

# CATEGORY 1

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 FACIL:50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva      05000387  
 AUTH.NAME      AUTHOR AFFILIATION  
 WEHRY,R.R.      Pennsylvania Power & Light Co.  
 STANLEY,H.G.      Pennsylvania Power & Light Co.  
 RECIP.NAME      RECIPIENT AFFILIATION

SUBJECT: LER 96-002-00:on 960306,post-accident water seal not achievable.Caused by engineering personnel failure to consider impacts from all piping conected to feedwater.C/A: process,procedures & training performed.W/960404 ltr.

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NOTES:

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April 4, 1996

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SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 50-387/96-002-00  
PLAS - 666 FILE R41-2

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

Attached is Licensee Event Report 96-002-00. This event was determined to be reportable per 10CFR50.73(a)(2)(ii) in that recent evaluations completed for the Feedwater penetration concluded that a post accident water seal, as described in the Final Safety Analysis Report (FSAR), section 6.2.3.2.3, is not achievable for a postulated large break Loss of Coolant Accident (LOCA) / Loss of Offsite Power (LOOP) design basis accident, and the contribution of this Secondary Containment bypass leakage pathway is not accounted for in the accident dose analysis. Based on the results of some past performances of Local Leak Rate Testing on Unit 1 and Unit 2, the Secondary Containment bypass leakage design basis requirements would not have been met for a postulated large break LOCA / LOOP design basis accident.

  
H.G. Stanley  
VP - Nuclear Operations

Attachment

RRW/dmd

cc: Mr. T. T. Martin  
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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), 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) Susquehanna Steam Electric Station - Unit 1						DOCKET NUMBER (2) 0 5 0 0 0 3 8 7 1			PAGE (3) OF 0 3		
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TITLE (4)  
A Post-Accident Water Seal, As Described In The FSAR, Is Not Achievable For A Postulated LOCA/LOOP DBA

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

OPERATING MODE (9) 1

POWER LEVEL (10) 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR Y: (Check one or more of the following) (11)

20.402(b)	20.405(c)	50.73(a)(2)(v)	73.71(b)
20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(v)	OTHER (Specify in Abstract below and in Text, NRC Form 368A)
20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(v)(A)	
20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(1)(2)(v)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(v)	

(LICENSEE CONTACT FOR THIS LER (12))

NAME Richard R. Wehry - Nuclear Licensing Engineer	TELEPHONE NUMBER		
	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 NFRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15) 1 0 0 1 9 6

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

On March 6, 1996, with Unit 1 and Unit 2 in Condition 1 (Power Operation) at 100% power, an engineering evaluation concluded that a post accident water seal for the Feedwater penetrations, as described in the Final Safety Analysis Report (FSAR) section 6.2.3.2.3, is not achievable. The water seal is not achievable for a postulated large break Loss of Coolant Accident (LOCA) / Loss of Offsite Power (LOOP) design basis accident, and the contribution of this Secondary Containment bypass leakage pathway is not accounted for in the accident dose analysis pursuant to 10CFR100. Based on the as-found results of some past Local Leak Rate Testing (LLRT) on Unit 1 and Unit 2, the bypass leakage design basis requirements would not have been met for the postulated large break LOCA / LOOP design basis accident at those times. The design basis radiological analysis assumes a total Secondary Containment Bypass Leakage rate of 5 scfh. The current operating cycle as-left minimum path LLRT results for the Unit 1 and Unit 2 Feedwater penetrations, plus the other Secondary Containment leakage pathway LLRT results are within the accident analysis assumption of 5 scfh total leakage. The test results, together with the fact that no design basis accidents have occurred at Susquehanna, support the conclusion that the condition does not result in any safety consequences or compromises to public health and safety, nor did it in the past. The cause of this condition was attributed to the failure to consider the impacts of all piping connected to the Feedwater penetration volume and inadequate engineering calculation review in 1984 when credit was taken for a water seal at the Feedwater penetrations. An evaluation of the present day engineering calculation review process concluded that changes and enhancements implemented since that time provide assurance to prevent recurrences today. Engineering is evaluating final resolution to this issue consistent with the license and NRC requirements for Secondary Containment bypass leakage. Also in progress is a review of open items from PP&L's design basis evaluation project to determine if any other non-compliances with licensing commitments exist.

**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	LER NUMBER (6)						PAGE (3)		
		YEAR		SEQUENTIAL NUMBER		REVISION NUMBER				
		9   6	—	0   0   2	—	0   0		2	OF	3

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

**EVENT DESCRIPTION**

On March 6, 1996, with Unit 1 and Unit 2 in Condition 1 (Power Operation) at 100% power, an engineering evaluation concluded that a post accident water seal for the Feedwater (EIS Code: SJ) penetrations, as described in the Final Safety Analysis Report (FSAR) section 6.2.3.2.3, is not achievable. The water seal is not achievable for a postulated large break Loss of Coolant Accident (LOCA) / Loss of Offsite Power (LOOP) design basis accident, and the contribution of this Secondary Containment bypass leakage pathway is not accounted for in the accident dose analysis pursuant to 10CFR100. Based on the as-found results of some past Local Leak Rate Testing (LLRT) on Unit 1 and Unit 2 for the Feedwater penetrations, the bypass leakage design basis requirements would not have been met for a postulated large break LOCA / LOOP design basis accident at those times.

**CAUSE OF EVENT**

The cause of this condition was attributed to the failure by engineering personnel (non-licensed) to consider the impacts from all piping connected to the Feedwater penetration volumes on the ability to maintain a water seal; and less than adequate engineering calculation review and approval in 1984, when credit was taken for a water seal to exist at the Feedwater penetrations following a postulated large break LOCA / LOOP design basis accident.

**REPORTABILITY / ANALYSIS**

This condition was determined to be reportable per 10CFR50.73(a)(2)(ii) in that an engineering evaluation concluded that, following a postulated large break LOCA / LOOP design basis accident, a water seal described in FSAR section 6.2.3.2.3 for the Feedwater penetrations is not achievable, nor is the leakage contribution from this Secondary Containment bypass leakage pathway included in the accident dose analysis pursuant to 10CFR100. Based on the results of some past Local Leak Rate Testing on Unit 1 and Unit 2, the Secondary Containment bypass leakage design basis requirements would not have been met at those times.

**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.

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

The design basis radiological analysis assumes a Secondary Containment Bypass Leakage rate of 5 scfh. The current operating cycle as-left minimum path LLRT results for the Unit 1 and Unit 2 Feedwater penetrations, plus the other Secondary Containment leakage pathway LLRT results are within the accident analysis assumption of 5 scfh total leakage. The current test results, together with the fact that no design basis accidents have occurred at Susquehanna, support the conclusion that the condition does not result in any safety consequences or compromises to public health and safety, nor did it in the past.

In accordance with NUREG-1022, Supplement 1, Item 14.1 and 10CFR50.4(d), the required submission date for this report was determined to be April 8, 1996.

**CORRECTIVE ACTIONS**

An evaluation of the present-day process, procedures and training for performing engineering calculations was performed to provide assurance that positive controls are in place presently to prevent recurrence of the less than adequate calculation review and approval which took place in 1984, when credit was taken for a post accident water seal at the Feedwater penetrations. The evaluation concluded that today's engineering processes and practices have been significantly enhanced and improved to reinforce the prevention of similar mistakes.

Since Secondary Containment Operability, with respect to bypass leakage, is maintained based on current valve LLRT data, no additional operational compensatory actions are required.

Engineering is evaluating final resolution to this issue consistent with Susquehanna's license and the NRC Standard Review Plan for Secondary Containment bypass leakage. Also in progress is a review of open items from PP&L's design basis evaluation project to determine if any other non-compliances with licensing commitments exist.

**ADDITIONAL INFORMATION**

Failed Component Identification: Not applicable.

Past Similar Events: None identified.

