REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8711100408 DOC. DATE: 87/11/05 NOTARIZED: NO DOCKET #
FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 05000387
AUTH. NAME AUTHOR AFFILIATION
WEHRY, R. R. Pennsylvania Power & Light Co.
BYRAM, R. G. Pennsylvania Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 86-018-01: on 860415, Div I LOCA isolation & half scram occurred when A reactor protection sys bus power lost. Caused by test lead dislocated during investigation of Div II isolation. Affected sys restored. W/871105 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 3
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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

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	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			

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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Susquehanna Steam Electric Station	0 5 0 0 0 3 8 7	1 OF 0 2

TITLE (4)

Division I LOCA Isolation When "A" Reactor Protection System Bus Power Lost

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 4	1 5	8 6	8 6	— 0 1 8	— 0 1	1 1	0 5	8 7		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	4
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)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)
	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)

	73.71(b)
	73.71(c)
	OTHER *(Specify in Abstract below and in Text, NRC Form 366A)*

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
R. R. Wehry - Power Production Engineer - Compliance	AREA CODE 7 1 7 — 5 4 2 - 3 6 6 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
	YES *(If yes, complete EXPECTED SUBMISSION DATE)*				
X	NO				

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

On April 15, 1986 with Unit 1 in a refueling outage, a Division I LOCA isolation and half scram occurred at 1834 hours when power was lost on the 'A' Reactor Protection System (RPS) bus. This caused a loss of shutdown cooling, Division I isolation of the Zone I and III Heating, Ventilation and Air Conditioning (HVAC) Systems and initiation of the 'A' Standby Gas Treatment System and 'A' Control Room Emergency Outside Air Supply System. The Zone I and III HVAC Systems were already in the recirculation mode due to a previous Division II LOCA isolation at 1820 hours (See LER 86-015-00).

While investigating the cause of the Division II isolation, a test lead was bumped off its terminal inside the Division I RPS panel and caused an arc. This caused the 'A' RPS bus to de-energize causing the events described above. All affected systems were restored and shutdown cooling was re-established at 1910 hours. An engineering review of the event has determined that the RPS system responded correctly to the inadvertantly applied fault.

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

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

On April 15, 1986 at 1834 hours with Unit 1 in a refueling outage, a Division I LOCA isolation and half scram occured when power was lost on the 'A' Reactor Protection System (RPS, EIIS Code: Jc) bus. This caused a loss of shutdown cooling when the shutdown cooling inboard isolation valve closed and the running Residual Heat Removal (EIIS Code: BO) pump tripped. Division I of Zone I and III Heating, Ventilation and Air Conditioning (HVAC) Systems (EIIS Code: VA) isolated, and the 'A' Standby Gas Treatment System (EIIS Code:BH) and 'A' Control Room Emergency Outside Air Supply System (EIIS Code: BH) initiated. The Zone I and III HVAC Systems were already in the recirculation mode due to a previous Division II LOCA isolation which occurred at 1820 hours as reported in Licensee Event Report 86-015-00.

Prior to the Division II isolation at 1820 hours, Instrumentation and Control (I&C) technicians had been working in the Division I RPS panel in the upper relay room connecting test equipment for a surveillance. After the Division II isolation occurred, the I&C technicians were contacted by the Control Room and asked if they observed or did anything to cause the isolation. A blown fuse was suspected of causing the isolation, and the I&C technicians began to look for any blown fuses in the RPS panel. In the process, a test lead was bumped off its terminal and caused an arc in the panel. The I&C technicians immediately heard many relays drop out causing the half scram and Division I LOCA isolation at 1834 hours.

The 'A' RPS Motor/Generator (MG) Set, output breaker and EPA breakers had tripped. The 'A' RPS bus was re-energized using the alternate power supply and the half scram was reset. At 1850 hours the 'A' RPS MG Set was restarted and breakers reset, and the 'A' RPS bus was swapped back to the normal (MG Set) power supply. At 1853 hours the Division I isolation was reset, and shutdown cooling was returned to service by 1910 hours.

An engineering review was performed to determine if the RPS system responded correctly to the inadvertantly applied fault and yielded the following evaluation. Because of a large normal load on panel 1C601 (Reactor Core Cooling Systems Benchboard), the feeder breaker (breaker 2A) is a thermal magnetic breaker. Breaker 2A rating is too high to achieve selective tripping between it and the MG Set output breaker for some faults downstream of breaker 2A. Fuses in panel 1C601 provide reasonably selective interruption of most types of expected faults within panel 1C601. Faults between breaker 2A and the supply side of the 1C601 fuses, however, will likely result in a trip of both breaker 2A and the MG Set output breaker. Improvement in electrical coordination cannot be achieved with the existing design due to device limitations. This lack of electrical coordination is considered acceptable since most faults are anticipated downstream of the fuses where good electrical coordination exists.

The ESF systems actuated per design and operated properly. Reactor water level and temperature were stable throughout the event.

Pennsylvania Power & Light Company
P.O. Box 451 • Berwick, PA 18603-0451 • 717/542-2151

November 5, 1987

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 86-018-01
FILE R41-2
PLAS- 285

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

Attached is Licensee Event Report 86-018-01 which is an update to LER 86-018-00. This event was determined reportable per 10CFR50.73(a)(2)(iv), in that an unplanned Engineered Safety Feature (ESF) actuation occurred when 'A' Reactor Protection System bus power was lost.

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RRW/cmw

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