



BOSTON EDISON

Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

George W. Davis
Senior Vice President - Nuclear

April 12, 1991
BECo Ltr. 91-055

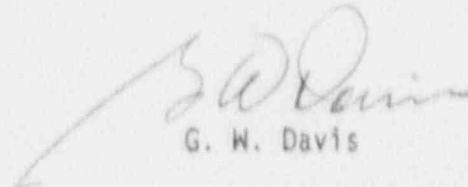
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Docket No. 50-293
License No. DPR-35

Dear Sir:

The enclosed Licensee Event Report (LER) 91-004-00, "Reactor Core Isolation Cooling System Made Inoperable Per Technical Specifications Due To An Inoperable Area Temperature Switch", is submitted in accordance with 10 CFR Part 50.73.

Please do not hesitate to contact me if there are any questions regarding this report.



G. W. Davis

TM/bal

Enclosure: LER 91-004-00

cc: Mr. Thomas T. Martin
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Rd.
King of Prussia, PA 19406

Sr. NRC Resident Inspector - Pilgrim Station

Standard BECo LER Distribution

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-630), 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) Pilgrim Nuclear Power Station										DOCKET NUMBER (2) 050002931										PAGE (3) 1 OF 04																					
TITLE (4) Reactor Core Isolation Cooling System Made Inoperable Per Technical Specifications Due To An Inoperable Area Temperature Switch																																									
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)																											
									N/A					050000																											
03	19	91	91	004	00	04	12	91	N/A					050000																											
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																																							
N																																									
POWER LEVEL (10)		20.402(b)										20.406(a)										60.73(a)(2)(iv)										73.71(b)									
100		20.406(a)(1)(i)										60.38(a)(1)										X 60.73(a)(2)(v) (D)										73.71(e)									
		20.406(a)(1)(ii)										60.38(a)(2)										60.73(a)(2)(vi)										OTHER (Specify in Abstract below and in Text, NRC Form 350A)									
		20.406(a)(1)(iii)										60.73(a)(2)(iii)										60.73(a)(2)(viii)(A)																			
		20.406(a)(1)(iv)										60.73(a)(2)(iv)										60.73(a)(2)(viii)(B)																			
		20.406(a)(1)(v)										60.73(a)(2)(v)										60.73(a)(2)(ix)																			
LICENSEE CONTACT FOR THIS LER (12)																																									
NAME												TELEPHONE NUMBER																													
Thomas F. McElhinney - Senior Compliance Engineer												508 747-1846																													
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																											
B	B	N	BLK	W172	N																																				
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)																																									
<p>On March 19, 1991 at 2345 hours, the Reactor Core Isolation Cooling (RCIC) System was made inoperable and a seven day Technical Specification Limiting Condition for Operation (LCO) began. The system was made inoperable due to an area temperature switch terminal (Weidmuller SA K6N) being stripped during a quarterly functional test and calibration.</p> <p>The cause of the stripped terminal was repeated torquing of the screws. The temperature switches are replaced quarterly with a calibrated spare. The temperature switch leads are disconnected from their terminal during this process. This repeated torquing weakened the terminal.</p> <p>The broken terminal was replaced with an installed spare terminal from the same terminal block. The broken terminal was inserted into the spare terminal's space and a Maintenance Request was written to replace the broken terminal. Long term corrective action includes evaluating the feasibility of changing the circuitry to make it more suitable for frequent calibration. Following terminal replacement, the Channel 'A' portion of the logic circuitry was successfully tested. RCIC was declared operable and the seven day LCO was terminated on March 20, 1991 at 0450 hours.</p> <p>This condition occurred during power operation at 100 percent reactor power. The reactor mode switch was in the RUN position. This report is submitted in accordance with 10 CFR 50.73(a)(2)(v)(D) and this condition posed no threat to the public health and safety.</p>																																									

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-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20535, AND TO THE PAPERWORK REDUCTION PROJECT (2150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Pilgrim Nuclear Power Station	DOCKET NUMBER (2) 0 5 0 0 0 2 9 3 9 1	LER NUMBER (6)			PAGE (3)		
		YEAR 9 1	SEQUENTIAL NUMBER 0 0 4	REVISION NUMBER 0 0	0 2	OF	0 4

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

BACKGROUND

The Reactor Core Isolation Cooling (RCIC) System valve station area has four area temperature switches that provide RCIC turbine steam supply pipe break detection. The temperature switches are part of the Primary Containment Isolation Control System that automatically closes RCIC turbine steam supply isolation valves MO-1301-16 and -17 on valve station area high temperature. The logic circuitry is arranged in two channels with two temperature switches in each channel. Channel 'A' is comprised of temperature switches TS-1360-14C and -16C and Channel 'B' is comprised of TS-1360-14D and -16D. The switches in each channel are connected in series such that the failure of one switch makes that channel inoperable.

EVENT DESCRIPTION

On March 19, 1991 at 2345 hours, RCIC was made inoperable and a seven day Technical Specification (3.5.D) Limiting Condition for Operation (LCO) was entered. RCIC was made inoperable due to a stripped terminal for area temperature switch TS-1360-14C. The terminal was stripped during performance of Procedure 8.M.2-2.6.3 (Rev. 18) Attachment 2, "RCIC Steam Line High Temperature Instrument Functional And Calibration Test". This procedure commenced on March 19, 1991 at 2100 hours and the terminal was stripped as the installed TS-1360-14C was being replaced with a previously calibrated spare temperature switch. Technical Specification Table 3.2.B, Note 2 requires RCIC isolation with less than the minimum number of area temperature instrument trip channels. This action was accomplished by the closing of the RCIC turbine steam supply line isolation valves and MO-1301-17 was de-activated in accordance with Technical Specification 3.7.A.2.b.

Failure and Malfunction Report 91-90 was written to document this event. The NRC Operations Center was notified on March 20, 1991 at 0019 hours. Operability testing of the High Pressure Coolant Injection (HPCI) System began in accordance with Technical Specification 3.5.D.2 on March 20, 1991 at 0042 hours and was satisfactorily completed on March 20, 1991 at 0315 hours.

This event occurred during power operation at 100 percent reactor power with the reactor mode selector switch in the RUN position. The Reactor Vessel (RV) pressure was 1034 psig with the RV water temperature at approximately 510 degrees Fahrenheit.

CAUSE

The cause of the stripped terminal was repeated torquing. The area temperature switches are calibrated each quarter. The calibration process involves removing the installed temperature switch and installing a calibrated spare temperature switch. The subject terminal (Weidmuller SA K6N) was installed in 1985. The repeated torquing during the quarterly calibrations weakened the terminal. Investigation determined the torquing requirements of 5 to 7 inch pounds specified in Procedure 8.M.2-2.6.3 is consistent with the vendor recommendation. Therefore, overtightening was eliminated as a cause of the stripped terminal.

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		YEAR 9 1	SEQUENTIAL NUMBER 0 0 4	REVISION NUMBER 0 0			

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

CORRECTIVE ACTION

The broken terminal for TS-1360-14C was replaced with an installed spare terminal from the same terminal block. The broken terminal was inserted into the spare terminal's space and a Maintenance Request (MR 19101961) was written to replace the broken terminal at a later date. Following the terminal replacement, the Channel 'A' portion of the logic circuitry was successfully tested in accordance with Procedure 8.M.2-2.6.3 (Rev. 18) Attachment 2. RCIC was declared operable and the seven day LCO was terminated on March 20, 1991 at 0450 hours.

Long term corrective action includes evaluating the feasibility of changing the circuitry to make it more suitable for frequent calibration.

SAFETY CONSEQUENCES

This event posed no threat to the public health and safety.

The RCIC System and the area temperature switches were operable prior to performance of the functional and calibration test. The stripped terminal impacted the operability of the RCIC area temperature logic circuitry Channel 'A' only. The Channel 'B' logic circuitry, including redundant area temperature switches TS-1360-14D and -16D, was not affected and was capable of providing the same temperature detection and isolation function.

The HPCI System was operable during the period RCIC was inoperable.

This report is submitted in accordance with 10 CFR 50.73 (a)(2)(v)(D) because RCIC was made inoperable.

SIMILARITY TO PREVIOUS EVENTS

A review was conducted of Pilgrim Station Licensee Event Reports (LERs) submitted since January 1984. The review was focused on LERs involving terminal failures.

The review identified a similar condition reported in LER 50-293/89-019-00. For this LER, RCIC was made inoperable on June 9, 1989 at 0500 hours in accordance with Technical Specification Table 3.2.B. This was due to the discovery of a lifted lead during a functional test of RCIC area temperature switches. The lifted lead was for temperature switch TS-1360-14D that would have prevented the Channel 'B' area temperature switches from providing the pipe break detection function. The lead was lifted because the terminal was accidentally broken during the May 14, 1989 temperature switch calibration. The procedure was signed off as completed without the lifted lead being noted in the procedure. Corrective actions included the following: the terminal was replaced; the responsible I&C Supervisor received specific training regarding lifted leads and jumpers; other I&C and Electrical Maintenance personnel received similar training; and approximately 379 other completed surveillance test procedures were reviewed for discrepancies which could affect operability of the tested system. This review identified no discrepancies that affected the operability of the tested system. This condition existed during power operation and was discovered with reactor power level at 25 percent.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 365A's) (17)

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for this report are as follows:

COMPONENTSBlock
Switch, TemperatureCODESBLK
TSSYSTEMSEngineered Safety Features Actuation System (PCIS)
Leak Monitoring System
Reactor Core Isolation Cooling (RCIC) System
Temperature Monitoring SystemJE
LJ
BN
IM