

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: B704280124 DOC. DATE: 87/04/22 NOTARIZED: NO DOCKET #
 FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv 05000388
 AUTH. NAME AUTHOR AFFILIATION
 HIRT, J. A. Pennsylvania Power & Light Co.
 BYRAM, R. G. Pennsylvania Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-004-00: on B70323, one RHR pump & one automatic depressurization sys safety relief valve inoperable w/o LPCI sys operable. Caused by failed RHR pump supply breaker switch. Switch replaced. W/870422 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: 1cy NMSS/FCAF/PM. LPDR 2cys Transcripts. 05000388

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
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	THADANI, M	1 1		
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	1 1
	AEOD/DOA	1 1	AEOD/DSP/ROAB	2 2
	AEOD/DSP/TPAB	1 1	NRR/ADT	1 1
	NRR/DEST/ADE	1 0	NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1	NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1	NRR/DEST/MEB	1 1
	NRR/DEST/MTB	1 1	NRR/DEST/PSB	1 1
	NRR/DEST/RSB	1 1	NRR/DEST/SGB	1 1
	NRR/DLPQ/HFB	1 1	NRR/DLPQ/GAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/EPB	1 1
	NRR/DREP/RAB	1 1	NRR/DREP/RPB	2 2
	NRR/PMAS/ILRB	1 1	NRR/PMAS/PTSB	1 1
	<u>REG FILE</u> 02	1 1	RES SPEIS, T	1 1
	RGNI FILE 01	1 1		
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	2 2	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G	1 1
NOTES:		3 3		

TOTAL NUMBER OF COPIES REQUIRED: LTTR 46 ENCL 44

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Susquehanna Steam Electric Station - Unit Two	DOCKET NUMBER (2) 0 5 0 0 0 3 8 8	PAGE (3) 1 OF 0 4
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TITLE (4) The Plant Operates in a Condition Prohibited by Technical Specifications due to the Inoperability of an ADS Valve and a Residual Heat Removal Pump.

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 3	2 3	8 7	8 7	0 0 4	0 0	0 4	2 2	8 7			0 5 0 0 0																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9)</td> <td style="width:15%;">1</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10)</td> <td>1 0 0</td> <td>20.402(b)</td> <td>20.405(c)</td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(i)</td> <td>50.36(c)(1)</td> <td>50.73(a)(2)(v)</td> <td>73.71(c)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(ii)</td> <td>50.36(c)(2)</td> <td>50.73(a)(2)(vi)</td> <td rowspan="3">OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(iii)</td> <td>X 50.73(a)(2)(ii)</td> <td>50.73(a)(2)(viii)(A)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(iv)</td> <td>50.73(a)(2)(iii)</td> <td>50.73(a)(2)(viii)(B)</td> </tr> <tr> <td></td> <td></td> <td>20.405(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td>50.73(a)(2)(x)</td> </tr> </table>												OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)										POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	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)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)		20.405(a)(1)(iii)	X 50.73(a)(2)(ii)	50.73(a)(2)(viii)(A)		20.405(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)			20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)
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LICENSEE CONTACT FOR THIS LER (12)

NAME Jeffrey A. Hirt - Engineer Level I	TELEPHONE NUMBER
	AREA CODE: 7 1 7 5 4 2 - 3 9 1 7

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
X	B O	B K R	G 0 8 0	YES					
X	S B	L F	G 0 8 0	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 March 23, 1987, between the hours of 1450 and 1457, Unit Two operated in a condition prohibited by the plant's Technical Specifications. This condition resulted due to the inoperability of one Residual Heat Removal pump and one Automatic Depressurization System (ADS) safety relief valve. Technical Specification 3.5.1 does not allow an ADS valve to be inoperable without the Low Pressure Coolant Injection (LPCI) system being operable. During this time period the unit continued to operate at 100% rated power.

Operations personnel declared the 2B RHR pump inoperable at 1025 hours when it failed to start during surveillance testing. Electrical Maintenance personnel investigated and found the cause to be a failed limit switch associated with the pump's supply breaker. The breaker (including the limit switch) was replaced and the pump was declared operable at 1457 hours.

At 1158 hours, Operations personnel found the indicating light to one ADS logic channel extinguished, indicating that half the logic necessary to cause the relief valve to open inadvertently was present. At 1450 hours, prior to testing the RHR pump for operability, Electrical Maintenance personnel removed fuses from the logic channel as a precautionary measure to prevent an inadvertent lifting of the relief valve. (A running RHR pump is a prerequisite for the ADS valve to open). This action, disabling the relief valve, combined with the inoperability of the RHR pump produced a condition prohibited by the Technical Specifications. The ADS valve was declared operable at 1645 hours after the socket to the ADS status light was replaced.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

EVENT DESCRIPTION

On March 23, 1987, between the hours of 1450 and 1457 Unit Two operated in a condition prohibited by the plant's Technical Specifications. During this time period the unit continued to operate at 100% rated power. This condition resulted due to the inoperability of one Residual Heat Removal (RHR) pump (EIIS Code: BO) and one Automatic Depressurization System (ADS) (EIIS Code:SB) safety relief valve (SRV). At 1025 hours, Operations personnel declared Limiting Condition for Operation 3.5.1 when the 2B RHR pump failed to start from the control room during surveillance test SO-249-002 "Quarterly RHR System Flow Verification." At 1158 hours Operations personnel found the indicating light to one ADS logic channel extinguished. This indicates that half of the logic necessary to cause the relief valve to open inadvertently was present. No valid actuation signals existed (e.g., high drywell pressure, low reactor water level).

The ADS safety relief valves are pneumatically operated. In order for a valve to lift one of two solenoid valves, "A" or "B", must open. When a solenoid valve opens, instrument gas actuates the ADS valve. Two trip systems provide the logic for opening the solenoid valves. One trip system governs one solenoid valve while the other governs the second valve. Each trip system is composed of two logic channels. Both of these channels must actuate to open the solenoid valve and lift the ADS valve.

At 1450 hours, Electrical Maintenance personnel, in order to repair the light, removed fuses from the logic channels of the trip system in which the indicating light was found extinguished. This disabled one of the solenoid valves. (The second solenoid was not affected and would have opened if conditions warranted). Since one of the two solenoid valves was disabled, Operations personnel declared the associated ADS valve inoperable and entered LCO 3.5.1 on the Automatic Depressurization System. The Action Statement to 3.5.1 requires the Low Pressure Coolant Injection (LPCI) System (EIIS Code:BO) to be operable with an ADS valve inoperable. The LPCI system was inoperable due to the 2B RHR pump failing to start during surveillance testing. As such, Operations personnel declared LCO 3.0.3 at 1450 hours.

Removing the fuses to the logic channels had a dual purpose. It allowed maintenance personnel to replace the light socket and it reduced the possibility of an inadvertent actuation of the ADS valve. In order to prevent an inadvertent actuation of the ADS valve, the fuses to the logic channels had to be removed prior to declaring the RHR pump operable. To determine operability of the pump, it was necessary to start the pump from the control room and verify that it ran properly. A running RHR pump is a prerequisite for the actuation of the ADS system. Since one logic channel status light was extinguished, it appeared as if half the logic had actuated for the ADS valve to lift. Running the RHR pump, without removing the fuses, would have increased the possibility of an inadvertent lifting of the ADS valve.

At 1457 hours, Electrical Maintenance personnel had completed repair work on the 2B RHR pump and Operations personnel cleared LCO 3.5.1 on the RHR system and LCO 3.0.3. LCO 3.5.1 still existed on the ADS system.

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

At 1645 hours, Electrical Maintenance personnel completed repairs on the ADS status light and operations personnel cleared the ICO on the ADS system.

At 2130 hours on March 24, 1987 Operations personnel completed SO-249-002 satisfactorily.

CAUSE/CORRECTIVE ACTION

Electrical Maintenance personnel determined that a limit switch, associated with the RHR pump's supply breaker failed to operate. After the breaker (which includes the limit switch) was replaced, the RHR pump started satisfactorily.

When Operations personnel discovered the extinguished ADS status light, they first thought the bulb had burned out. They replaced the bulb; however, the light still did not illuminate. Electrical Maintenance personnel investigated. Their investigation revealed a short across the light socket. They replaced the light socket and the light illuminated. On March 27, 1987 the problem recurred. (Since the RHR system was operable LCO 3.0.3 was not applicable). Electrical Maintenance personnel again investigated. When they removed the relay cover, to inspect the contacts, the light illuminated. It extinguished when they attempted to replace the cover. Maintenance personnel removed the relay cover and removed dust from the compartment. The light illuminated and stayed lit following replacement of the relay cover.

SAFETY CONSEQUENCES

This event did not pose a significant safety consequence. The Automatic Depressurization System serves as a backup to the High Pressure Coolant Injection System (EIIS Code: BJ). During the period of time the ADS system was declared inoperable, HPCI was operable. In addition, the actions taken by the Electrical Maintenance personnel (i.e., removing the fuses) affected only one of the two solenoid valves. Had an accident occurred and the HPCI system failed to perform its design function, the other solenoid valve would have opened to allow instrument gas to lift the ADS valve.

REPORTABILITY

This event was determined to be reportable to the Commission per 10CFR50.73 (a) (2) (i), in that, Unit Two operated in a condition prohibited by the plant's Technical Specifications (LCO 3.0.3), for approximately seven minutes. This condition resulted from an ADS valve and RHR system being declared inoperable at the same time.

SIMILAR OCCURRENCES

LER 84-019-00 filed with the Commission on October 18, 1984, describes a similar scenario where the failure of an RHR system breaker caused the plant to enter LCO 3.0.3. According to this LER, the High Pressure Coolant Injection (HPCI) system (EIIS Code: BJ) was out of service while its lube oil

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was being changed out. Prior to returning the HPCI system to service, it was to be tested to confirm operability. During the test the RHR system was to be placed in the Suppression Pool Cooling mode of operation. However, when Operations personnel attempted to start the "2D" RHR pump it failed to start. ICO 3.0.3 was entered due to the inoperability of the RHR and HPCI systems. This condition was cleared approximately 15 minutes later after Operations personnel cycled the pump's switch gear breaker and started the pump. Approximately two weeks later the pump failed to start again on a manual actuation signal. Electrical Maintenance personnel determined the cause was a faulty limit switch on the breaker. This breaker was replaced.

On November 20, 1986, the "2B" RHR pump failed to start when an operator attempted to place the RHR system in the suppression pool cooling mode of operation. After Operations personnel cycled the supply breaker the pump started. Electrical Maintenance personnel investigated but did not find anything abnormal.

There were no previous failures of the ADS logic channel indication lights identified.



Pennsylvania Power & Light Company

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April 22, 1987

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 87-004-00
FILE R41-2
PLAS - 247

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

Attached is Licensee Event Report 87-004-00. This event was determined reportable per 10CFR50.73(a)(2)(i), in that the unit operated in a condition prohibited by the plant's Technical Specifications for approximately seven minutes.

R. G. Byram
Superintendent of Plant - Susquehanna

JAH/cmw

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