



10 CFR 50.73

BOSTON EDISON

Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

April 16, 1993
BECo Ltr. 93- 53

E. T. Boulette, PhD
Senior Vice President - Nuclear

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

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

The enclosed Licensee Event Report (LER) 93-007-00, "Automatic Closing of the RCIC System Turbine Steam Supply Isolation Valves due to High Steam Flow Signal", 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.

E. T. Boulette
E. T. Boulette

RLC/bal

Enclosure: LER 93-007-00

cc: Mr. Thomas T. Martin
Regional Administrator, Region I
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Standard BECo LER Distribution

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PDR ADDCK 05000293
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LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: NO. HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNRB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545-0001, AND TO THE PAPERWORK REDUCTION PROJECT (D150-D156), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Pilgrim Nuclear Power Station

DOCKET NUMBER (2)

05000293

PAGE (3)

1 OF 4

TITLE (4)

Automatic Closing of the RCIC System Turbine Steam Supply Isolation Valves due to High Steam Flow Signal

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	17	93	93	007	00	04	16	93	N/A	05000
									N/A	05000

OPERATING MODE (9) N

POWER LEVEL (10) 002

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)

20.402(b)	20.405(c)	X	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)		50.73(a)(2)(vi)	OTHER
20.405(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(vii)(A)	Specify in Addendum below and in Text, NRC Form 366A
20.405(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(vii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Robert L. Cannon - Senior Compliance Engineer

TELEPHONE NUMBER (Include Area Code)

(508) 747-8321

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRD	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRD

SUPPLEMENTAL REPORT EXPECTED (14)

YES If yes, complete EXPECTED SUBMISSION DATE:	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X			07	30	93

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

On March 17, 1993, at 0024 hours, an automatic Primary Containment Isolation Control System (PCIS) Group 5 actuation occurred while attempting to place the Reactor Core Isolation Cooling (RCIC) System in standby service during the performance of Procedure 2.1.1, "Startup from Shutdown". The actuation resulted in the closing of the RCIC turbine steam supply isolation valves MO-1301-16 and -17.

The isolation resulted from a high steam flow isolation signal while attempting to jog open the RCIC turbine steam supply valve MO-1301-16. After several attempts, valve MO-1301-16 was opened. The opening of the valve resulted in a rapid steam line pressurization and actuation of the steam flow sensor upstream of valve MO-1301-16. The inability to open MO-1301-16 on initial attempts is under investigation. A supplemental report will be submitted following completion of the investigation.

This event occurred during plant startup while at 2 percent reactor power. The reactor mode selector switch was in STARTUP position. The Reactor Vessel (RV) pressure was 130 psig with RV temperature at approximately 360 degrees Fahrenheit. This report is submitted in accordance with 10 CFR 50.73 subpart (a)(2)(iv). This event posed not threat to public health and safety.

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME 8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

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 INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Pilgrim Nuclear Power Station	05000 293	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		93	007	00	

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

BACKGROUND

The Reactor Core Isolation Cooling (RCIC) System turbine steam supply piping is equipped with differential pressure sensors (DPIS 1360-1A and -1B) that provide a steam line break detection function. A high steam flow signal in one or both logic channels functions to close the RCIC turbine steam supply piping isolation valves to limit the release of steam if a break in the RCIC turbine steam supply piping occurs. The Group 5 portion of the Primary Containment Isolation Control System (PCIS) controls the RCIC turbine steam supply valves (MO-1301-16 and -17) which close on the isolation signal.

EVENT DESCRIPTION

On March 17, 1993, at 0024 hours, an unplanned automatic actuation of the RCIC portion of the PCIS occurred during the performance of Procedure 2.1.1, "Startup from Shutdown".

A startup from cold shutdown was in progress per Procedure 2.1.1, "Startup From Shutdown". The operating supervisor was on step 41 of Attachment 1 and instructed the operator to place RCIC into automatic standby mode in accordance with PNPS 2.2.22 (Rev. 39), "Reactor Core Isolation Cooling System", Attachment 7. The operator completed step 1 through 3 and was attempting to jog open MO-1301-16.

MO-1301-16 is a jog valve in the open direction and is normally in the full open position. MO-1301-16 has red and green indicating lights for valve position. Once the valve is throttled (red and green indicating lights), there is no positive means to determine the actual valve position until the valve travels full open. The controls and indication for MO-1301-16 are in the Control Room on Panel C-904. RCIC turbine steam inlet pressure is displayed on PI-1340-6 which taps off the RCIC turbine steam piping, down stream of the valve MO-1301-17.

Problem Report 93.9094 was written to document this event. The NRC Operations Center was notified in accordance with 10 CFR 50.72 at 0105 hours on March 17, 1993.

This event occurred during plant startup while at 2 percent reactor power. The reactor mode switch was in the STARTUP position. The Reactor Vessel pressure was 130 psig with RV temperature at approximately 360 degrees Fahrenheit.

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 INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Pilgrim Nuclear Power Station	05000293	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
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TEXT (If more space is required, use additional copies of NRC Form 366A)

CAUSE

A Failure Analysis Team (FAT) was established to assist in the collection and review of data regarding the inability of valve MO-1301-16 to initially open on March 16, 1993. Following review and evaluation of the collected data, several possible causes were evaluated. Based on evaluation of the possible causes, none were considered credible except for possible intermittent operation of the torque switch bypass circuitry which is part of the valve's opening circuitry. Further investigation of the possible cause is scheduled to be conducted during RFO 9. Following completion of this root cause investigation, a supplement to this LER will be submitted.

CORRECTIVE ACTIONS

Following the event, valve MO-1301-16 was operated several times and tested in accordance with procedure 8.5.5.4, "RCIC Motor Operated Valve Operability Test Monthly/Quarterly". No further abnormal operation was identified.

The frequency of valve MO-1301-16 testing was increased from monthly to weekly during the interval of March 17, 1993, to April 3, 1993 (beginning of RFO 9).

Additional corrective/preventive actions may be identified and implemented if necessary following completion of the root cause investigation.

SAFETY CONSEQUENCES

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

The RCIC high steam flow isolation is designed to mitigate the consequences of a break in the RCICS turbine steam supply piping. The automatic closing of the RCIC turbine steam supply isolation valves prevents excessive loss of reactor coolant and the release of radioactive materials from the nuclear system process barrier if a break occurs. For this event, no break in the RCIC turbine steam line occurred.

Technical Specification 3.5.D.1 requires the RCIC System to be operable when reactor pressure is above 150 psig and temperature is above 360 degrees Fahrenheit. At the time of this event, the RCIC System was not required to be operable.

MO-1301-16 is normally open when RCIC is required to be operable. The safety function of MO-1301-16 is to close upon a Group V isolation signal. The ability of MO-1301-16 to close was not affected.

NRC FORM 366A <small>(5-92)</small>		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95	
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 INFORMATION AND RECORDS MANAGEMENT BRANCH (MNRB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.	
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Pilgrim Nuclear Power Station		05000 293		YEAR	SEQUENTIAL NUMBER
				REVISION NUMBER	PAGE (3)
				93	007 00
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

This report is submitted in accordance with 10 CFR 50.73(a)(2)(iv) because the closing of valves MO-1301-16 and -17 was not a planned part of the performance of Procedure 2.1.1.

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 submitted in accordance with 10 CFR 50.73(a)(2)(iv) involving a similar RCIC isolation due to high steam flow signals. The review identified LER 91-001-00.

For LER 91-001-00, on January 25, 1991, at 0956 hours and at 1407 hours, an automatic closing of valves MO-1301-16 and -17 occurred during a surveillance test. The cause was a sensed RCIC turbine steam supply line high flow condition. The high steam flow condition occurred due to a failed transistor in the system's turbine speed control electric governor (EG-M). An exact cause of the transistor failure could not be identified. However, the signal cable connecting the EG-M to the turbine control valve hydraulic actuator (EG-R) was found to be degraded. This degradation could have led to the transistor failure. The transistor and cable were replaced.

ENERGY INDUSTRY IDENTIFICATION (EIIS) CODES

<u>COMPONENTS</u>	<u>CODES</u>
Valve, Isolation	ISV
 <u>SYSTEMS</u>	
Engineered Safety Features Actuation System (PCIS)	JE
Reactor Core Isolation Cooling System	BN