NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Pilgrim Nuclear Power Station	0 5 0 0 0 2 9 3	1 OF 0 4

TITLE (4) Automatic Actuation of Portions of Primary Containment, Secondary Containment and Standby Gas Treatment Systems

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)
0 2	0 2	8 8	8 8	0 0 5	0 0	0 3	0 2	8 8	N/A	0 5 0 0 0
									N/A	0 5 0 0 0

OPERATING MODE (9)	N	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)	20.405(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)(vii)	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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Douglas W. Ellis - Compliance Management Engineer	6 1 7 — 7 4 7 - 8 1 6 0

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	
B	J E	9 4	G 0 8 0	Y							

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 February 2, 1988 at 1908 hours, an automatic actuation of portions of the Primary Containment Isolation control System (PCIS) and Reactor Building Isolation Control System (RBIS) occurred.

The actuations resulted in the following automatic responses. The "A" train Primary Containment System (PCS) Group 2 isolation valves received an isolation signal. The train "A" ventilation dampers of the Secondary Containment System (SCS) closed. The "A" train of the SCS/Standby Gas Treatment System (SGTS) started. The isolations were reset and the systems returned to normal on February 3, 1988 at 0500 hours.

The cause for the actuations was the failure of the coil in a logic relay that is part of the inboard PCIS/RBIS logic circuitry. The relay coil was replaced. Based on analysis, additional relays (or relay coils) have been selected for replacement prior to startup.

The actuations occurred during an extended outage with plant conditions that were as follows. The reactor mode selector switch was in the SHUTDOWN position. The reactor water temperature was approximately 101 degrees Fahrenheit with negligible core decay heat. There were no control rods in the withdrawn position.

The actuations posed no threat to the health and safety of the public.

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

EVENT DESCRIPTION

On February 2, 1988 at 1908 hours, an automatic actuation of portions of the Primary Containment Isolation Control System (PCIS) and Reactor Building Isolation Control System (RBIS) occurred.

The actuations resulted in the following automatic responses. The "A" Train Primary Containment System (PCS) Group 2 isolation valves received an isolation signal. The Train "A" ventilation system dampers of the Secondary Containment System (SCS) closed. The "A" Train of the SCS/Standby Gas Treatment System (SGTS) started.

Failure and Malfunction Report 88-34 was written to document the actuations. Following immediate investigation, a priority Maintenance Request (MR 88-61) was issued to further investigate the circuitry of the blown fuse. Notification was made to the NRC Operations Center on February 2, 1988 at 1950 hours.

The actuations occurred during an extended outage with plant conditions that were as follows. The reactor mode selector switch was in the SHUTDOWN position. The reactor water temperature was approximately 101 degrees Fahrenheit with negligible core decay heat. There were no control rods in the withdrawn position.

CAUSE

The cause for the actuations was the failure of the coil of logic relay 16A-K56. When the coil failed, excessive current in the 120 VAC circuit caused the circuit's fuse (16A-F21) to blow thereby de-energizing the relay.

The probable cause for this and other failed (burned) relay coils has been attributed to the end of useful life; reference Memorandum TCH 87-464, "CR120A Relay Evaluation". The failure mode appears to be mechanical stressing of the coil termination connection resulting in physical separation, overheating and burning of the connection internal to the coil encapsulation. Relay 16A-K56 is located in logic Panel C-941. The relay, type CR120A, is manufactured by General Electric.

Inboard and outboard logic relays of the RBIS/PCIS are located in logic panels C-941 and C-942, respectively. The CR120A relays located in these panels are mounted in a closely packed array and are continuously energized.

CORRECTIVE ACTION

Following the investigation for the cause of the blown fuse, a new coil was installed in relay 16A-K56 and the blown fuse was replaced via MR 88-61. Post work testing was completed on February 3, 1988 at 0430 hours with satisfactory results. The isolations were reset and the systems returned to normal on February 3, 1988 at 0500 hours.

Previous failures of CR120A relays led to the evaluation documented in Memorandum TCH 87-464. The evaluation resulted in the issuance of an Engineering Service Request (ESR 87-643). The ESR requested implementation of recommendations (TCH 87-464) to improve the reliability of CR120A relays. The technical evaluation documented in TCH 87-464 reviewed CR120A relays installed at Pilgrim Station. The review included the specific application of each individual relay, the overall operating history of these relays as compared to industry information and a failure effects analysis of the safety related relays. Based on this technical evaluation, specific relays (or relay coils) have been selected for replacement prior to startup. The recommendations regarding the remaining items are being evaluated for incorporation into the long term maintenance program.

SAFETY CONSEQUENCES

Based on the redundancy of systems and procedures available, the actuations posed no threat to the health and safety of the public.

Control Room operator corrective actions for response to alarms or malfunctions are addressed in procedures that include the following: ARP-C7L, "Alarm Response Procedure"; and 2.4.147, "Reset of Secondary Containment Isolation on Panel C-7".

The actuations were determined to be reportable pursuant to 10CFR50.73(a)(2)(iv) because (false) PCIS/RBIS signals actuated accident mitigating systems (PCS,SCS, and SGTS).

SIMILARITY TO PREVIOUS EVENTS

A review of Pilgrim Station Licensee Event Reports (LERs) written since 1984 was conducted. The review focused on LERs submitted pursuant to 10CFR50.73(a)(2)(iv) that were caused by the failure of a CR120A relay (or relay coil).

The review revealed previous failures reported in LERs 50-293/87-018-00 and 50-293/88-001-00. For LER 50-293/87-018-00, the failure of the coil in relay 16A-K55 resulted in the automatic closure of the outboard PCS/Group 6 (Reactor Water Cleanup System) isolation valves. For LER 50-293/88-001-00, the failure of the coil in relay 16A-K57 resulted in the Train "B" PCS/Group 2 isolation valves receiving an isolation signal, the closure of the Train "B" ventilation dampers of the SCS, and the start of Train "B" of the SCS/SGTS.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

The EIIS codes for the actuations are as follows:

COMPONENTS	CODES
Coil	CL
Fuse (16A-F21)	FU
Relay, Tripping (16A-K56)	94

SYSTEMS	
Containment Isolation Control System (PCIS/RBIS)	JM
Engineered Safety Features Actuation System (PCIS/RBIS)	JE
Primary Containment System (PCS)	JM
Reactor Building (SCS)	NG
Standby Gas Treatment System (SGTS)	BH

10CFR50.73

BOSTON EDISON
Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

Ralph G. Bird
Senior Vice President — Nuclear

March 2, 1988
BECo Ltr. #88- 035

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

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

Dear Sir:

The attached Licensee Event Report (LER) 88-005-00 "Automatic Actuation of Portion[illegible] Primary Containment, Secondary Containment and Standby Gas Treatment Systems" is submitted in accordance with 10CFR Part 50.73.

Please do not hesitate to contact me if you have any questions regarding this subject.

R.G. Bird

DWE/bl

Enclosure: LER 88-005-00

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

Sr. Resident Inspector - Pilgrim Station

Standard BECo LER Distribution

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