

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8710200345 DOC. DATE: 87/10/13 NOTARIZED: NO DOCKET #
 FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylv 05000387
 AUTH. NAME: AUTHOR AFFILIATION
 SHERANKO, R. G. Pennsylvania Power Co.
 BYRAM, R. G. Pennsylvania Power & Light Co.
 RECIP. NAME: RECIPIENT AFFILIATION

SUBJECT: LER 87-028-00: on 870913, ESF actuation experienced w/closure of primary containment isolation valve. Caused by spurious flow signal. Causing automatic trip of RHR pump. C. Sys operating procedures revised. W/871013 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: 1cy NMSS/FCAF/PM. LPDR 2cys Transcripts. 05000387

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD1-2 LA THADANI, M	1 1 1 1	PD1-2 PD	1 1
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AEOD/DSP/NAS	1 1
	AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
	ARM/DCTS/DAB	1 1	DEDRO	1 1
	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/QAB	1 1	NRR/DOEA/EAB	1 1
	NRR/DRÉP/RAB	1 1	NRR/DREP/RPB	2 2
	NRR/DRIS/SIB	1 1	NRR/PMAS/ILRB	1 1
	REG FILE 02	1 1	RES DEPY GI	1 1
	RES TELFORD, J	1 1	RES/DE/EIB	1 1
	RGN1 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 49 ENCL 48

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Susquehanna Steam Electric Station - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 8 7	PAGE (3) 1 OF 0 3
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TITLE (4) Primary Containment Isolation Valve Closes Due to Spurious High Shutdown Cooling Flow Signal

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)																																								
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9) 4</td> <td colspan="11">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="6">POWER LEVEL (10) 0</td> <td>20.402(b)</td> <td>20.405(c)</td> <td><input checked="" type="checkbox"/></td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td>20.406(a)(1)(i)</td> <td>50.38(c)(1)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(v)</td> <td>73.71(c)</td> </tr> <tr> <td>20.406(a)(1)(ii)</td> <td>50.38(c)(2)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(vii)</td> <td rowspan="4">OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td>20.406(a)(1)(iii)</td> <td>50.73(a)(2)(i)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(viii)(A)</td> </tr> <tr> <td>20.406(a)(1)(iv)</td> <td>50.73(a)(2)(ii)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(vii)(B)</td> </tr> <tr> <td>20.406(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(x)</td> </tr> </table>												OPERATING MODE (9) 4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											POWER LEVEL (10) 0	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)	20.406(a)(1)(i)	50.38(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)	20.406(a)(1)(ii)	50.38(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	20.406(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	20.406(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(vii)(B)	20.406(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)
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	20.406(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)																																															

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Robert G. Sheranko, Senior Results Engineer - Compliance	7 1 7 5 4 2 - 3 8 5 8

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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On September 13, 1987, while shutdown in Condition 4, Unit 1 experienced an unanticipated Engineered Safety Feature (ESF) actuation with the closure of a Primary Containment Isolation Valve due to a spurious flow signal. While in the Shutdown Cooling mode, operators attempted to swap operating Residual Heat Removal (RHR) pumps. With the "A" pump in operation, flow was reduced and the "C" pump started. At 0605 hours, the "A" pump was manually tripped from the control room. At approximately the same time, the outboard isolation valve (F008), a Primary Containment Isolation Valve on the Shutdown Cooling suction of the RHR pumps, started to close due to a spurious high flow signal. This caused an automatic trip of the "C" RHR pump. Following filling and venting of the RHR loop by Operations personnel, RHR pump "C" was restarted and Shutdown Cooling was re-established at 0625 on 9/13/87.

Reviews of plant data and discussions with Operations personnel concerning previous RHR pump swaps while operating in the same mode conclude that success of the transfer depends heavily upon flow rate. To prevent recurrence, system operating procedures will be revised requiring loop flow rates to be reduced to the appropriate rate prior to swapping RHR pumps in the Shutdown Cooling mode. Also calibration of pressure switches will be checked.

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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)

DESCRIPTION OF EVENT

On September 13, 1987, while shutdown in Condition 4, Unit 1 experienced an unanticipated Engineered Safety Feature (ESF) actuation with the closure of a Primary Containment Isolation Valve due to a spurious flow signal. While in the Shutdown Cooling mode, operators attempted to swap from the "A" to the "C" Residual Heat Removal (RHR) (EHS Code: BO) pumps. With the "A" pump in operation, flow was reduced from approximately 10,000 gpm to approximately 9,000 gpm. The "C" pump was started and flow stabilized at approximately 10,000 gpm. At 0605 hours, the "A" pump was manually tripped from the control room. At approximately the same time, the outboard isolation valve (F008) on the Shutdown Cooling suction of the RHR pumps started to close causing an automatic trip of the "C" RHR pump. Following filling and venting of the RHR loop by Operations personnel, RHR pump "C" was restarted and Shutdown Cooling was re-established at 0625 on 9/13/87.

No other systems contributed to the event. Swapping of the pumps was being conducted per the appropriate approved procedure.

CAUSE OF EVENT

Auto tripping of the RHR pump upon start of closure of the F008 valve was per design.

There are five signals which would automatically close the F008 valve:

1. Reactor Vessel Low Water Level
2. High Reactor Pressure
3. High RHR Room Temperature
4. High RHR Equipment Area Delta Temperature
5. High RHR Shutdown Cooling Suction Flow

If the F008 valve isolated on any of the first four signals, annunciators in the control room would have alarmed and additional plant responses would have occurred. By deductive reasoning, the F008 valve shut due to a spurious high RHR Shutdown Cooling suction flow signal since actual high flow conditions did not exist.

Reviews of plant data and discussions with Operations personnel concerning previous RHR pump swaps while operating in the Shutdown Cooling mode conclude that success of the transfer depends heavily upon flow rate. Transfers at flow rates less than 9,000 gpm have been successful, whereas some transfers which were done at flow rates greater than 9,000 gpm have resulted in an isolation of the F008 valve. Apparently, tripping one of two pumps while in Shutdown Cooling at flow rates greater than 9,000 gpm creates a perturbation significant enough to cause spurious actuation of the Shutdown Cooling high suction flow elbow tap delta pressure switch resulting in closure of the F008 valve.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

ANALYSIS OF EVENT

This event was determined reportable per 10CFR50.73(a) (2) (iv) in that the Unit experienced an unanticipated Engineered Safety Feature actuation when the F008 valve, which is a primary containment isolation valve closed.

There were no safety implications to the public during the occurrence nor would there have been if the occurrence took place during any other initial condition of Shutdown Cooling since an alternate method for decay heat removal was available using the Control Rod Drive (EIS Code:CD) and Reactor Water Cleanup (EIS Code:CE) systems. The F008 valve is only used in the Shutdown Cooling mode and thus would not affect RHR operation in any other mode. Shutdown Cooling was unavailable for 20 minutes and was readily restored. Reactor coolant temperature and level remained satisfactory throughout the event.

CORRECTIVE ACTIONS

System operating procedures will be revised requiring loop flow rates to be reduced to the appropriate rate prior to swapping RHR pumps in the Shutdown Cooling mode. Calibration of pressure switches will be checked.

ADDITIONAL INFORMATION

Failed Component Identification: None

Previous Similar Events: Similar events have been reported in LER 84-020-00 for Susquehanna Unit 1 and LER 86-015-01 for Susquehanna Unit 2.



Pennsylvania Power & Light Company

P.O. Box 451 • Berwick, PA 18603-0451 • 717/542-2151

October 13, 1987


1987 OCT 19 A 10:02

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 87-028-00
ER 100450 FILE R41-2
PLAS - 283

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

Attached is Licensee Event Report 87-028-00. This event was determined reportable per 10CFR50.73(a)(2)(iv) in that, with the Unit in Cold Shutdown, a spurious high flow signal in the Residual Heat Removal System caused a primary containment isolation valve to close.


R. G. Byram
Superintendent of Plant - Susquehanna

RGS/cmw

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