

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9602270023 DOC.DATE: 96/02/20 NOTARIZED: NO DOCKET #
 FACIL:50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv 05000388
 AUTH.NAME AUTHOR AFFILIATION
 CODDINGTON,C.T. Pennsylvania Power & Light Co.
 STANLEY,H.G. Pennsylvania Power & Light Co.
 RECIP.NAMF RECIPIENT AFFILIATION

SUBJECT: LER 96-001-00:on 960118,unplanned ESF actuation of isolation valve occurred due to power loss.Caused by blown fuse.Fuse replaced & valve returned to svc.W/960220 ltr.

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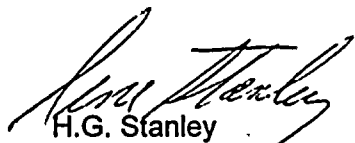
February 20, 1996

U.S. Nuclear Regulatory Commission
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SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-388/96-001-00
PLAS - 664 FILE R41-2

Docket No. 50-388
License No. NPF-22

Attached is Licensee Event Report 50-388/96-001-00. This event was determined to be reportable per 10CFR50.73(a)(2)(iv) in that the Reactor Water Sample Outboard Isolation Valve failed closed on loss of power. This isolation is considered an unplanned Engineered Safety Feature (ESF) actuation.


H.G. Stanley
VP - Nuclear Operations

Attachment

CTC/dmd

cc: Mr. T. T. Martin
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LICENSEE EVENT REPORT (LER)

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.

FACILITY NAME (1) Susquehanna Steam Electric Station - Unit 2						DOCKET NUMBER(2) 0 5 0 0 0 3 8 8			PAGE (3) 1 OF 0 3		
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TITLE (4)
Unplanned ESF Actuation of Isolation Valve Due to Loss of Power

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 1	1 8	9 6	9 6	0 0 1	0 0	0 2	2 0	9 6			0 5 0 0 0
											0 5 0 0 0

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) 1 0 0	20.402(b)	<input checked="" type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(b)						
	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)						
	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(v)(A)	<input type="checkbox"/>							
	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(1)(2)(v)(B)	<input type="checkbox"/>							
	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>							

(LICENSEE CONTACT FOR THIS LER (12))

NAME Cornelius T. Coddington - Sr. Project Engineer, Licensing	AREA CODE 7 1 7	TELEPHONE NUMBER 5 4 2 - 3 2 8 9
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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	7 6	F U S E	B U S S	Yes					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On January 18, 1996, at 1910, with Unit 2 in Condition 1 (Power Operation) at 100% power, control room operators identified the loss of indication to the Reactor Water Sample Outboard Isolation Valve. This is a containment isolation valve for chemistry sampling of the reactor coolant. This valve fails closed on loss of power. Both the position indication and the solenoid which supplies air to the valve actuator are powered from the same source. During investigation of the event, it was discovered that a fuse in the power supply had blown. The valve isolated per design on loss of power. This isolation is considered an unplanned Engineered Safety Feature (ESF) actuation. Prior to the isolation, control room operators observed that the valve position indicated intermittently. The exact root cause of the fuse failure was not determined. However, this failure is sufficiently similar to past industry failures to conclude there may have been a manufacturer cold solder joint from the fuse ferrule to the fuse element that degraded over time and caused the eventual failure of the fuse element. The intermittent loss of power to the circuit that was observed in the control room prior to the final failure is consistent with industry experience. The valve circuit was checked for grounds and shorts. None were found. The fuse was replaced and the valve was returned to service. This event is not safety significant in that the valve responded as designed for loss of power. Since this valve is in the path that provides a continuous source of reactor water for sampling, isolation of this path requires grab sampling to replace the continuous monitoring. There was no safety consequence or compromise to the public health or safety as a result of this unplanned ESF actuation.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)		
Unit 2		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER				
Susquehanna Steam Electric Station	0 5 0 0 0 3 8 8	9 6	— 0 0 1	— 0 0	2	OF	3	

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

EVENT DESCRIPTION

On January 18, 1996, at 1910, with Unit 2 in Condition 1 (Power Operation) at 100% power, control room operators identified loss of indication to the Reactor Water Sample Outboard Isolation Valve (EIIIS Code: KN). The loss of indication was due to a blown fuse in the power supply. The valve also isolated since this valve fails closed on loss of power; and both the position indication and the solenoid which supplies air to the valve actuator are powered from the same source. Technical Specification Limiting Condition for Operation (LCO) 3.6.3 for containment penetrations was entered. This Technical Specification Action requires isolation of the penetration when the valve is declared inoperable. The inboard isolation valve was closed and de-energized to comply with the LCO Action Statement.

CAUSE OF EVENT

The cause of this event was attributed to a blown fuse. The investigation found no shorts or grounds in the valve circuit. The exact root cause of the fuse failure was not determined. However, this failure is sufficiently similar to past industry failures to conclude there may have been a manufacturer cold solder joint from the fuse ferrule to the fuse element that degraded over time and caused eventual failure of the fuse element. The intermittent loss of power to the circuit that was observed in the control room prior to final failure is consistent with industry experience and supports the failure theory. The industry has experienced failures in which intermittent operation was observed followed by failure of the fuse.

REPORTABILITY/ANALYSIS

This event was determined to be reportable under 10CFR50.73(a)(2)(iv) in that an unplanned Engineered Safety Feature (ESF) actuation occurred when the Reactor Water Sample outboard isolation valve automatically closed due to a loss of power. This event is not safety significant in that the valve responded, as designed, to the loss of power. Since this valve is in the path that provides a continuous source of reactor water for sampling, isolation of this path requires grab sampling to replace the continuous monitoring. There was no safety consequence or compromise to the public health or safety as a result of this unplanned ESF actuation.

In accordance with the guidance provided in NUREG 1022, Supplement 1, item 14.1, and 10 CFR 50.4(d), the required submission date for this report was determined to be February 20, 1996.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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.

FACILITY NAME (1) Unit 2 Susquehanna Steam Electric Station	DOCKET NUMBER (2) 0 5 0 0 0 3 8 8	LER NUMBER: (6)						PAGE (3)		
		YEAR		SEQUENTIAL NUMBER		REVISION NUMBER				
		9 6	—	0 0 1	—	0 0		3	OF	3

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

CORRECTIVE ACTIONS

Upon discovery of the loss of indication to the Reactor Water Sample outboard isolation valve, operations personnel entered Technical Specification LCO 3.6.3 and closed and de-energized the Reactor Water Sample inboard isolation valve in accordance with the LCO Action. An investigation was conducted and determined the cause of the loss of indication was a blown fuse. No grounds or shorts existed when the valve circuit was checked. The fuse was replaced and the valve returned to service. Also a thermal image of the solenoid on the valve actuator was performed to ensure there is no overheating or hot spots. Additional checks of the current and resistance of the associate relay circuit were performed to ensure no faults exist with the associated logic circuit. No faults in the associated logic circuit were found.

ADDITIONAL INFORMATION

Past Similar Events: No similar ESF actuations due to blown fuses were identified.

Failed Component: BUSSMANN type KTK, 120 VAC, 5 Amp fuse

