REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8705180277 DOC. DATE: 87/05/12 NOTARIZED: NO DOCKET #
FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
AUTH. NAME AUTHOR AFFILIATION
RYDER, T. S. Pennsylvania Power & Light Co.
BYRAM, R. G. Pennsylvania Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-005-00: on 870412, Unit 2 RWCU sys isolation occurred due to high differential temp signal from RWCU penetration room. Caused unknown. No corrective actions. W/870512 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: 1cy NMSS/FCAF/PM. LPDR 2cys Transcripts. 05000388

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	AEOD/DSP/TPAB	1	1	DEDRO	1	1
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	NRR/PMAS/ILRB	1	1	NRR/PMAS/PTSB	1	1
	REG FILE 02	1	1	RES SPEIS, T	1	1
	RGN1 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	5	5	H ST LOBBY WARD	1	1
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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Susquehanna Steam Electric Station - Unit 2	0 5 0 0 0 3 8 8	1 OF 0 3

TITLE (4)
Reactor Water Cleanup System Isolation On High Differential Room Temperature

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 5 0 0 0
0 4	1 2	8 7	8 7	0 0 5	0 0	0 5	1 2	8 7		0 5 0 0 0

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

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
T.S. Ryder - Power Production Engineer	AREA CODE 7 1 7 5 4 2 - 3 2 3 5

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	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On April 12, 1987 Unit 2 Reactor Water Cleanup System (RWCU) isolated due to a high differential temperature signal from the RWCU Penetration Room. After comprehensive investigation into instrumentation, ventilation and system integrity, a root cause could not be determined. The RWCU System was restored to operation later that day. This event was determined to be reportable per 10CFR 50.73 (a) (2) (iv), in that an unplanned Engineered Safety Feature (ESF) actuation took place when RWCU isolated. RWCU Labelling discrepancies and differences between Division 1 and Division 2 differential temperature channels due to temperature element location will be investigated. There have been no previous similar events noted based on a review of former reports.

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

DESCRIPTION OF EVENT

At 0630 hours on April 12, 1987 with Unit 2 operating in Condition 1 at 100% power, a Reactor Water Cleanup (RWCU, EIIS Code: CE) System isolation occurred due to a high differential temperature signal from the RWCU Penetration Room. Continuous reactor vessel conductivity monitoring required by Technical Specification Section 4.4.4.c was lost due to the RWCU System isolation coupled with concurrent failure of the alternate reactor sampling method while at power. Limiting Condition for Operation (LCO) 3.4.4 was entered and then cleared at 1400 hours after the RWCU System was restored and a grab sample was analyzed.

CAUSE OF EVENT

Cause of the event remains unknown. At first it was thought that the cause could be attributed to the de-energization of the supply air heating elements of the Zone 2 Heating Ventilation and Air Conditioning (HVAC, EIIS Code: VA) System which occurred at 1530 hours the previous day to the event. The breakers to these heating elements had been opened due to warm outside air temperatures. By the time the RWCU isolation occurred, outside air temperature had decreased significantly and it was thought that the cooler supply air temperatures had resulted in a larger differential temperature condition sensed in the RWCU Penetration Room causing the isolation. Further investigation, however, determined that between 0600 hours and 0700 hours of the day of the event, outside air temperature remained unchanging at 38.6 F. Also, a review of the data from RWCU strip chart recorder indicated that differential temperature in the penetration room increased by approximately 10 F. in the 7 minutes just prior to the event after having stayed at a steady state levels for some period of time earlier. These two findings indicate that HVAC supply temperatures were not the cause of the isolation.

The two remaining plausible causes could be an instrumentation problem or a valid temperature increase from within the penetration room. The temperature instrumentation was investigated and found to be operating correctly based on calibration checks and verification of local air temperatures in the RWCU Penetration Room. The room was walked down and there was no evidence of steam leaks, equipment or piping problems, or any condition that would have caused a temperature rise. Therefore, based on the above, root cause has not been established.

REPORTABILITY

This event has been determined to be reportable per 10CFR 50.73 (A) (2) (iv), in that an unplanned Engineered Safety Feature (ESF) actuation took place when the RWCU System isolated automatically on a high differential temperature signal from the RWCU Penetration Room. There were no safety consequences resulting from this event. This assessment is based on the fact that the RWCU System performed its intended function of containment isolation upon receipt of the high differential temperature signal. The intended function would have been performed regardless of power level and therefore there would not have

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

been any safety consequences resulting from the plant being at a different power than what it was at when the event occurred.

CORRECTIVE ACTIONS

The RWCU differential temperature instrumentation was investigated and found to be operating properly. After it was thought that the cause was known and was attributed to the de-energized heating elements in the Zone 2 HVAC supply air ducts, the high differential temperature isolation was cleared at 1221 hours on 4/12/87 and the RWCU Pumps were restarted. The supply air heaters were also re-energized at this time. The 'A' RWCU Filter/Demineralizer was backwashed and precoated and then placed in service at 1505 hours. The RWCU Penetration Room and RWCU Pump Room were walked down after the RWCU Pumps were restarted and there was no evidence of leaks with the system in service. The penetration room had also been entered earlier to check temperatures without any signs of leaks noted.

The cause of the inability to use the alternate method of reactor vessel conductivity sampling while at power was found to be that air to a temperature control valve in the sampling piping flowpath was connected to the wrong port of its associated solenoid valve. It was reconnected correctly and now this valve will operate properly, allowing a flowpath for sampling unless there is a high temperature in the process fluid under which condition the valve will close preventing steam from entering the sample station.

There are no actions to prevent recurrence since the root cause was never established. However, there are open items resulting from the investigation that will be addressed. It was observed that there is a difference of approximately 14 F. between the differential temperatures sensed on the Division 1 channel as compared to the Division 2 channel due to the location of the temperature elements in the HVAC ductwork. This difference will be evaluated to determine if any changes are required. Secondly, there was a labelling discrepancy that was noted on the RWCU Leak Detection System. The control room back panel identified the high differential temperature condition to be in a different room than where it actually was due to incorrect labelling. Corrections to the labelling will be made as necessary.

ADDITIONAL INFORMATION

There have been no similar occurrences noted in a review of past LER's on the RWCU System. There were no failed components identified in this event.

PP&L Pennsylvania Power & Light Company
P.O. Box 451 • Berwick, PA 18603-0451 • 717/542-2151

May 12, 1987

U.S. Nuclear Regulatory Commission
Document Desk
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 87-005-00
FILE R41-2
PLAS- 250

Docket No. 50-388
License No. NPF-22

Attached is Licensee Event Report 87-005-00. This event was determined reportable per 10CFR 50.73 (a)(2)(iv), in that an unplanned Engineered Safety Feature (ESF) actuation occurred when the Reactor Water Cleanup System isolated.

R.G. Byram
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TSR/cdn

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