

# CATEGORY 1

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9703100002    DOC.DATE: 97/03/03    NOTARIZED: NO    DOCKET #  
 FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylvania    05000387  
 AUTH.NAME                      AUTHOR AFFILIATION:  
 CODDINGTON, C.T.    Pennsylvania Power & Light Co.  
 KUCZYSKI, G.J.        Pennsylvania Power & Light Co.  
 RECIP.NAME                      RECIPIENT AFFILIATION

SUBJECT: LER 97-002-00: on 970130, RWCU Sys delta-flow isolation  
 setpoint found to be non-conservative. Caused by inadequate  
 documentation of design basis for setpoint. Revised setpoint  
 calculations & corrected delta-flow setpoint. W/970303 ltr.

DISTRIBUTION CODE: IE22T    COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

05000387

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD1-2 PD	1 1	POSBUSNY, C	1 1
INTERNAL:	ACRS	1 1	AEOD/SPD/RAB	2 2
	AEOD/SPD/RRAB	1 1	<u>FILE CENTER</u>	1 1
	NRR/DE/ECGB	1 1	NRR/DE/EELB	1 1
	NRR/DE/EMEB	1 1	NRR/DRCH/HHFB	1 1
	NRR/DRCH/HICB	1 1	NRR/DRCH/HOLB	1 1
	NRR/DRCH/HQMB	1 1	NRR/DRPM/PECB	1 1
	NRR/DSSA/SPLB	1 1	NRR/DSSA/SRXB	1 1
	RES/DET/EIB	1 1	RGN1 FILE 01	1 1
EXTERNAL:	L ST LOBBY WARD	1 1	LITCO BRYCE, J H	1 1
	NOAC POORE, W.	1 1	NOAC QUEENER, DS	1 1
	NRC PDR	1 1	NUDOCS FULL TXT	1 1
NOTES:		1 1		

C  
A  
T  
E  
G  
O  
R  
Y  
  
1  
  
D  
O  
C  
U  
M  
E  
N  
T

NOTE TO ALL "RIDS" RECIPIENTS:  
 PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK,  
 ROOM OWFN 5D-5 (EXT. 415-2083) TO ELIMINATE YOUR NAME FROM  
 DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED  
 TOTAL NUMBER OF COPIES REQUIRED: LTTR 26 ENCL 26



**Pennsylvania Power & Light Company**

Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151


March 3, 1997

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 50-387/97-002-00  
PLAS - 698 FILE R41-2

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

Attached is Licensee Event Report 50-387/97-002-00. This event was determined to be reportable per 10CFR50.73(a)(2)(i)(B) in that the Reactor Water Cleanup (RWCU) System Delta-Flow Isolation setpoint was non-conservative and exceeded the Technical Specification allowable value. This is a condition prohibited by the Technical Specifications.

  
G. G. Kuczyński  
Plant Manager - Susquehanna SES

Attachment

cc: Mr. H. J. Miller  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Kenneth M. Jenison  
Sr. Resident Inspector  
U. S. Nuclear Regulatory Commission  
P. O. Box 35  
Berwick, PA 18603-0035

9703100002 970303  
PDR ADOCK 05000387  
S PDR

*1/1  
Ien*



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 OF 0 3

PAGE (3)

TITLE (4)

Reactor Water Clean-up (RWCU) System Delta-Flow Isolation Setpoint Non-Conservative

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	1	3	0	9	7	9	7	9	7	0	0	2	0	0	0	3	0	3	9	7	0	5	0	0	0	3	8	8
										SSES - Unit 2		0 5 0 0 0 3 8 8																
												0 5 0 0 0																

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR Y: (Check one or more of the following) (11)													
1		20.402(b)			20.405(c)			50.73(a)(2)(v)			73.71(b)				
POWER LEVEL (10)		20.405(a)(1)(i)			50.38(c)(1)			50.73(a)(2)(v)			73.71(c)				
1 0 0		20.405(a)(1)(ii)			50.38(c)(2)			50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 368A)				
		20.405(a)(1)(iii)			X 50.73(a)(2)(i)			50.73(a)(2)(vii)(A)							
		20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(1)(2)(vii)(B)							
		20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(viii)							

(LICENSEE CONTACT FOR THIS LER (12))

NAME							TELEPHONE NUMBER				
Cornelius T. Coddington - Senior Project Engineer, Licensing							AREA CODE				
							7 1 7		5 4 2 - 3 2 8 9		

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)		X NO		EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR

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

On January 30, 1997, with Unit 1 and Unit 2 in Condition 1 (Power Operation) at 100% power, the Reactor Water Cleanup (RWCU) System delta-flow isolation setpoint was found during the Design Basis Documentation review process to be non-conservative. The setpoint is based on "cold" conditions in the RWCU System rather than "hot" conditions. The equivalent "hot" condition setpoint was greater than the allowable value in the Technical Specifications. This is a condition prohibited by Technical Specifications and is reportable per 10CFR50.73(a)(2)(i)(B). The cause of the RWCU System delta-flow setpoint being non-conservative was that during the preparation of the original setpoint calculation it was not recognized that the calculation should have been done for "cold" conditions and not "hot" conditions because of less than adequate documentation of the design basis for the setpoint. The setpoint calculations were revised, the RWCU System delta-flow instruments were recalibrated using the new setpoint, and the alarm response and surveillance procedures have been revised to include the new setpoint. In addition a review of all other relevant systems for similar potential setpoint methodology application errors will be done. The appropriate design basis for the differential flow setpoint will be incorporated into RWCU Design Basis Documentation.

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   7	—	0   0   2	—	0   0	2	OF	3	

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

**EVENT DESCRIPTION**

On January 30, 1997, with Unit 1 and Unit 2 in Condition 1 (Power Operation) at 100% power, the Reactor Water Cleanup (RWCU) System delta-flow isolation setpoint was found during the Design Basis Documentation (DBD) review process to be non-conservative. The RWCU System delta-flow isolation setpoint has a value of  $\leq 60$  gpm with an allowable value of 80 gpm in Technical Specification Table 3.3.2-2, Item 4a. During the DBD review, it was discovered that the 60 gpm setpoint was originally based on 20% of the original 'hot' design flow of 358 gpm while not exceeding the equivalent flowrate at the onset of pipe rupture (~ 65 gpm). The delta-flow isolation setpoint was 59 gpm and was based on actual RWCU System inlet, outlet and blowdown flow indications which are normalized to STP 'cold' conditions (60 °F at 1 atm). The use of a 59 gpm 'cold' setpoint is inconsistent with the original design basis and is non-conservative. This error results in a non-conservative 'hot' isolation volumetric delta-flow isolation setpoint greater than 60 gpm but less than the allowable value of 80 gpm provided the instrumentation remains within tolerance. A check of the instrumentation data base revealed that one instrument had drifted high by approximately 4% one time during the last four years. Thus this instrument was not operable.

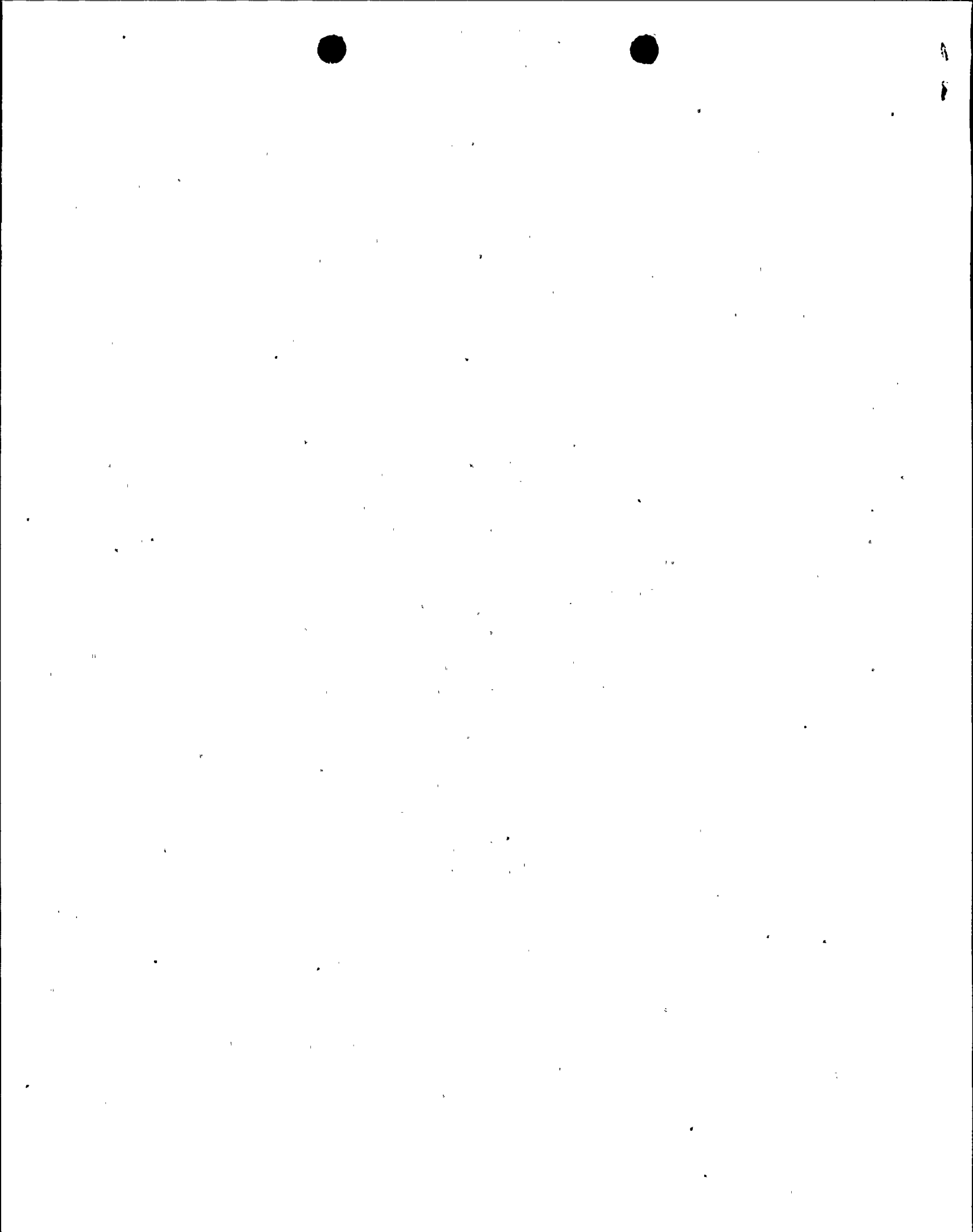
**CAUSE OF EVENT**

The cause of the RWCU System delta-flow setpoint being non-conservative was that during the preparation of the original setpoint calculation (performed by I&C Field Engineering during the original plant startup) it was not recognized that the calculation should have been done for 'cold' conditions and not 'hot' conditions because of less than adequate documentation of the design basis for the setpoint.

**REPORTABILITY/ANALYSIS**

This event is determined to be reportable per 10CFR50.73(a)(2)(i)(B), in that the RWCU System delta-flow isolation setpoints exceeded the Technical Specification allowable value. This is a condition prohibited by Technical Specifications.

The RWCU System delta-flow isolation setpoints exceeding the Technical Specification allowable value did not affect the ability of the plant to shutdown safely, nor was the health and safety of the public challenged. The delta-flow isolation setpoints were not physically inoperable and still could have provided their isolation function but at a larger leak than was the basis for the system. Also, other leak detection channels such as high ambient temperature, delta temperature and high flow were operable. The plant



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   7	—	0   0   2	—	0   0		3	OF	3

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

response to a leak/break in the RWCU System would not be changed as result of the delta-flow isolation setpoints exceeding the Technical Specification allowable value. In accordance with the guidelines provided in NUREG-1022, Supplement 1, Item 14.1 and 10CFR50.4(d), the required submission date for this report was determined to be March 3, 1997.

**CORRECTIVE ACTIONS**

The following corrective actions were identified and completed:

- The setpoint calculations were revised.
- The delta-flow isolation instrument setpoints were corrected.
- The alarm response and surveillance procedures have been revised to incorporate the new setpoint for the RWCU System delta-flow isolation setpoint.

The following corrective actions were identified and will be completed:

- Any other Delta Flow Rate applications will be identified and reviewed for similar potential setpoint methodology application errors.
- The appropriate design basis for the RWCU System delta-flow isolation setpoint will be incorporated into the Design Basis Documentation for RWCU.
- This event will be reviewed with the I&C Production Engineering personnel responsible for preparing instrument calibration calculations.

**ADDITIONAL INFORMATION**

Past Similar Events concerning calculational errors:

Docket No. 50-387 LER 96-017-00

Failed Component: None