97A will remain in the position selected on a loss of either air or electrical power. However, the solenoid valve will shift upon restoration of instrument air causing the process valve to change position. This was confirmed by testing. It should be noted that the valve controls meet the design as described in the FSAR. The design deficiency is in the failure to consider the impact on valve response to the restoration of instrument air, after removal.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

Estimated burden per response to comply with this information collection request: 50 0 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch (p-830), U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		0 5 0 0 0 3 3 6 9 0	0 1 2 2	0 1 1	

Millstone Nuclear Power Station
Unit 2

TEXT (if more space is required, use additional NRC Form 360A's) (17)

III. Analysis of Event

This event is being reported pursuant to the requirements of paragraph 50.73(a)(2)(i), reporting any operation or condition prohibited by the plant's Technical Specifications.

With header cross-tie valve 2-SW-97A open, facility separation was not maintained. In this configuration, the SW system functioned as one common header instead of the two independent headers required by the Technical Specifications.

The longest amount of time that the header cross-tie valve, 2-SW-97A, could have been improperly positioned was from November 2, 1990 to November 15, 1990, or a total of approximately thirteen days. During this period the reactor plant was critical for the last seven days.

Review of the Design Basis Accident (DBA) response of the SW system indicates that it would not have performed its intended function. During the DBA it is assumed that only one Emergency Diesel Generator will start. With this being the case, one SW pump would be operating on two headers which is an unanalyzed thermo/hydraulic configuration.

If it is postulated that one of the headers were to break, the ability of the system to perform its intended function would have been lost since both pumps would have supplied water to the break. Only a minimal amount of cooling water would then be available for component heat removal.

IV. Corrective Action

The corrective action was to immediately reposition the cross-tie valve, 2-SW-97A, to maintain facility separation.

Action to prevent recurrence is as follows:

1. The design of the valve control system is being reviewed to modify the control features and eliminate unwanted valve action following a loss and subsequent restoration of instrument air.
2. Other similar valve control system will be reviewed to ensure that a generic condition does not remain undetected.
3. Operations procedures will be revised to include information/cautions to emphasize the design features of potentially suspect valves.

V. Additional Information

There were no failed components.

Similar LERs: None

EHIS Code Identifiers:

BS-V-A499