ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:	9112160317	DOC.DATE	: 91/12/09	NOTARIZEI): NO	DOCKET #	:
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LIOYD, H.	Pennsylva	ania Power	& Light Co).			
STANLEY, H.G.	Pennsylva	ania Power	& Light Co) .			
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SUBJECT: LER 91-015-00:on 911107, determined that HPCI was inoperable in that pressure & flow requirements of quartly flow surveillance could not be met.Caused not determined.Broken poppet replaced & other poppets inspected.W/911209 ltr.

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

NOTES:LPDR 1 cy Transcripts.

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Pennsylvania Power & Light Company

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December 9, 1991

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

SUSQUEHANNA STEAM ELECTRIC STATION LICENSEE EVENT REPORT 91-015-00 FILE R41-2 PLAS - 509

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

Attached is Licensee Event Report 91-015-00. This report is being made pursuant to 10CFR50.73(a)(2)(V)(D), in that the High Pressure Coolant Injection System, a single train safety system, would not pass its surveillance requirements due to a broken turbine steam control pilot valve. The control valve was repaired and the system was restored to operable status.

IE2

H.G. Stanley / Superintendent of Plant - Susquehanna

HL/mjm

cc: Mr. T. T. Martin Regional Administrator, Region I U.S. Nuclear Regulatory Commission 475 Allendale Road King of Prussia, PA 19406

> Mr. G. S. Barber Sr. Resident Inspector U.S. Nuclear Regulatory Commission P.O. Box 35 Berwick, PA 18603-0035

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	EXPIRES: 4/30/92 EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TC THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICI OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.									TH THIS DRWARD ECORDS UCLEAR AND TO OFFICE 503.												
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High	High Pressure Coolant Injection System Inoperable Due to Broken Steam Control Valve Pilot																					
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ABSTRA	CT (Limit C	to 1400 spi	oces, i.e., e	pproxim	netely fifteen	single-sp	Dece typ	ewritten li	nes) (16)		•											
Pressure Coolant Injection System (HPCI) was inoperable in that the pressure and flow requirements of the Quarterly Flow Surveillance could not be met. Inspection of the turbine steam chest revealed that the head of the #1 poppet (Pilot valve) had broken off. An engineering failure analysis will be performed to determine the failure mode. This event was determined to be reportable per 10CFR50.73(a)(2)(V)(D) as a condition that alone could have prevented the fulfillment of the safety function of the system. However, sufficient safety margin exists in the design such that HPCI could have performed its intended function. The broken poppet was replaced and the other poppets were inspected. The surveillance test was then satisfactorily completed. Any additional corrective actions will be determined depending on the results of the failure analysis.																						
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<u>Susquehanna</u> Steam	Electric Station	0 5 0 0 0	3 8 7	9 1	—	0 1	. 5	010	01	2 0	F O	1
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DESCRIPTION OF EVENT

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On November 7, 1991, with Unit 1 in Condition 1 at 100% power it was determined that the High Pressure Coolant Injection System (HPCI), (EIIS Code: BJ) was inoperable.

Following Maintenance on various system valves, the HPCI system was placed in service for the quarterly flow surveillance, SO-152-002. The surveillance failed the acceptance criteria by a small margin. Instrument and Control personnel (utility; non-licensed) performed a calibration of the HPCI turbine control system and the subsequent test showed the control valve at 60% open in lieu of the normal 35% open with similar system performance. It was decided that the steam chest cover would be removed and upon removal, it was discovered that the head of the #1 poppet was broken off and lying near the #3 poppet venturi. The poppet valves open sequentially via a lifting rack in the order of 4-1-3-5-2. As the lifting rack is raised, it comes in contact with he lifting knob of the poppet valves, opening them one at a time. The #1 poppet contains a pilot to reduce the force due to steam pressure in the chest. Since the #1 poppet would not open, steam pressure prevented the #5 poppet valve from opening and thus slightly reduced the turbine performance.

CAUSE OF EVENT

An investigative team was formed to determined the cause of the #1 poppet valve failure. An engineering failure analysis will be performed to determine the failure mode and the overall root cause. Included in this analysis will be metallurgical evaluation as well as procurement/manufacturing data.

REPORTABILITY/ANALYSIS

This event was determined to be reportable per 10CFR50.73(a)(2)(V)(D) as an event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident. The amount by which the system failed the surveillance acceptance criteria was minimal. The acceptance criteria is that the HPCI pump develops a flow of at least 5000 gpm against a test line pressure of greater than or equal to 1266 psig. With the control valve in the degraded condition, the discharge pressure at 5000 gpm flow was 1200 psig. If the poppet had failed during an actual vessel injection, the HPCI system may not have been able to provide design flow and pressure. However, sufficient margin exists in the design such that HPCI would have performed its intended function in any operating or accident scenarios. It was also determined that the broken

NRC FORM 386A U.S. 1	NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 315	0.0104					
LICENSEE EVENT REPORT (TEXT CONTINUATION	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P430), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20055, AND TO THE PAPERWORK REDUCTION PROJECT (31500104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.							
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Unit 1		YEAR SEQUENTIAL REVISION NUMBER						
Susquehanna Steam Electric Station	0 5 0 0 0 3 8 7	9 1 _ 0 1 5 _ 0 0	0 3 0 0 3					
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poppet head being loose inside th not have worsened conditions due chest. This condition did not ca the health and safety of the publ	ne steam chest with to physical configu ause a degradation i lic and/or plant per	the turbine running wo rations within the ste n our ability to prote sonnel.	uld an ect					
In accordance with guidance provi and 10CFR50.4(d), the required su be December 9, 1991.	ided in NUREG 1022, Ibmission date for t	Supplement 1, item 14. he report was determin	1, led to					
		4						
CORRECTIVE ACTION								
November 14, 1991. Any additional future date depending on the result this LER will be submitted to ide recurrence. A similar event occurred on Unit fatigue in combination with lack Unit 2 HPCI System has performed This type failure will only occur applied to these components. Sat verification assures continued op the failure occur during an actual still perform its intended function	2 in 1986. The failure of nitriding in the satisfactorily since during system oper- cisfactory operation berability. As ment al vessel injection, on given the system	s will be determined a analysis. An update t l actions taken to pre : area of the fracture. e the repair was compl ation when forces are during the quarterly ioned previously, shou the HPCI System would design margin.	The eted.					
ADDITIONAL INFORMATION								
Failed Component Identification:	•							
Component: Valve, pilot								
Manufacturer: Terry Steam Tu	irbine, Co.							
Part Number: 58234								
Previous Similar Events:								
Docket No. 50-388 LER 86-008- Control Val	-00 HPCI System Inop .ve.	erable due to a Broken	•					
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