

CONTROL BLOCK: (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 PASES1 200-000000-00 341111 45  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

CONT

01 REPORT SOURCE L 605000387 7083083 8091383 9  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES 10

02 While performing an engineering investigation into the operation of two valves in

03 the drywell nitrogen (N<sub>2</sub>) makeup line, it was determined that a single failure in

04 Div. II primary containment isolation logic could cause a failure to isolate the

05 N<sub>2</sub> makeup line. If the failure occurred during N<sub>2</sub> makeup to containment, a direct

06 pathway from containment to the outside environment could have been established

07 through the non-safety related N<sub>2</sub> charging system.

08

09 SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP. SUBCODE VALVE SUBCODE  
S D 11 B 12 A 13 R E L A Y X 14 A 15 Z 16

17 LER/RO REPORT NUMBER 83 115 01 T 0

18 ACTION TAKEN 19 FUTURE ACTION 20 EFFECT ON PLANT 21 SHUTDOWN METHOD 22 HOURS 23 ATTACHMENT SUBMITTED 24 NPRI-4 FORM SUB. 25 PRIME COMP. SUPPLIER 26 COMPONENT MANUFACTURER  
X 18 F 19 Z 20 Z 21 00000 Y 23 N 24 N 25 A I O 9

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS 27

10 This event was caused by the use of a single relay to provide an isolation signal

11 to the inboard and outboard valves on the nitrogen makeup line.

12 The appropriate valves have been deenergized, which maintains them in their closed

13 (containment isolation) position. Permanent corrective actions are still under

14 evaluation.

15 FACILITY STATUS 16 POWER 17 OTHER STATUS 18 METHOD OF DISCOVERY 19 DISCOVERY DESCRIPTION  
G 28 000 29 NA A 31 Engineering Investigation

20 ACTIVITY CONTENT RELEASED OF RELEASE 21 AMOUNT OF ACTIVITY 22 LOCATION OF RELEASE  
Z 33 Z 34 NA NA

23 PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION 24  
000 37 Z 38 NA

25 PERSONNEL INJURIES NUMBER DESCRIPTION 26  
000 40 NA

27 LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION 28  
Z 42 NA

29 PUBLICITY ISSUED DESCRIPTION 30  
N 44 NA

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S PDR

NRC USE ONLY

ATTACHMENT

LER # 83-115/01T-0

Pennsylvania Power & Light Company  
Susquehanna Steam Electric Station  
Docket Number: 50-387

During an engineering investigation into the control circuitry of two drywell nitrogen makeup valves, it was determined that the same primary containment isolation system Division II relay (K83) provides a closure signal to the drywell nitrogen supply isolation valve (SV-15767) and the containment atmosphere control sample inboard isolation valve (SV-15776B). (The drywell nitrogen supply line taps into the containment atmosphere sample line downstream of SV-15776B). With the nitrogen makeup system in service, coincident with loss of coolant accident and a seismic event, the K83 relay could fail in such a manner as to maintain SV-15776B and SV-15767 open. This configuration could create a direct path from primary containment to the outside environment through the non safety related nitrogen charging system. A similar scenario is applicable to the suppression chamber nitrogen supply isolation valve (SV-15737) and the containment atmosphere control return inboard isolation valve (SV-15736B).

As an interim measure, SV-15767 and SV-15737 have been de-energized. This action will maintain the valves in their primary containment isolation positions. De-energizing these valves via pulling the leads to their solenoids is no different than de-energizing the solenoids with the leads connected. Therefore, the ability of the valve to seat against the full range of normal and accident pressures is not jeopardized.

Disconnecting SV-15767 and SV-15737 will not prevent a single failure of Division II logic from causing a loss of isolation capability for the containment atmosphere sampling lines. However, these lines are specifically designed to be operated during and after a DBA (ASME Section III, Class 2) and are considered "extensions of containment". This is further described in FSAR Section 6.2.4.3.3.6.

Disconnecting these valves will not prevent the N<sub>2</sub> Supply System's ability to charge N<sub>2</sub> to containment as the above valves, when de-energized, will open on reverse flow. (NOTE: SV-15767 & SV-15737 see reverse flow when N<sub>2</sub> is supplied to the containment). Therefore, this change does not increase the probability of an accident previously analyzed in the FSAR. An engineering review has been performed for the valves listed in Table 18.1-10 of the FSAR and has concluded that there are no other primary containment isolation valves that do not meet the single failure criteria.

A permanent design change is under evaluation and will be reported in an update to this LER.



# Pennsylvania Power & Light Company

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September 13, 1983

Dr. Thomas E. Murley  
Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 83-115/01T-0  
ER 100450 FILE 841-23  
PLA - 1842

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

Dear Dr. Murley:

Attached is Licensee Event Report No. 83-115/01T-0. This event was determined to be reportable per Technical Specification 6.9.1.8.i, in that, while performing an engineering investigation into the operation of two valves in the drywell nitrogen makeup line, it was determined that a single failure in Division II primary containment isolation logic could have resulted in a failure to isolate the nitrogen supply line. This could have caused system operation in a manner less conservative than described in the safety analysis report. The valves' actuators have been de-energized, which causes them to remain in their containment isolation position. A permanent design change/modification is still under development. This LER will be updated.

*H. W. Keiser for*

H. W. Keiser  
Superintendent of Plant-Susquehanna

/ml

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