

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9704040134 DOC.DATE: 97/03/27 NOTARIZED: NO DOCKET #
 FACIL:50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 05000387
 AUTH.NAME AUTHORITY AFFILIATION
 CODDINGTON,C.T. Pennsylvania Power & Light Co.
 KUCZYNSKI,G.J. Pennsylvania Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-006-00:on 970225,Unit 1 was manually scrambled due to loss of condenser vacuum.Repair of H analyzer & subject solenoid & completion of risk assessment review for work presently in field.W/970327 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: 05000387

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Pennsylvania Power & Light Company

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March 27, 1997

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/97-006-00
PLAS - 702 FILE R41-2

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

Attached is Licensee Event Report 50-387/97-006-00. This event was determined to be reportable per 10CFR50.73(a)(2)(iv) in that Susquehanna SES Unit 1 was manually scrammed in anticipation of the loss of condenser vacuum due to the isolation of the Offgas System.


G. J. Kuczynski
Plant Manager - Susquehanna SES

Attachment

cc: Mr. H. J. Miller
Regional Administrator
U. S. Nuclear Regulatory Commission
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King of Prussia, PA 19406

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Sr. Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 35
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9704040134 970327
PDR ADOCK 05000387
S PDR

IE22/1



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 1	DOCKET NUMBER (2) 0 5 0 0 0 3 8 7 1	PAGE (3) OF 0 4
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TITLE (4)
Unit 1 Manual SCRAM - Loss Of Vacuum

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					
0	2	2	5	9	7	9	7	—	0	5	0	0	0	0
0	2	2	5	9	7	9	7	—	0	5	0	0	0	0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 1: (Check one or more of the following) (11)											
POWER LEVEL (10) 0 6 4	20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(v)			73.71(b)		
	20.405(a)(1)(v)			50.38(c)(1)			50.73(a)(2)(v)			73.71(c)		
	20.405(a)(1)(v)			50.38(c)(2)			50.73(a)(2)(v)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
	20.405(a)(1)(v)			50.73(a)(2)(i)			50.73(a)(2)(v)(A)					
	20.405(a)(1)(v)			50.73(a)(2)(i)			50.73(1)(2)(v)(B)					
	20.405(a)(1)(v)			50.73(a)(2)(ii)			50.73(a)(2)(v)					

NAME Cornelius T. Coddington - Sr. Project Engineer, Licensing										TELEPHONE NUMBER				
										AREA CODE				
										7 1 7		5 4 2 - 3 2 9 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

SUPPLEMENTAL REPORT EXPECTED (14)								EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (if yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO												

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

On February 25, 1997, at 1723 hours with Unit 1 in Condition 1 (Power Operation) at 64% power, the unit was manually scrammed due to a loss of condenser vacuum. Condenser vacuum was lost when the Unit 1 Offgas System isolated on a false high-high hydrogen signal from an electrical short caused by water intrusion into a hydrogen analyzer from an in-plant work activity. Neither the common nor the Unit 1 Offgas recombiner could be restored to operation as a result of solenoid valve problems. The plant was safely shutdown and there were no safety consequences or compromises to public health or safety during this event, nor would there have been under different initial operating conditions. The erroneous high-high hydrogen signal was generated due to water intrusion as a result of maintenance activities in the vicinity. While provisions had been made to capture and divert the fluid, the collection device became plugged and overflowed. Subsequent investigation indicated that less than adequate assessment of risk associated with work activities contributed. Procedural inadequacies for Offgas System operation inhibited the successful swap to the Common recombiner and complicated the recovery of the Unit 1 recombiner. The corrective actions include: repair of the hydrogen analyzer and subject solenoid valves; completion of a risk assessment review for work presently in the field; procedural revisions; training of involved personnel on this event; evaluation of training frequencies; reinforcement of standards with Maintenance Supervision; additional oversight on in-plant work activities; and performance of an assessment of the treatment of Maintenance Rule Non-Risk Significant Systems.



**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 1 Susquehanna Steam Electric Station	DOCKET NUMBER (2) 0 5 0 0 0 3 8 7	LER NUMBER (6)						PAGE (3)		
		YEAR 9 7	SEQUENTIAL NUMBER — 0 0 6			REVISION NUMBER — 0 0		2	OF	4

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

EVENT DESCRIPTION

On February 25, 1997, at 1723 hours with Unit 1 in Condition 1 (Power Operation) at 64% power, the unit was manually scrammed due to a loss of condenser vacuum. Condenser vacuum was lost when the Unit 1 Offgas System (EISS Code: WF) isolated on a false high-high hydrogen signal and neither the common nor the Unit 1 Offgas recombiner could be restored to operation. During the scram, reactor water level dropped below the scram initiation setpoint (+13 inches), as expected, to a minimum of 8 inches. The scram Off-normal and Emergency Procedures were entered due to water level dropping below +13 inches. All Level 3 (+13 inches) isolations occurred and there were no indications of failed Engineered Safety Feature (ESF) actuations or isolations. There were no Main Steam Relief Valve (MSRV) lifts. Containment parameters remained stable. All systems performed per design, except that one Intermediate Range Monitor (IRM; EISS Code: IG) did not insert due to a blown fuse. During the recovery from the level transient, reactor water level increased to +56 inches causing the reactor feedwater pumps (EISS Code: SK) to trip and High Pressure Coolant Injection (HPCI; EISS Code: BJ) and Reactor Core Isolation Cooling (RCIC; EISS Code: BN) Systems to trip on high water level. One reactor feedwater pump was restored to provide level control and HPCI and RCIC reset once the trip signal cleared. The unit was taken to Cold Shutdown.

CAUSE OF EVENT

An Event Review Team was formed to perform investigations and root cause analysis of this event. The Event Review Team determined the following:

The false high-high hydrogen isolation signal was a result of water intrusion into the Hydrogen Analyzer panel from adjacent work activities resulting in an electrical short in the panel. The water intrusion was a result of overflowing of a clogged strainer in the throat of a funnel that was staged to capture the water from the work activity. The root cause was determined to be that the risk assessment of performing the work activity was less than adequate. The assessment assumed that the water could be contained within the funnel and thus, not reach the hydrogen analyzer panel. The assessment did not take into account the possibility that the water may not be contained by the funnel. If the assessment had accounted for this possibility, then other protection for the panel would have been provided.

Operations personnel (utility; licensed and utility; non-licensed) were unable to open valves in the Offgas System in order to restore the system to operation. The root cause of the inability to restore the Offgas System to operation was determined to be that procedural inadequacies for the Offgas System resulted in an abnormal system response. In addition, several causal factors were identified. These factors are 1) the abnormal system response brought on by the procedural inadequacies was not part of operator

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						PAGE (3)					
		YEAR		SEQUENTIAL NUMBER		REVISION NUMBER							
Unit 1 Susquehanna Steam Electric Station	0 5 0 0 0 3 8 7	9	7	—	0	0	6	—	0	0	3	OF	4

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

training; 2) operator interaction with the Offgas System is infrequent; and 3) the Offgas System valves are infrequently stroked.

The IRM did not insert due to a blown fuse.

REPORTABILITY/ANALYSIS

Susquehanna SES Unit 1 was manually scrammed in anticipation of the loss of condenser vacuum when a false high-high hydrogen signal isolated the Offgas System. This event was determined to be reportable per 10CFR50.73(a)(2)(iv) in that an unplanned ESF actuation (manual scram) occurred.

During the scram, all plant systems performed in accordance with the design except that one Intermediate Range Monitor did not insert due to a blown fuse. The plant was safely shutdown and there were no safety consequences or compromises to public health and safety as a result of the manual scram, nor would there have been under different initial operating conditions.

In accordance with the guidelines provided in NUREG-1022, Supplement 1, Item 14.1, the required submission date for this report was determined to be March 27, 1997.

CORRECTIVE ACTIONS

The following corrective actions were identified and completed:

- The IRM blown fuse was replaced and the IRM was successfully inserted.
- The hydrogen analyzer was repaired.
- The solenoid valves on the inlet valves to the Unit 1 and Common recombiners were replaced.
- All major modification work issued for work field at the time of the event was halted and reviewed for risk prior to allowing work to continue.
- The screens were removed from all funnels.

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FACILITY NAME (1) Unit 1 Susquehanna Steam Electric Station	DOCKET NUMBER (2) 0 5 0 0 0 3 8 7	LER NUMBER (6)						PAGE (3)		
		YEAR 9 7	—	SEQUENTIAL NUMBER 0 0 6	—	REVISION NUMBER 0 0	4	OF	4	

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

- The Off-normal procedures were revised to provide consistency and reasonable guidance for Offgas System operation when a high-high hydrogen isolation signal is present.

The following corrective actions have been identified and will be completed:

- The Standards of Professionalism will be reinforced with all Maintenance supervision.
- Additional oversight for risk assessment activities will be provided until Maintenance management is satisfied with the performance of these activities.
- The appropriate maintenance procedures will be revised to provide direction on risk assessment.
- The training frequencies for Licensed and Non-Licensed Operator Training on the Offgas System will be evaluated.
- A Non-Routine Training Package to raise the awareness of the Nuclear Department of the importance of the Offgas System will be developed for presentation by Functional Unit Managers to their groups describing this event.
- An assessment of the treatment of the Maintenance Rule Non-Risk Significant Systems will be performed to ensure it is meeting management expectations.

ADDITIONAL INFORMATION

Past Similar Events: None

Failed Component: None