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CALVERT CLIFFS NUCLEAR POWER PLANT DEPARTMENT
CALVERT CLIFFS NUCLEAR POWER PLANT
LUSBY, MARYLAND 20657

March 28, 1990

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

Docket No. 50-317
License No. DPR 53

Dear Sirs:

The attached LER 89-14, Revision 1, is being sent to you as required under 10 CFR 50.73 guidelines.

This event was determined to be not reportable under the requirements of 10CFR50.73. However, due to the construction related nature of the event and the need for investigation into similar systems, we believed it was prudent to inform the NRC of this event.

Should you have any questions regarding this report, we would be pleased to discuss them with you.

Very truly yours,

R. E. Denton
Manager

RHB/lr

cc: William T. Russell
Director, Office of Management Information
and Program Control
Messrs: G. C. Creel
C. H. Cruse
J. R. Lemons
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R. P. Heibel

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Calvert Cliffs, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 3 1 7										PAGE (3) 1 OF 0 3										
TITLE (4) Saltwater Header Not Seismically Qualified Due to Spool Tack Welds																														
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						DOCKET NUMBER(S)															
									Calvert Cliffs, Unit 1						0 5 0 0 0 3 1 7															
0	7	2	3	8	9	8	9	0	1	4	0	1	0	3	2	8	9	0	Calvert Cliffs, Unit 2						0 5 0 0 0 3 1 8					
OPERATING MODE (9) 5			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																											
POWER LEVEL (10) 0 0 0			20.402(b)				20.406(e)				50.73(a)(2)(iv)				73.71(b)															
			20.405(a)(1)(i)				50.36(e)(1)				50.73(a)(2)(v)				73.71(c)															
			20.405(a)(1)(ii)				50.36(e)(2)				50.73(a)(2)(vi)				X OTHER (Specify in Abstract below and in Text, NRC Form 366A)															
			20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)																			
			20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)																			
20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(k)																						
LICENSEE CONTACT FOR THIS LER (12)																														
NAME P. S. Furio, Licensing Engineer										TELEPHONE NUMBER AREA CODE 3 0 1 2 6 0 - 4 3 7 4																				
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)		MONTH	DAY	YEAR														
YES (If yes, complete EXPECTED SUBMISSION DATE) X NO																														

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

On July 23, 1989, while Unit 1 was in cold shutdown, it was determined that the No. 12 saltwater header was not capable of withstanding a seismic event intact. If the No. 12 saltwater header failed, it would have resulted in the failure of the No. 12 service water heat exchanger and the No. 12 component cooling water heat exchanger. The failure was determined to be caused by inadequate welding of the blind spool pieces in the pipe.

Walkdowns were performed on the other blind spool pieces in the Salt Water System, Service Water System, and the Component Cooling Water System. The inspection and analysis of these spool pieces determined they were capable of withstanding a seismic event as installed. The spool pieces in the Salt Water System have been repaired with continuous welds. Analysis shows that the piping will now remain intact during a seismic event.

This event was determined to be not reportable under the requirements of 10CFR50.73. However, due to the construction related nature of the event and the need for investigation into similar systems, we believed it was prudent to inform the NRC of this event.

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-530), 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) Calvert Cliffs, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 7	LER NUMBER (6)			PAGE (3)		
		YEAR 8 9	SEQUENTIAL NUMBER 0 1 4	REVISION NUMBER 0 1			
					2 OF 3		

TEXT (If more space is required, use additional NRC Form 306A's) (17)

I. DESCRIPTION OF EVENTS

On July 23, 1989, while Unit 1 was in cold shutdown, it was determined that the No. 12 saltwater header (EIIS KE-PSX) was not capable of withstanding a seismic event intact. If the No. 12 saltwater header failed, it would have resulted in the failure of the No. 12 service water heat exchanger (EIIS BI-HX) and the No. 12 component cooling water heat exchanger (EIIS CC-HX). The failure was determined to be caused by inadequate welding of the blind spool pieces (EIIS KE-PSP) in the pipe.

Blind spool pieces were installed in the saltwater piping to remove the cross-tie capability that had been designed into the system. To install a spool piece, a valve was removed and blind flanges were bolted onto each end of the pipe opening. A piece of pipe was then welded to the blind flange to provide structural support for the ends of the pipe.

In the spring of 1989, a walkdown of the saltwater piping to support an unrelated design effort revealed that the welds on the spool pieces were not continuous welds, but only tack welds. The tack welds are not considered structurally adequate. The tack welds were replaced with continuous welds. An analysis was then performed to determine the effect of a seismic event assuming no support would be provided by the tack welded pipe sections. The analysis assumed that the blind spool pieces did not exist during a seismic event. This analysis revealed that the loose pipe ends would not fail, with the exception of the No. 12 header. The analysis determined that the header would fail somewhere between the loose pipe end and the first seismic pipe support. Even though the section of pipe that fails is blind flanged, back flow from the No. 12 saltwater pump (EIIS KE-P) would cause the header to lose pressure. The header would fail to provide cooling water to the service water train and the component cooling water train that it normally feeds.

These modifications were made during the original construction of the plant. It is not known if the blind spool pieces were designed to be tack welded or if personnel error was involved. The thirty (30) other blind spool pieces in the Salt Water System, Service Water System, and the Component Cooling Water System were inspected and determined to be capable of withstanding a seismic event as installed.

This event was determined to be not reportable under the requirements of 10CFR50.73. However, due to the construction related nature of the event and the need for investigation into similar systems, we believed it was prudent to inform the NRC of this event.

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FACILITY NAME (1)

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Calvert Cliffs, Unit 1

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TEXT (If more space is required, use additional NRC Form 356A's) (17)

II. ANALYSIS

The Salt Water System provides cooling water to the service water heat exchangers and the component cooling water heat exchangers. The design basis for the system, as stated in the FSAR, is that one saltwater pump has sufficient head and capacity to provide cooling water for the Service Water and Component Cooling Water Systems as required by 10CFR50 Appendix A. A single failure analysis done for the Salt Water System assumes a passive failure (pipe rupture) could occur anywhere in the system without significant consequences. For post-LOCA operation, the Salt Water System is assumed to have only one header available to provide cooling water to meet the accident unit's cooling requirements. Technical Specification 3.7.5.1 requires that two Salt Water Systems be maintained operable during Modes 1, 2, 3, and 4. The action statement requires that the Unit be brought to cold shutdown if a Salt Water System remains inoperable longer than 72 hours. This action statement does not allow long outage times for maintenance of the Salt Water System. Therefore, this has minimized the plant operating time with only the No. 12 header in service, and minimized the risk of losing saltwater cooling capability during a postulated seismic event.

III. CORRECTIVE ACTION

The spool pieces in the Salt Water System have been repaired with continuous welds. Analysis shows that the piping will now remain intact during a seismic event. The thirty (30) other spool pieces in the Saltwater System, Service Water System, and Component Cooling Water System were inspected and determined to be capable of withstanding a seismic event.