

**PRIORITY 1**  
ACCELERATED RIDS PROCESSING

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9410310163      DOC. DATE: 94/10/24      NOTARIZED: NO      DOCKET #  
 FACIL: 50-387, Susquehanna Steam Electric Station, Unit 1, Pennsylvania      05000387  
 AUTH. NAME      AUTHOR AFFILIATION  
 LLOYD, H.      Pennsylvania Power & Light Co.  
 STANLEY, H.G.      Pennsylvania Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 94-016-00: on 940925, one channel of fire protection  
 Simplex Sys failed when transponder card failed. Caused by  
 CPU chip on card shorting to ground. Failed transponder card  
 was isolated. W/941024 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
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NOTES: 05000387

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October 24, 1994

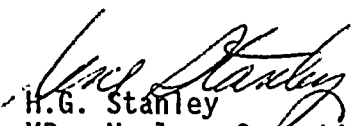
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SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 94-016-00  
FILE R41-2  
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Docket No. 50-387  
License No. NPF-14

Attached is Licensee Event Report 94-016-00. This report is being made pursuant to 10CFR50.73(a)(2)(i)(B), in that a condition prohibited by Technical Specifications existed when required fire watches were not established within one hour to meet action statements due to inoperable fire suppression and detection equipment.

  
H.G. Stanley  
VP - Nuclear Operations

HL/mjm

cc: Mr. T. T. Martin  
Regional Administrator, Region I  
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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U7.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) <b>Susquehanna Steam Electric Station - Unit 1</b>	DOCKET NUMBER(2) <b>0 5 0 0 0 3 8 7 1</b>	PAGE (3) <b>OF 0 3</b>
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TITLE (4)  
**Loss of Fire Detection/Suppression - Condition Prohibited by Technical Specifications**

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 9	2 5	9 4	9 4	0 1 6	0 0	1 0	2 4	9 4	SSES - Unit 2		0 5 0 0 0 3 8 8

OPERATING MODE (9) <b>1</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § : (Check one or more of the following) (11)									
POWER LEVEL (10) <b>1 0 0</b>	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(1)(2)(vii)(B)							
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)							

LICENSEE CONTACT FOR THIS LER (12)

NAME <b>Harrison Lloyd, Jr. - Power Production Engineer</b>	TELEPHONE NUMBER
	AREA CODE: <b>7 1 7</b> NUMBER: <b>5 4 2 - 3 9 1 7</b>

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	I C	E C B D	S 2 2 6	Y					

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 September 25, 1994, at 1650 hours, with Units 1 & 2 at 100% power, one channel of the Fire Protection Simplex System failed when a transponder card failed. The channel was declared inoperable and the appropriate Technical Specifications were entered. At 1840 hours, all required compensatory fire watches were in place. The failed card was an installed spare and was removed from the system. The Simplex System was restored at 2325 hours, the LCO's were cleared, and the fire watches were discontinued. The cause of the Simplex failure was a ground in the CPU chip of a system transponder card. The cause of failing to post all required fire watches within one hour was misleading wording in the Operating Instruction for response to Simplex System failures. This event was determined to be reportable per 10CFR50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications in that the required action of establishing continuous fire watches was not accomplished within one hour as required. There were no safety consequences as a result of this event. The Operating Instruction was revised to clarify compensatory actions for loss of a channel of Simplex. The Simplex System will be modified to remove spare transponder cards, since their failure can cause loss of the system.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

Unit 1

Susquehanna Steam Electric Station

0 5 0 0 0 3 8 7

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	PAGE (3)		
94	016	00	02	OF	03

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

DESCRIPTION OF EVENT

On September 2, 1994, at 1650 hours, with Units 1 & 2 in Condition 1 (Power Operation) at 100% power, one channel of the Fire Protection Simplex System (EISS Code: IC) failed due to failure of a system transponder card. The channel was declared inoperable and Technical Specifications 3.7.6.2, 3.7.7 and 3.3.7.9 Limiting Condition for Operation action statements were entered. Operations personnel (utility, licensed) began manning compensatory fire watches. At 1750 hours, seven of nine fire watches required by Technical Specifications were in place, and Technical Specification 3.0.2 was entered. At 1840, the remaining fire watches were in place and Technical Specification 3.0.2 was exited. During investigation, it was determined that the CPU chip in a system transponder card had shorted to ground which, in turn, caused the channel 1 communication loop to fail. The failed transponder card was isolated from the system and the Simplex System was declared operable at 2325 hours. The Limiting Conditions for Operation were cleared and the fire watches were discontinued.

CAUSE OF EVENT

The cause of the Simplex System channel failure was a transponder card failure which resulted from a CPU chip on the card shorting to ground. This card failure/ground loaded down the communication loop, causing the channel failure. The failed card is one of several installed spares and was isolated from the system following its failure.

The cause of failing to post all required compensatory fire watches within one hour was misleading wording in the Operating Instruction for Simplex System malfunctions. This instruction was recently issued as a result of previous events involving the Simplex System. The evaluation and response for this event was prompt in that all actions specified for a single channel failure were completed properly. The action specified in another section of the instruction appeared to apply to a dual channel failure, but was in actuality, applicable to either single channel failure, a fact which was not recognized by the operators due to the misleading wording of this section of the instruction.

REPORTABILITY/ANALYSIS

This event was determined to be reportable per 10CFR50.73(a)(2)(i) (B), as a condition prohibited by Technical Specifications in that the required action of establishing continuous fire watches was not accomplished within one hour as required.

The Simplex System provides early detection and warning of a fire, as well as automatic initiation of selected suppression systems. With the establishment of most of the continuous fire watches in the affected areas, hourly fire watches already in place at the time of the event, and the ability to manually initiate the affected suppression systems, this event created little compromise to the health and safety of the public and/or plant personnel.

In accordance with guidance provided in NUREG 1022, Supplement 1, item 14.1, the required submission date for this report was determined to be October 25, 1994.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Unit 1 Susquehanna Steam Electric Station	DOCKET NUMBER (2)  0 5 0 0 0 3 8 7 9 4	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

**CORRECTIVE ACTION**

The failed transponder card was isolated from the system. The Simplex System contains other installed spares which will also be removed via a modification. These spare cards would have allowed expansion of the system, had the need arisen. However, given the conclusion that the system is adequate and future additions to the system are unlikely, there is no need to leave the spare cards installed in the system. Removal of the spare cards will eliminate their failure causing a system failure.

The Operating Instruction was revised to clarify actions for single channel failures.

LER 94-012-00 describes other corrective actions which will improve our ability to respond to Simplex System events. These actions are at various stages of completion and did improve response to this event. Once these actions are complete, as well as removal of spare cards described above, our response to Simplex System events will prevent problems of this nature.

**ADDITIONAL INFORMATION**

Failed Component Identification: ECBD

Previous Similar Reported Events:

- Docket No. 50-387, LER 88-015-00, Loss of Fire Detection Due to Thunderstorm Activity.
- Docket No. 50-387, LER 89-007-00, Loss of Fire Detection Due to Component Failure.
- Docket No. 50-387, LER 90-001-00, Simplex Circuit Failure Causes Failure To Comply With Technical Specifications.
- Docket No. 50-387, LER 93-010-00, Loss of Fire Detection/Suppression - Operation Prohibited by Technical Specifications.
- Docket No. 50-387, LER 94-012-00, Loss of Fire Detection/Suppression - Condition Prohibited by Technical Specifications.
- Docket No. 50-388, LER 94-014-00, Loss of Fire Detection/Suppression - Condition Prohibited by Technical Specifications.