NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Shoreham Nuclear Power Station Unit #1	0 5 0 0 0 3 2 2	1 OF 0 4

TITLE (4) Electrical Noise Between Grounds for Temperature Monitoring Units Results in High Energy Line Break Logic Initiation

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
1 2	2 1	8 7	8 7	— 0 3 5		— 0 0	0 1	2 0	8 8		0 5 0 0 0

OPERATING MODE (9)	4	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
Robert W. Grunseich, Operational Compliance Engineer	5 1 1 6 9 2 9 - 8 3 1 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	

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 December 21, 1987 and January 6, 1988 at 1633 and 0825 respectively, High Energy Line Break Logic Isolations of the Reactor Water Clean-up (RWCU) and Main Steam Line (MSL) Drains Valve (1G33*MOV-034 and 1B21*MOV-032) occurred most likely due to electrical noise potential between the two grounds utilized within the panel for Temperature Monitoring Units (TMU) 1G11*TMU-500A and 1G11*TMU-500B. The Plant was in Operational Condition 4 (Cold Shutdown) with all rods inserted into the core. Operators verified the signal as false and returned the systems to their normal configuration prior to the event. Plant Management was informed of the events and the NRC was notified at 1753 HRS on December 21, 1987 and 1058 HRS on January 6, 1988. The investigation into the cause of events has led to the discovery of a grounding problem within the Primary Containment Monitoring panel (PCM) where the units are located. LILCO believes that the problem is due to the 24 VDC power supplies for the TMUs being grounded by the station ground, and the TMUs being grounded by the isolated instrument ground. Voltage measurements between the two grounds has revealed that an electrical noise potential exists, which could lead to false signals being generated within the TMUs and in turn initiating the isolations. An engineering change has been generated to allow the 24 VDC power supplies for the TMUs to be grounded to the isolated instrument ground.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Shoreham Nuclear Power Station Unit #1	0 5 0 0 0 3 2 2	8 7	— 0 3 5	— 0 0	0 2 OF 0 4

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

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as [xx].

IDENTIFICATION OF THE EVENT

Electrical Noise Between Grounds for Temperature Monitoring Units (TMU) Results in High Energy Line Break Isolation Logic [IJ] Initiation

Event Date: 12/21/87, 1/6/88

Report Date: 1/20/88

CONDITIONS PRIOR TO THE EVENT

Operational Condition 4, Cold Shutdown

Mode Switch - Shutdown

RPV Pressure = 0 RPV Temperature = 112, 113 Degrees F

POWER LEVEL - 0

DESCRIPTION OF THE EVENT

On December 21, 1987 and January 6, 1988 at 1633 and 0825 respectively, High Energy Line Break Logic Isolations of the Reactor Water Clean-up (RWCU) [CE] and Main Steam Line (MSL) Drain Valves (1G33*MOV-034 and 1B21*MOV-032) occurred most likely due to electrical noise potential between the two grounds utilized within the panel for Temperature Monitoring Units (TMU) 1G11*TMU-500A and 1G11*TMU-500B. Operators verified the signals as false and returned the systems to their normal configuration prior to the event. Plant Management was informed of the events and the NRC was notified at 1753 HRS on December 21, 1987 and 1058 HRS on January 6, 1988.

The investigation into the cause of the events has led to the discovery of a grounding problem within the Primary Containment Monitoring panel (PCM) where the units are located. LILCO believes that the problem is due to the 24 VDC power supplies for the TMUs being grounded by the station ground, and the TMUs being grounded by the isolated instrument ground. Voltage measurements of potential between the two grounds revealed that an electrical noise potential exists, which could lead to false signals being generated within the TMUs and in turn initiate isolations.

An engineering change has been generated to allow the 24 VDC power supplies for the TMUs to be grounded to the isolated instrument ground. This has been discussed with the vendor-Rosemount and is expected to alleviate the problem.

Similar occurrences in June of 1985 were reported via LER 85-023. Those events were attributed to electromagnetic interferences due to work activities, but could not be repeated after testing. It is now believed that those isolations were also due to the same grounding problem.

CAUSE OF THE EVENT

The cause of the event is believed to be the improper grounding of the 24 VDC power supplies to the TMUs. The TMUs are grounded via the instrument isolated ground, and the power supplies were grounded via the station ground. The electrical noise potential between the two grounds leads to false indications being sensed by the TMUs and could initiate isolations of various high energy lines. Other similar panels were inspected to determine if the same situation exists. No other problems were found.

ANALYSIS OF THE EVENT

These events were the unplanned actuations of an Engineered Safety Feature (ESF). There was no safety significance to the events. The high energy line break isolation logic performed as designed by initiating isolations of various systems. The improper grounding of the TMU power supply would affect only those valves that are open. At low power operation, MSL drains would normally be closed, the RWCU would isolate, and not significantly affect plant operations.

CORRECTIVE ACTIONS

1. The grounding scheme for the TMU power supplies will be changed to place the power supply and the instrument on the isolated instrument ground.

2. An inspection of other similar panels reveals that this panel is an isolated case.

3. LILCO expects that the corrective action per item one will rectify the spurious isolations. If not, a subsequent investigation will follow, and a supplement to this LER will be issued.

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Shoreham Nuclear Power Station Unit #1	0 5 0 0 0 3 2 2	8 7	— 0 3 5	— 0 0	0 4 OF 0 4

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

ADDITIONAL INFORMATION

a. Manufacturer and model number of failed component (s)

N/A

b. LER numbers of previous similar events
85-023

LILCO
LONG ISLAND LIGHTING COMPANY
SHOREHAM NUCLEAR POWER STATION • P.O. BOX 628 • WADING RIVER, NEW YORK 11792
TEL. (516) 929-8300

January 20, 1988 PM-88-018

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

Dear Sir:

In accordance with 10CFR50.73, enclosed is a copy of Shoreham Nuclear Power Station's Licensee Event Report LER 87-035.

Sincerely yours,

William E. Steiger, Jr.
Plant Manager

WES/pz

Enclosure

cc: William T. Russell, Regional Administrator
Frank Crescenzo, Resident Inspector
Institute of Nuclear Power Operations, Records Center
American Nuclear Insurers

SR.A21.0200

IE22
1/1

FC-8682.2