

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Limerick Generating Station Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 5 2	PAGE (3) 1 OF 0 5
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TITLE (4) Deficient Locking Springs on Agastat Relays Which May Degrade Operability of System Channels Required by Technical Specifications

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)																																																													
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>OPERATING MODE (9)</td> <td>1</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10) 0 9 1 0</td> <td></td> <td>20.402(b)</td> <td></td> <td>20.406(e)</td> <td></td> <td>50.73(a)(2)(iv)</td> <td></td> <td>73.71(b)</td> </tr> <tr> <td></td> <td>20.406(a)(1)(i)</td> <td></td> <td>50.36(e)(1)</td> <td></td> <td>50.73(a)(2)(v)</td> <td></td> <td>73.71(e)</td> </tr> <tr> <td></td> <td>20.406(a)(1)(ii)</td> <td></td> <td>50.36(c)(2)</td> <td></td> <td>50.73(a)(2)(vii)</td> <td></td> <td>OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td></td> <td>20.406(a)(1)(iii)</td> <td>X</td> <td>50.73(a)(2)(i)</td> <td></td> <td>50.73(a)(2)(viii)(A)</td> <td></td> <td></td> </tr> <tr> <td></td> <td>20.406(a)(1)(iv)</td> <td></td> <td>50.73(a)(2)(ii)</td> <td></td> <td>50.73(a)(2)(viii)(B)</td> <td></td> <td></td> </tr> <tr> <td></td> <td>20.406(a)(1)(v)</td> <td></td> <td>50.73(a)(2)(iii)</td> <td></td> <td>50.73(a)(2)(ix)</td> <td></td> <td></td> </tr> </table>												OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)										POWER LEVEL (10) 0 9 1 0		20.402(b)		20.406(e)		50.73(a)(2)(iv)		73.71(b)		20.406(a)(1)(i)		50.36(e)(1)		50.73(a)(2)(v)		73.71(e)		20.406(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)		20.406(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)				20.406(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)				20.406(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(ix)		
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LICENSEE CONTACT FOR THIS LER (12)

NAME Charles A. Mengers, Senior Engineer, Licensing Section	TELEPHONE NUMBER AREA CODE: 2 1 5 8 4 1 - 5 1 8 4
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
		1 2 3 0	8 8	

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

Abstract: 88-019

On May 6, 1988, during a Quality Control inspection, locking springs on 17 Agastat relays were discovered missing or unsecured. During restoration 2 additional unfastened locking springs were discovered. The condition of the locking springs may have degraded the seismic qualification of the relays such that the Technical Specifications Actuation Instrumentation minimum OPERABLE channel requirements for Reactor Core Isolation Cooling, Core Spray, High Pressure Coolant Injection and Low Pressure Coolant Injection Systems, were not met. There were no adverse consequences as result of this event. An evaluation is underway to determine the effect of a seismic event on the ability of these relays to perform their safety function without the locking springs in place. The cause of the event is believed to be inadvertent dislodging of the locking springs during work activities in the relay cabinets. A memo has been written requiring work group supervision to advise those persons working in the affected cabinets to exhibit care to avoid dislodging the springs. Additionally, a surveillance test will be written to inspect the locking springs on safety-related relays periodically.

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

Unit Conditions Prior to the Event:

Operating Mode - 1 (Power Operation)

Reactor Power - 90%

Description of the Event:

On May 6, 1988, during a Quality Control inspection of various electrical cabinets in the Auxiliary Equipment Room, locking springs on 17 Agastat relays were discovered missing or unsecured.

At 2045 hours the licensed shift supervision and senior staff were notified and actions to restore the locking springs were initiated. By 2300 all 17 locking springs were secured. During the restoration, further inspection of safety related relay cabinets in the Auxiliary Equipment Room identified 2 additional unfastened locking springs which were immediately secured.

On May 10 and May 12, an inspection of similar relays in safety related ventilation cabinets throughout the plant was performed and four relay locking bands were found improperly installed. The locking mechanism for the ventilation relays prevents inadvertent dislodging of the device. The installation of the four locking bands was immediately corrected.

On May 13, an on-site evaluation was completed that determined the potential impact on plant systems if the locking clips were required to maintain seismic qualification of the affected relays. The condition of the locking springs may have degraded the seismic qualification of the relays such that the minimum OPERABLE channel requirements of the Technical Specifications might not have been met for 1 channel of Reactor Core Isolation Cooling (RCIC), 1 channel of a Core Spray Subsystem (CSS), 1 channel of High Pressure Coolant Injection (HPCI), and 1 channel of 2 Low Pressure Coolant Injection Subsystems (LPCI). Thus, this event may be reportable as a condition prohibited by Technical Specifications because the condition of the locking springs may have degraded the ability of the relays and associated systems to perform their safety related functions.

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The potentially inoperable channels were not placed in the tripped condition within 1 hour nor was the associated system declared inoperable as required by the Technical Specification Action Statements. Additionally, the 1 hour action required by Technical Specification 3.0.3 was not initiated. The above actions were not taken on May 13 because the situation had already been corrected. The actions were not taken on May 6 due to the detailed analysis required to determine the impact of the specific relays on instrument channel operability.

Consequences of the Event:

There were no adverse consequences, and no release of radiation occurred as a result of this event. An evaluation is underway to determine whether locking spring integrity is required in order to maintain relay seismic qualification, and therefore relay operability. The results of this evaluation will determine the effect of a seismic event on the ability of the relays to perform their intended safety function.

If the relay locking springs are required for seismic qualification, the following systems might have been adversely affected during a seismic event.

- "C"-RHR: Loss of capability to automatically initiate on low reactor pressure coincident with high drywell pressure
- "D"-RHR: Loss of capability to automatically initiate on reactor level 1 signal
- "D"-CSS: Loss of capability to automatically initiate on low reactor pressure coincident with high drywell pressure
- HPCI: Loss of redundant high drywell pressure initiation logic. HPCI injection valve to core spray (45% flow) would not have operated.
- RCIC: Loss of redundant reactor level 2 initiation logic
- NSSSS: Three normally closed isolation valves would have lost their ability to automatically close.
(Nuclear Steam Supply Shutoff System)

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MSIV-LCS: Inboard suction valve would not have opened rendering the inboard system inoperable. (Main Steam Isolation Valve - Leakage Control System)

RERS: Loss of redundant train of PERS. (Reactor Enclosure Recirculation System)

Cause of the Event:

The cause of this event is believed to be inadvertent dislodging of the locking springs during work activities in the associated relay cabinets.

Corrective Action:

The 17 initially identified locking springs were reinstalled within four hours of notification of the operating shift. The additional 2 locking springs found dislodged during the restoration inspection were reinstalled immediately upon discovery. The four locking bands found improperly installed during the subsequent inspection of the ventilation cabinets were immediately installed correctly. Subsequent reinspection has verified all locking springs have remained secured.

The Nuclear Engineering Department is performing an evaluation to determine the operability of the relays during a seismic event, with the locking springs unsecured.

Actions Taken to Prevent Recurrence:

A memo has been written requiring work group supervision to advise those persons working in the affected cabinets to exhibit care to avoid dislodging the locking springs. Additionally, a surveillance test will be written to inspect the locking springs on safety related relays periodically. The results of the evaluation will determine any further specific actions to prevent recurrence and will be provided in a supplement to this report.

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

EIIS Codes:

Relay	RLY
Channel	CHA
Reactor Core Isolation Cooling System	BN
Core Spray System	BM
High Pressure Coolant Injection System	BJ
Low Pressure Coolant Injection System	BO
Main Steam Isolation Valve - Leakage Control System	SB
Nuclear Steam Supply Shutoff System	JC
Reactor Enclosure Recirculation System	BH

Previous Similar Occurrences:

None

Tracking Code: A99, other Personnel Error

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

June 9, 1988

Docket No. 50-352

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

SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 1

This LER reports a condition which may be prohibited by Technical Specifications. Several locking springs on Agastat relays were found missing or unsecured. This condition may affect the ability of plant systems to perform their safety related functions.

Reference: Docket No. 50-352
Report Number: 88-019
Revision Number: 00
Event Date: May 6, 1988
Discovery Date: May 13, 1988
Report Date: June 9, 1988
Facility: Limerick Generating Station
P.O. Box A, Sanatoga, PA 19464

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B).

Very truly yours,



R. H. Logue
Assistant to the Manager
Nuclear Support Division

cc: W. T. Russell, Administrator, Region I, USNRC
T. J. Kenny, USNRC Senior Resident Inspector
INPO Records Center

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