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 Unit No. 1	0 5 0 0 0 2 9 3	1 OF 0 3

TITLE (4)
Non-Seismically Qualified HGA Relays

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 5 0 0 0
0 1	1 2	8 7	8 7	0 0 1	0 0	0 2	1 1	8 7		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
N		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 0 0	20.405(a)(1)(i)	50.36(c)(1)	X 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
Brian P. Lunn - Plant Engineer Ext. 8241	6 1 7 7 4 6 - 7 9 0 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	B J	R L Y	G 0 8 0	N		B	B M	R L Y	G 0 8 0	N	
B	B N	R L Y	G 0 8 0	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)

On January 12, 1987, the Pilgrim Nuclear Power Station was in a cold condition with the mode switch in refuel when it was determined that seven relays in safety related systems are not seismically qualified for their application.

The problem identified was of General Electric type HGA relays with normally closed contacts (when de-energized), which open or chatter when subjected to less than a 0.5 g forcing function. The relays will function properly following a postulated seismic event however may not during the event. The potential impact of this problem exists only when a seismic event occurs coincident with a safety related function of the normally closed contacts.

A safety evaluation has been performed which demonstrates continued safe operation while the plant remains shutdown and depressurized. Corrective actions will include modifications to the affected circuits and or replacement of the relays with a qualified type. The plant will remain shutdown pending completion of these modifications.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Pilgrim Nuclear Power Station Unit No. 1	0 5 0 0 0 2 9 3	8 7	— 0 0 1	— 0 0	0 2 OF 0 3

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

On January 12, 1987, the Pilgrim Nuclear Power Station (PNPS) was in a cold shutdown condition with the mode switch in "Refuel", when it was determined that seven relays used in safety related systems are not seismically qualified for their application.

In October 1986, PNPS was notified by the Senior Resident NRC Inspector of problems identified at another nuclear plant. The issue raised was the seismic qualification of HGA relays used in Class IE safety related applications. In response to this concern, a review of the use of this type of relay at PNPS was initiated. Approximately 250 HGA relays in safety and non-safety systems were reviewed and resulted in an initial determination that seven relays have the potential of rendering certain systems inoperable. These systems are High Pressure Coolant Injection (HPCI), Reactor Core Isolation Cooling (RCIC), and Core Spray (CS)(EIIS Codes BJ, BN and BM).

The deficiency identified was for normally closed contacts of HGA relays (in the de-energized mode). When subjected to a forcing function of less than 0.5g, a motion similar to that of a postulated seismic event, these normally closed contacts were determined to sometimes chatter (opening and closing). Therefore during a seismic event the relays may not function properly. However, following a seismic event the relays function would be restored.

The seven relays which initially have been determined to have a potential for rendering their associated systems inoperable are:

Relay Nos. 14A-K20A and 14A-K20B

These relays are used to allow manual bypass of the automatic opening signal to the Core Spray injection valves 1400-25A and 1400-25B.

Relay Nos. 13A-K8 and 13A-K28

These relays are used to reset the Reactor Core Isolation Cooling automatic isolation relays. The isolation relays are used to trip the RCIC turbine, close the steam isolation valves to the RCIC turbine, and provide indication to the operations staff.

Relay Nos. 23A-K32 and 23A-K33

These relays are used to reset the High Pressure Coolant Injection system automatic isolation relays. The isolation relays are used to trip the HPCI turbine, close the steam isolation valves to the HPCI turbine, close the suction valves from the torus to the HPCI pump, close the drainpot isolation valves and to provide indication to the operations staff.

Relay No. 23A-K42

This relay closes certain steam drain isolation valves when the High Pressure Coolant Injection system is started.

The issue of HGA relay seismic qualification was raised in a July 20, 1983 letter from General Electric (GE). This notification was in the form of a Service Advice Letter (SAL), number 721-PSM-174.1. Historically, SAL's have identified non-safety related issues, and not concerns with potential impact on plant operability. As such, they had been determined inappropriate as input into programs which address industry identified problems. Upon identification of SAL 721-PSM-174.1 in October, prompt action was initiated to review the concerns it identified and the Site Manager was informed of the possible safety related implications of the SAL.

At the time this condition was under evaluation and determined to effect PNPS, the plant remained in cold condition. To immediately address the potential impact of the postulated failures on the plant, a safety evaluation was performed. This evaluation determined that the only potential impact for the existing plant condition is in the core spray system, which is designed to supply low pressure water injection for emergency core cooling, as described in PNPS Final Safety Analysis Report section 6.3. In the event a design basis accident were to occur, with a coincident seismic event, the potential exists for the relay contacts described above to chatter, damaging or otherwise interfering with the proper operation of the core spray injection valves. In the worst case, the valve motor operators are postulated to fail due to overheating from repeated starts in a short period of time. This concern is being addressed by a re-alignment of the core spray system which obviates the need for the effected HGA relay contacts to perform a safety function. To address the RCIC and HPCI system concerns, the plant has been restricted to cold, de-pressurized conditions. These two systems provide no safety function with the plant in this condition. Prior to removing these administrative operating restrictions, modifications to the affected circuits will be made to address the seismic concern and assure continued system operability.

While no actual failures have occurred, the appropriate component failure information has been provided in section (13) above, as described in NUREG 1022.

The review and evaluation of all HGA relays used in safety related systems continues. The long term corrective actions which will resolve this issue are currently in review. They will include replacement of the relays with a qualified type and or modification of circuits which are potentially affected to assure their continued seismic qualification and capability.

The potential need to review GE issued SAL's is also being examined.

BOSTON EDISON

Executive Offices
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James M. Lydon
Chief Operating Officer

February 11, 1987
BECo Ltr. #87-022

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 87-001-00 "Non-Seismically Qualified HGA Relays" is hereby submitted in accordance with the requirements of 10CFR50.73.

If there are any questions on this subject, please do not hesitate to contact me.

Respectfully submitted,

James M. Lydon

James M. Lydon

BPL/la

Enclosure: LER 87-001-00

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Standard BECo LER Distribution

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