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ACCESSION NBR:8911160123 DOC.DATE: 89/11/07 NOTARIZED: NO DOCKET #
FACIL:50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
AUTH.NAME AUTHOR AFFILIATION
RUSANOWSKY,P.P. Pennsylvania Power & Light Co.
BYRAM,R.G. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-011-00:on 891008,instrument air leaked caused by improperly madeup fitting results.W/ 891107 ltr.
W/8 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 4
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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Pennsylvania Power & Light Company
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November 7, 1989

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 89-011-00
FILE R41-2
PLAS - 390

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

Attached is Licensee Event Report 89-011-00. This event was determined to be reportable per 10CFR50.73(a)(2)(iv) in that it resulted in an unplanned, automatic actuation of the Reactor Protection System.

R.G. Byram
Superintendent of Plant - Susquehanna

PPR/mjm

cc: Mr. W.T. Russell
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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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

TITLE (4): Instrument Air Leak Due to an Improperly Madeup Fitting Results in Initiation of a Full RPS Actuation

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)
1 0	0 8	8 9	8 9	— 0 1 1 —	0 0	1 1	0 7	8 9		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): *

POWER LEVEL (10): 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

	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: P.P. Rusanowsky - Power Production Engineer

TELEPHONE NUMBER: AREA CODE 7 1 7 5 4 2 - 3 7 5 9

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)

At 0741 on 10/8/89, with the unit in a refueling outage and all fuel off loaded, a full Reactor Protection System (RPS) actuation was automatically initiated in response to a high water level in the Scram Discharge Volume (SDV). No control rod motion occurred since all rods were fully inserted at the time of the event. A low pressure condition in the Control Rod Drive (CRD) System air supply header, which occurred when a section of air tubing pulled out of its compression fitting, caused several CRD system air operated valves to cycle, per design, which resulted in a valve configuration that caused the level in the SDV to increase. The RPS actuation occurred when the water level in the SDV reached the high level trip setpoint. Further investigation determined that the tubing had not been properly installed in the compression fitting. The tubing to fitting joint was properly reworked and checked for air leakage. All fittings associated with a particular preventative maintenance activity (PM), performed in July 1989 and suspected to have been a contributing factor in this event, were also checked for air leaks. Although this event was concluded to be an isolated case, an additional step to leak check appropriate air fittings is being added to the post maintenance testing section of the procedure which governs the PM activity mentioned above. Also, this event will be reviewed by the appropriate departments to ensure that personnel involved with this type of tubing installation are receiving adequate training and/or instructions. This event was determined to be reportable under 10CFR50.73(a)(2)(iv) in that it resulted in an unplanned, automatic actuation of the Reactor Protection System. Even though this event would have caused an undesirable plant transient had the unit been operating at power, since all systems and equipment functioned properly, there were no safety consequences or compromises to the health or safety of the public nor would there have been had the unit been operating at power.

* Reactor pressure vessel head removed and all fuel off loaded.

EVENT

At 0741 on 10/8/89, with the unit in a refueling outage and all fuel off loaded, a full Reactor Protection System (EIIS Code: JC) actuation occurred in response to a high water level in the Scram Discharge Volume (SDV). No control rod motion occurred since all rods were fully inserted at the time of the event.

CAUSE

A section of stainless steel tubing in the Instrument Air (EIIS Code: LD) supply line to the scram pilot solenoid valve for Control Rod Drive Mechanism (CRDM) 26-47 was found to have backed out of its Swagelok fitting (compression type fitting used for tubing installations). The loss of air through this open joint resulted in a low pressure condition in the CRD System (EIIS Code; AA) air supply header. The low air header pressure caused, as expected and per design, several CRDM scram valves to drift open and the Scram Discharge Volume (SDV) drain valves to drift closed. The two scram valves per CRDM are air operated valves which are normally held closed by Instrument Air supplied via the CRDM's scram pilot solenoid valve. On loss of air pressure, the scram valves are designed to open. One of them admits high pressure CRD System water to the under piston area of its CRDM while the other scram valve in each pair vents the over piston area water of its CRDM to the common SDV. The SDV drain valves are also air operated valves which, in this case, are held open by Instrument Air. These open drain valves ensure adequate volume exists in the SDV to accommodate the water vented from the over piston area of all the CRDMs by their scram valves described above during a full scram. In the event of a malfunction which results in an increasing water level in the SDV, which occurred during this event, a full scram signal is initiated by the RPS at a specified water level in order to scram all control rods while there is still sufficient volume remaining in the SDV to accommodate the water vented from the over piston area of all the CRDMs during completion of a full scram. On loss of air pressure due either to a malfunction, as was the case in this event, or upon initiation of a full scram signal, these drain valves are designed to close in order to maintain primary containment integrity with the scram valves open. The full RPS actuation reported in this event was initiated when the level in the SDV reached the high level scram setpoint described previously.

Further investigation concluded that the tubing which had backed out of the Swagelok fitting had not been inserted far enough into the fitting when the fitting was tightened hence the fitting did not compress adequately onto the end of the tubing. This condition appears to have existed since the installation of the fitting prior to the initial startup of Unit 2. What caused the tubing to back out of the fitting could not be determined. Replacement of the scram pilot solenoid valve for CRDM 26-47, which is approximately six inches from the subject Swagelok fitting, on 7/26/89 under a preventative maintenance activity is suspected to have been a contributing factor.

CORRECTIVE ACTIONS

The subject tubing to Swagelok fitting joint was properly reworked and checked for air leakage. All fittings associated with the scram pilot solenoid valves replaced in July 1989 (92 total) were also checked for air leaks. One air leak was found and corrected.

Although this event was concluded to be an isolated case, an additional step to leak check all associated air fittings is being added to the post maintenance testing section of the scram pilot solenoid valve replacement procedure. Also, this event will be reviewed by the appropriate departments to ensure that adequate training and/or instructions are being administered to personnel involved with this type of tubing installation.

REPORTABILITY/ANALYSIS

This event was determined to be reportable under 10CFR50.73(a)(2)(iv) in that it resulted in an unplanned, automatic actuation of the Reactor Protection System.

Even though this event would have caused an undesirable plant transient had the unit been operating at power, since all systems and equipment functioned properly, there were no safety consequences or compromises to the health or safety of the public no would there have been had the unit been operating at power.

ADDITIONAL INFORMATION

Previous similar events: None