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FACIL:50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
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SUBJECT: LER 89-005-01:on 890520,inadvertent cross-tie of reactor bldg HVAC Zones I & III.

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November 17, 1989

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 89-005-01
FILE R41-2
PLAS -393

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

Attached is Licensee Event Report 89-005-01. This event was determined reportable per 10CFR50.73(a)(2)(i)(B) in that Reactor Building Heating, Ventilating and Air Conditioning Zones I and III were cross-tied from May 11, 1989 through May 20, 1989. This system alignment is prohibited by the plant's Technical Specifications. A radiological evaluation determined that no offsite doses in excess of 10CFR100 limits or control room operator doses in excess of 10CFR50, Appendix A, General Design Criterion 19 limits would have occurred in the event of a LOCA during the system mis-alignment.

R.G.Byram
Superintendent of Plant - Susquehanna

RRW/mjm

cc: Mr. W.T. Russell
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IE22
1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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)	DOCKET NUMBER (2)	PAGE (3)
Susquehanna Steam Electric Station - Unit 2	0 5 0 0 0 3 8 8	1 OF 0 4

TITLE (4)

Inadvertent Cross-Tie of Reactor Building HVAC Zones I and III

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	2 0	8 9	8 9	0 0 5	0 1	1 1	1 7	8 9	SSES-Unit 1	0 5 0 0 0 3 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)	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)	X 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
	AREA CODE
Richard R. Wehry - Power Production Engineer - Compliance	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 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 May 20, 1989, with Unit 2 operating at 100% power and Unit 1 in the refueling condition, it was discovered that the Reactor Building Heating, Ventilating and Air Conditioning (HVAC) system Zones I and III had been cross-tied from 5/11/89 through 5/20/89. Several items contributed to this incident: Railroad Access Bay design which necessitates complex administrative controls; the lack of details and accuracy in the Equipment Release Form (ERF) prepared for this evolution; and cognitive personnel error on the part of the Unit Supervisor in failing to identify the ERF's deficiencies and the impact on Unit 2 secondary containment integrity. The Operations Section completed training for all licensed operators, emphasizing the importance of thorough ERF review. A standardized ERF for all Railroad Access Bay evolutions involving the removal of walls/floor plugs was developed and incorporated into Maintenance and Construction planning guides to enhance the work group/operations interface for these evolutions. Training for Maintenance and Construction planners was completed concerning these enhancements. PP&L is evaluating the feasibility of plant modifications for alerting operators if the subject dampers are mispositioned.

DESCRIPTION OF EVENT

On May 20, 1989, with Unit 2 operating at 100% power and Unit 1 in the refueling condition, it was discovered during a Nuclear Quality Assurance walkdown of the Unit 1 reactor building, that the Reactor Building Heating, Ventilating and Air Conditioning (HVAC; EIIS Code: VA) system Zones I and III had been cross-tied since May 11, 1989. This system alignment is prohibited by the plant's Technical Specifications. In preparation for transporting shield blocks from the Railroad Access Bay to Unit 1, removable wall plates between Unit 1 elevation 719' and the Railroad Access Bay were removed. The removal of the wall plates connects Unit 1 Zone I HVAC to the Railroad Access Bay, which is normally connected to Zone III HVAC via two manual isolation dampers, one for supply and one for exhaust. The two isolation dampers, which should have been closed prior to removal of the wall plates, were found in the open position, which resulted in a cross-tie between reactor building HVAC Zone I and Zone III.

CAUSE OF EVENT

Several items contributed to this incident:

1) Railroad Access Bay Design

Because the Railroad Access Bay (normally part of Zone III) can be aligned to Zones I or II by removing walls or floor plugs or opening personnel access doors and to atmosphere by opening the Railroad Access Bay door, complex administrative controls are necessitated for these evolutions.

2) The Equipment Release Form (ERF) for this activity lacked accuracy and detail.

The ERF, which had been prepared for this evolution by PP&L Construction personnel (utility, non-licensed), referenced plant system no. 12 (Buildings) rather than plant system no. 34 (Reactor Building HVAC). The ERF also did not properly identify the Technical Specification Limits for this evolution in that it did not note the impact to Unit 2 Technical specification 3.6.5.1.

3) Cognitive personnel error on the part of the Unit 1 Operations Unit Supervisor.

The Unit Supervisor's review failed to identify the ERF's deficiencies. As such, the ERF was not filed against system 34, operating procedure OP-134-002, which provides direction to close the isolation dampers between Unit 1 Zone I and the Railroad Access Bay was not implemented, the effects on Unit 2 Secondary Containment Integrity were not identified and the cross-tie between Zone I and Zone III resulted.

REPORTABILITY/ANALYSIS

This event was determined reportable per 10CFR50.73(a)(2)(i)(B) in that a plant system was aligned in a manner prohibited by the plant's Technical Specifications. Namely, per Technical Specification 3.6.5.1, Secondary Containment Integrity (Railroad Bay outside door closed) shall be demonstrated in Operational Condition 1 by verifying that:

1. All Zone I and III hatches, removable walls, dampers and doors connected to the railroad access bay are closed, or

2. Only Zone I removable walls and/or doors are open to the railroad access shaft, or

3. Only Zone III hatches and/or dampers are open to the railroad access shaft.

Contrary to the above, on May 20, 1989, isolation dampers between the Railroad Access Bay and Zone III HVAC were discovered to have been open while the Zone I 719' elevation removable wall was removed, thus cross-tying the Reactor Building HVAC Zones I and III from 5/11/89/through 5/20/89.

During the time period in which Zone I and Zone III were crosstied, Zone I was not required to be Operable due to Unit 1 being in Condition 5 with NO CORE ALTERATIONS, irradiated fuel handling or operations with the potential of draining the Reactor Vessel in progress. Since Zone I was not required to be OPERABLE during this time period its integrity can not be confirmed. However, it should be noted that throughout the duration of the Zone I - Zone III cross-tie, Zone III differential pressure remained negative with respect to Zone I and the design features of the Standby Gas Treatment System (EIIS Code: BH) should have minimized any leakage out of Secondary Containment. Engineering completed a radiological evaluation and determined that no offsite doses in excess of 10CFR100 limits or control room operator doses in excess of 10CFR50, Appendix A, General Design Criterion 19 limits would have occurred in the event of a DBA-LOCA during the system mis-alignment.

Throughout the duration, the Zone II and III 0.25 inches of water vacuum gauge pressure requirement for Secondary Containment was maintained in each zone, as verified by performance of the Daily Surveillance Operating Logs. No safety consequences occurred during this incident.

CORRECTIVE ACTIONS

Upon discovery, Limiting Condition for Operation 3.6.5.1 was entered and then cleared when the subject isolation dampers were closed.

The Operations section completed Hot Box Training 89-50 for all licensed operating shift personnel. The importance of thorough ERF review was emphasized.

Through a joint effort between Operations and Maintenance sections, a standardized Equipment Release Form (ERF) for all Railroad Access Bay evolutions involving the removal of floor plugs and removable walls was developed and incorporated into the planning guides for both Maintenance and Construction planning groups. The enhancements include direct reference to plant system no. 34 (Reactor Building HVAC), identification of which HVAC Zones are affected by the wall/plug removal, and the referencing of all applicable Tech Specs affected on both Unit 1 and Unit 2. Training for Maintenance and Construction section planners was completed, emphasizing the above.

PP&L is evaluating the feasibility of plant modifications for alerting operators if the subject dampers are mispositioned.

ADDITIONAL INFORMATION

Failed Component Identification: Not applicable

Previous Similar Events: Licensee Event Reports 87-025-00 and 87-026-00 described similar events involving the inadvertent cross-tying of Reactor Building HVAC Zone I and Zone III.