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FACIL:50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 05000387
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STANLEY,H.G. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 93-009-00:on 930825,determined that an unplanned ESF actuation occurred resulting in drywell vent PCIV closure. Caused by failure of solenoid on valve actuator.Failed solenoid replaced & successfully tested.W/930920 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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September 20, 1993

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 93-009-00
FILE R41-2
PLAS - 574

Docket No. 50-387
License No. NPF-14

Attached is Licensee Event Report 93-009-00. This report is being made pursuant to 10CFR50.73(a)(2)(iv), in that an unplanned Engineered Safety Feature actuation occurred when a Drywell Vent Isolation Valve failed to the closed position due to a failure of its actuator solenoid. The solenoid was replaced.

H.G. Stanley
VP - Nuclear Operations

RRW/mkf

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NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SUSQUEHANNA STEAM ELECTRIC STATION - UNIT 1	0 5 0 0 0 3 8 7	1 OF 0 3

TITLE (4)

UNPLANNED ESF ACTUATION - PRIMARY CONTAINMENT ISOLATION VALVE CLOSURE

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 8	2 5	9 3	9 3	- 0 0 9	- 0 0	0 9	2 0	9 3		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)
		20.406(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)
		20.406(a)(1)(iii)	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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
R. R. Wehry, Power Production Engineer - Compliance	AREA CODE 7 1 7 5 4 2 - 3 6 6 4

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	N H	S O L	C 0 0 4	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)

At 0015 hours on August 25, 1993, with Unit 1 in condition 4 at 0% power, a Drywell Vent primary containment isolation valve failed closed. Investigation revealed the cause of the event to be a failed solenoid on the valve actuator. The event was determined to constitute an unplanned ESF actuation and is reportable per 10CFR50.73(a)(2)(iv). No ESF logic was involved or challenged. The valve failed to the closed position which is the position required for it to fulfill its design safety function, had it been needed. Thus, there were no safety consequences or compromise to public health or safety. Further laboratory analysis was performed on the failed solenoid. The analysis concluded that the solenoid coil wire insulation had failed, resulting in the turns of the coil wire shorting together. This was the only such failure of a solenoid coil of this model installed at Susquehanna. The solenoid was replaced.

DESCRIPTION OF EVENT

At 0015 hours on August 25, 1993, with Unit 1 in Condition 4 at 0% power, a Drywell Vent primary containment isolation valve (EIIS Code: NH) failed closed while a nitrogen purge of the Drywell (EIIS Code: VB) was underway. This closure constituted an unplanned Engineered Safety Feature (ESF) actuation.

CAUSE OF EVENT

Investigation revealed the cause of the event to be failure of a solenoid on the valve actuator. Indications of elevated temperatures in the solenoid coil area were observed as well as a failed solder joint between a wire lead and an electrical connection post on the coil. This solenoid had been installed just five days prior to the event.

Further laboratory analysis was performed on the failed solenoid. The analysis concluded that the solenoid coil wire insulation had failed, resulting in the turns of the coil wire shorting together. This was the only such failure of a solenoid coil of this model installed at Susquehanna.

REPORTABILITY/ANALYSIS

This event was determined reportable per 10CFR50.73(a)(2)(iv), in that an unplanned Engineered Safety Feature (ESF) actuation occurred when the Drywell Vent containment isolation valve failed closed due to failure of a solenoid on the valve actuator. No ESF logic was involved or challenged and no other valves were affected. The subject valve is used for primary containment isolation in the event of an accident. The valve failed to the closed position, which is the position required for it to fulfill its design safety function, had it been needed. Thus, there were no safety consequences or any compromises to public health or safety. This event would not have been more significant at any other operating condition.

In accordance with the guidance provided in NUREG 1022, item 14.1, the required submission date for this report was determined to be September 24, 1993.

CORRECTIVE ACTION

The failed solenoid was replaced and successfully tested. The replacement solenoid was observed to operate at a lower temperature than the solenoid which failed.

Further laboratory analysis was performed on the failed solenoid. The analysis concluded that the solenoid coil wire insulation had failed, resulting in the turns of the coil wire shorting together. This was the only such failure of a solenoid coil of this model installed at Susquehanna.

ADDITIONAL INFORMATION

Failed Component Identification:

Valve:	Solenoid
Model:	NP30-2
Manufacturer:	Circle Seal Controls, Inc.

Previous Similar Events: LER 50-387/90-011-00 described an event in which failure of a solenoid valve resulted in closure of a Reactor Building exhaust fan supply damper (unplanned ESF actuation).

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