

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Susquehanna Steam Electric Station - Unit 1DOCKET NUMBER (2)
0 5 0 0 0 3 8 7PAGE (3)
1 OF 0 2TITLE (4)
Class 1E Circuit Isolators.EVENT DATE (5)
MONTH DAY YEAR
0 1 0 6 8 4 8 4
LER NUMBER (6)
YEAR SEQUENTIAL NUMBER REVISION NUMBER
8 4 - 0 0 3 - 0 1
REPORT DATE (7)
MONTH DAY YEAR
0 1 0 4 1 0 8 4
OTHER FACILITIES INVOLVED (8)
FACILITY NAMES
Susquehanna, Unit 2
DOCKET NUMBER(S)
0 5 0 0 0 3 8 8
0 5 0 0 0 0 0 0OPERATING MODE (9)
5
POWER LEVEL (10)
0 0 1 0
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)
20.402(b) 20.408(a) 80.73(a)(2)(iv) 73.71(b)
20.408(a)(1)(i) 80.36(a)(1) X 80.73(a)(2)(v) 73.71(e)
20.408(a)(1)(ii) 80.36(a)(2) 80.73(a)(2)(vii) OTHER (Specify in Abstract below and in Text, NRC Form 365A)
20.408(a)(1)(iii) 80.73(a)(2)(i) 80.73(a)(2)(viii)(A)
20.408(a)(1)(iv) 80.73(a)(2)(ii) 80.73(a)(2)(viii)(B)
20.408(a)(1)(v) 80.73(a)(2)(iii) 80.73(a)(2)(ix)LICENSEE CONTACT FOR THIS LER (12)
NAME
Benjamin L. Wilks
TELEPHONE NUMBER
AREA CODE 7 1 7 5 4 2 - 3 2 3 9COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)
CAUSE SYSTEM COMPONENT MANUFACTURER REPORTABLE TO NPROS
B EIE IIB T10 6 8 NSUPPLEMENTAL REPORT EXPECTED (14)
YES (If yes, complete EXPECTED SUBMISSION DATE) NO
X
EXPECTED SUBMISSION DATE (15)
MONTH DAY YEAR

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

During the Unit 1 - Unit 2 Tie-in Outage a design review suspected twenty-seven signal isolators purchased from the Technology for Energy Corporation of not providing adequate electrical isolation between Class 1E and non 1E circuits. Specifically, the power supply and output of the signal isolator is connected thru the isolator; this can potentially result in the faulting of a Class 1E source of power should an electrical fault occur in the isolator's signal output circuitry. Of the twenty-seven isolators, fifteen were installed in Unit 2 for which a report (PLA-2089) has been submitted to the NRC. One of the twenty-seven was located in storage; eleven were installed in Unit 1; six were installed in the Average Power Range Monitoring System (APRMs); four were installed in the Emergency Service Water System, and one was located in the HPCI circuitry.

The TEC isolators at Unit 2 present no immediate safety concerns since, at the time, Unit 2 was not yet licensed. All eleven isolators at Unit 1 present no safety concern since all are either supplied with non 1E power sources or remain disconnected from their power sources at this time.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1) Susquehanna Steam Electric Station Unit 1	DOCKET NUMBER (2) 0500038784	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		84	003	01	02	OF	02

TEXT (If more space is required, use additional NRC Form 388A's) (17)

With Unit 1 shutdown for the tie-in outage with Unit 2, a design review questioned whether signal isolators purchased from the Technology for Energy Corporation (TEC) would provide adequate electrical isolation between Class 1E and non 1E circuits. Specifically, the power supply and output of the signal isolator is connected. Since the isolator signal output is not Class 1E, the power supply must be non-class 1E; otherwise connecting the two thru the isolator may potentially result in the faulting of a Class 1E source of power should an electrical fault occur in the isolators signal output circuitry.

Twenty-seven TEC isolators were purchased for installation during the Unit 1-Unit 2 Tie-in Outage. Of the twenty-seven isolators, fifteen were installed in Unit 2 for which a report (PLA-2089) has been submitted to the NRC. The signal isolators installed at Unit 2 present no immediate safety concerns since Unit 2 has not yet received its license. One of the twenty-seven isolators was located in storage; the other eleven were installed at Unit 1.

Of the eleven signal isolators installed at Unit 1, six were installed during this outage in the Average Power Range Monitoring System (APRMS) (Channel A thru F) so as to provide output to the Safety Parameter Display System and have been wired to ensure that a non 1E power supply is connected to the non 1E output circuitry of the isolator. The Class 1E power supply that was to supply power to the APRMS also served as a power source for the relays that provide a trip signal to the Reactor Protection System (RPS). A fault within the SPDS system could propagate through the isolator and cause the relays in the RPS to de-energize; resulting in a reactor scram. The APRMS isolators present no safety concerns at Unit 1.

Four other signal isolators, one in the Liquid Radwaste Discharge Radiation Monitoring System; one in the Liquid Radwaste Discharge Flow Monitoring System; and one each in the Emergency Service Water Flow Monitoring System (channels A and B) were found to have compatible non 1E Classifications for the power supply and isolator output circuitry that sends signals to the Emergency Response Computer System (ERCS). These isolators present no safety concerns at Unit 1.

The last of eleven signal isolators at Unit 1 is located in the HPCI and sends signals to the Emergency Response Computer System (ERCS). The power supplied to this isolator was planned to be from a Class 1E source with its output connected to non 1E circuitry; this work is on hold with terminations to the isolator not complete. Power will not be supplied to this isolator until the Unit 1 refueling outage in 1985 when a non 1E source of power will be supplied to the HPCI signal isolator. The Class 1E power source that was to supply power to the HPCI isolator is used to supply power to the HPCI control circuitry. A fault within the output circuitry of the HPCI signal isolator to ERCS could have affected the HPCI speed control. The HPCI signal isolator presents no safety concerns at Unit 1 since the 1E power supply to it was never terminated.

All eleven isolators at Unit 1 present no safety concern since all are either supplied with 1E power sources or remain disconnected from their power sources at this time. Again, Unit 1 was shutdown for the tie-in outage with Unit 2, when the event was discovered. There was no effect on public health and safety.



Pennsylvania Power & Light Company

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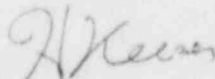
April 10, 1984

U.S. Nuclear Regulatory Commission
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Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 84-003-01
ER 100450 FILE 841-23
PLA-2178

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

1| Attached is Licensee Event Report 84-003-01. This event was determined to be reportable per 10CFR50.73(a)(2)(v) in that, Class 1E Signal Isolators were installed in Class 1E circuits, but were suspected of not providing adequate electrical separation/isolation between Class 1E and Non 1E circuits. Corrective actions have been taken to ensure electrical isolation for all Class 1E circuits involved.


H.W. Keiser
Superintendent of Plant-Susquehanna

BLW/pjg

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