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ACCESSION NBR. 8804040076 DOC. DATE. 88/03/29 [redacted]ARIZED: NO DOCKET #
FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 0500038[illegible]
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RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-006-00: on 880304, reactor scram occurred. Caused by technician inadvertantly bumping sensitive protective relay in 230 KV switchyard. Relay replaced w/flushmounted relay & protective barriers installed. W/880329 ltr.

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

NOTES: LPDR 2 cys Transcripts. 05000387

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	NRR/DLPQ/QAB10A	1	1	NRR/DOEA/EAB11E	1	1
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	RGN1 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	4	4	FORD BLDG HOY, A	1	1
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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

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

TITLE (4)
Reactor Scram Following Inadvertant Bumping of 230KV Switchyard Relay

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	0 4	8 8	8 8	0 0 6	0 0	0 3	2 9	8 8		0 5 0 0 0
										0 5 0 0 0

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)	X 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)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		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)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Richard R. Wehry, Power Production Engineer	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	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	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)

At 1207 hours on March 4, 1988, with Unit 1 operating at 100% power, a System Operating Technician inadvertantly bumped a sensitive protective relay in the 230 KV Switchyard while performing calibration on another relay. The relay tripped, causing switchyard breakers to open, isolating Unit 1 from the Power Grid. The resulting generator load unbalance tripped the Main Turbine, via Control Valve Fast Closure, which resulted in a Reactor Protection System actuation, causing a scram. All equipment operated per design during the transient, ESF Systems were not challenged and no operator actions were required to place the unit in a stable condition. System Operating and Substation personnel have been advised of the incident and cautioned about bumping sensitive relays. The subject relay, which protruted about six inches out of the front of the relay panel, was replaced with a flushmounted relay and protective barriers have been installed above and below the subject relay to protect against bumping.

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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 8	— 0 0 6	— 0 0	0 2 OF 0 3

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

DESCRIPTION OF EVENT

At 1207 hours on March 4, 1988, with Unit 1 operating at 100% power, a System Operating Technician bumped relay 32SWX in the 230 KV Switchyard while performing calibration of another protective relay. Relay 32SWX is a high speed ASEA ARMX-1 relay that is very sensitive to bumps from above or below. The relay was bumped on top as the technician lowered his arms from the relay being tested in a relay compartment located approximately 12 inches above the 32SWX relay. The 32SWX relay tripped, isolating Unit 1 from the Power Grid. The resulting generator load unbalance tripped the Main Turbine, via Control Valve Fast Closure. The Control Valve Fast Closure, from energization of the Emergency Trip Supply, resulted in a Reactor Protection System actuation, causing a reactor scram.

In addition, because reactor power was greater than 24%, the EOC-RPT resulted in a trip of both Reactor Recirculation Pumps via the RPT Breakers. The Turbine Bypass Valves opened as the pressure in the Main Steam Lines increased above the pressure setpoint of 920 psig, and Safety Relief Valves A, B, E, and L lifted at approximately 1063 psig. Reactor pressure, which had been 996 psig prior to the scram, peaked at 1072 psig with all 5 Turbine Bypass Valves and Safety Relief Valves A, B, E, and L open.

Reactor water level, which had been controlling at +36 inches before the scram, reached a minimum of 10 inches before recovering. The Turbine Bypass Valves were open initially for 25 seconds, and the A, E, and L SRVs were open for 6 seconds, with the 'B' SRV open for 8 seconds.

During the initial transient reactor pressure reached a minimum of 885 psig before stabilizing at the Turbine Bypass Valve pressure setpoint of 920 psig. The drop in reactor pressure corresponds to a 10°F decrease in saturation temperature when compared with the initial reactor operating conditions. The administrative and Tech Spec limits on Reactor Cooldown Rate were never approached.

All control rods inserted fully and the immediate actions of EO-100-001 (reactor scram) were performed following the scram. Primary Containment Integrity was maintained throughout the transient and no discernible changes were noted in drywell temperature and pressure, or in suppression pool temperature, pressure and level. In addition, there were no indications of fuel damage and no releases of radioactive material resulting from the transient as evidenced by a comparison of SPING data obtained prior to and following the scram.

All equipment operated per design during the transient, ESF systems were not challenged, and no operator actions were required to place the unit in a stable condition.

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 8	— 0 0 6	— 0 0	0 3 OF 0 3

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

CAUSE OF EVENT

The reactor scrammed as a result of a System Operating Technician's error when he inadvertantly bumped the 32SWX relay in the 230 KV Switchyard. This opened the Generator West and Generator Tie circuit breakers, removing all paths for Unit 1 output power generation. The resulting power to load unbalance caused a main turbine trip which resulted in a scram on Control Valve Fast Closure with power greater than 24%.

REPORTABILITY/ANALYSIS

This event was determined reportable per 10CFR50.73(a)(2)(iv) in that an unplanned Engineered Safety Feature (ESF) actuation occurred when the RPS System initiated an automatic reactor scram. The plant was safely shut down and there were no safety consequences or compromise to public health or safety during this incident. Generator Load Rejection is an analyzed event in the Final Safety Analysis Report (FSAR), Chapter 15.

CORRECTIVE ACTIONS

The reactor scram resulted from a technician accidentally bumping a very sensitive relay while performing calibration on another protective relay. System Operating and Substation personnel have been advised of the incident and cautioned about bumping sensitive relays. The subject relay, which protruded about six inches out of the front of the relay panel, was replaced with a flush-mounted relay and protective barriers have been installed above and below the 32SWX relay to further protect against bumping.

ADDITIONAL INFORMATION

A similar generator load rejection occurred on July 15, 1984. This incident was reported to the Commission in LER 84-034-00. The July 15, 1984 incident was caused by a phase to phase fault on the 230 KV transmission line. A review of plant response determined that the two transients compared very closely.

Pennsylvania Power & Light Company
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March 29, 1988

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 88-006-00
FILE R41-2
PLAS - 307

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

Attached is Licensee Event Report 88-006-00. This event was determined reportable per 10CFR50.73(a)(2)(iv) in that the Reactor Protection System actuated upon a Turbine Control Valve Fast Closure resulting from a Generator Power/Load Unbalance.

R.G. Byram
Superintendent of Plant - Susquehanna

RRW/mjm

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