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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9409270221 DOC. DATE: 94/09/21 NOTARIZED: NO DOCKET #
 FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylv 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 94-013-00: on 940825, unit 1 HPCI sys steam supply
 outboard isolation valve closed during performance of RHR.
 Caused by personnel error. Personnel counseled by I&C
 supervision.

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

NOTES:

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September 21, 1994

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SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 94-013-00
FILE R41-2
PLAS - 615

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

Attached is Licensee Event Report 94-013-00. This report is being made pursuant to 10CFR50.73(a)(2)(iv), in that an unplanned Engineered Safety Feature (ESF) actuation occurred when the High Pressure Coolant Injection (HPCI) System Steam Supply outboard isolation valve unexpectedly closed. Since closure of this valve also rendered HPCI inoperable, this report is also made per 10CFR50.73(a)(2)(v)(d) as the loss of a single train safety system. The event furthermore required entry into LCO 3.0.3 since the 'B' Loop of Residual Heat Removal was already inoperable and this condition was not bounded by the provisions of Technical Specification 3.5.1, Emergency Core Cooling Systems. Entry into LCO 3.0.3 is reportable per 10CFR50.73(a)(2)(i)(B).


H.G. Stanley
VP - Nuclear Operations

RRW/mjm

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 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 PAGE (3) 1 OF 0 4

TITLE (4) Unplanned Closure of HPCI Steam Isolation Valve (ESF); HPCI Declared Inoperable

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	8	25	9	4	9	4	0	1	3	0	0	0	9	2	1	9	4		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) <u>11010</u>	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.38(c)(1)	<input checked="" type="checkbox"/>	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.38(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	<input checked="" type="checkbox"/>	50.73(a)(2)(vii)(A)		
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	
	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Richard R. Wehry - Compliance Engineer TELEPHONE NUMBER 7 1 7 5 4 2 1 - 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)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

At 0823 hours on August 25, 1994, with Unit 1 in Condition 1 (Power Operation) at 100% power, the Unit 1 High Pressure Coolant Injection (HPCI) system steam supply outboard isolation valve unexpectedly closed during the performance of Residual Heat Removal (RHR) equipment area temperature instrument calibrations. This constituted an unplanned Engineered Safety Feature actuation, reportable per 10CFR50.73(a)(2)(iv). Closure of the isolation valve also rendered the HPCI system inoperable, which is reportable per 10CFR50.73(a)(2)(v)(D) as a condition that alone could have prevented the fulfillment of a safety function needed to mitigate the consequences of an accident. Since one loop of RHR ('B' Pump) had already been declared inoperable for performance of the instrument calibrations, this condition was not bounded by the provisions of Technical Specification LCO 3.5.1, necessitating the entry into LCO 3.0.3. Entry into LCO 3.0.3 is reportable as a condition prohibited by the plant's Technical Specifications per 10CFR50.73(a)(2)(i)(B). The cause of this event was personnel error in that a multimeter was placed across incorrect terminals resulting in shunting of trip contacts and closure of the isolation valve. The HPCI system was restored to normal standby alignment. The involved I&C personnel were counseled on the importance of self-checking and the event will be reviewed with all I&C personnel to emphasize the importance of remaining attentive during repetitive tasks.

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 4	- 0 1 3	- 0 0	0 2	OF 0 4

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

DESCRIPTION OF EVENT

On August 25, 1994 at 0823 hours, with Unit 1 in Condition 1 (Power Operation) at 100% power, the Unit 1 High Pressure Coolant Injection System (HPCI; EIIS Code: BJ) steam supply outboard isolation valve unexpectedly closed during the performance of Residual Heat Removal (RHR; EIIS Code: BO) equipment area temperature instrument calibrations. Alarms for "HPCI Trip Solenoid Energized" and "HPCI Out of Service: were received in the control room. At the time of the system isolation, Instrument and Controls (I&C) personnel (utility; non-licensed) were performing calibrations of Unit 1 Division II RHR equipment area temperature instrumentation. The HPCI system was not running at the time. All equipment functioned per design and no other system components were affected.

CAUSE OF EVENT

The root cause of this event was attributed to personnel error, specifically, the lack of attention to test equipment configuration and a lack of attention to verbal communications during the instrument calibration work evolution. A multimeter, being used by the I&C personnel in calibration of the RHR equipment area temperature instruments, was connected to incorrect terminals and the multimeter was incorrectly configured such that it acted as a jumper across the terminals rather than reading voltage across the terminals. Contributing to this adverse human performance were the narrowness of the panel wherein the multimeter was being installed (activity could not be readily observed by the second I&C technician) and communications were not face-to-face.

REPORTABILITY / ANALYSIS

The inadvertant jumpering of the incorrect terminals resulted in the control room alarms and closure of the HPCI steam supply outboard isolation valve in response to a simulated HPCI high temperature / high differential temperature Division II isolation signal. The alarms and valve closure functioned per design. The occurrence did not isolate an operating HPCI system.

The isolation of the HPCI steam supply outboard isolation valve was an invalid actuation of an Engineered Safety Feature (ESF) (i.e., no HPCI steam line leak nor high temperature concern existed, but did not meet the reporting exemptions of 10CFR50.72(b)(2)(ii) and 10CFR50.73(a)(2)(iv). Therefore, this occurrence is reportable per 10CFR50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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		YEAR 9 4	SEQUENTIAL NUMBER - 0 1 3	REVISION NUMBER - 0 0	0 3	OF 0 4

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

The loss of the HPCI system constitutes the loss of a single train safety system which is a condition that alone could have prevented the fulfillment of the safety function of a system needed to mitigate the consequences of an accident. As such, this occurrence is reportable per 10CFR50.72(b)(2)(iii) and 10CFR50.73(a)(2)(v)(D).

Technical Specification Limiting Condition for Operation (LCO) 3.5.1, Emergency Core Cooling Systems (ECCs), ACTION C., requires that RHR Low Pressure Coolant Injection (LPCI, EIIS Code: B0) (both subsystems) be OPERABLE if HPCI is inoperable. Since the 'B' RHR Pump had already been declared inoperable for performance of the area temperature calibrations by I&C personnel, this condition was not bounded by the provisions of Technical Specification LCO 3.5.1, necessitating the entry into LCO 3.0.3. Entry into LCO 3.0.3 constitutes an operation prohibited by the plant's Technical Specifications and is reportable per 10CFR50.73(a)(2)(i)(B).

There were no safety consequences or compromise to public health or safety as a result of this event. All equipment functioned per design in response to the inadvertant simulated isolation signal. The HPCI system was restored to OPERABLE status thirty-three minutes later. There were no HPCI system initiation signals during the time that the steam supply isolation valve was closed. All remaining ECCS required to mitigate the consequences of an accident, including RHR LPCI were available during the time that HPCI was inoperable.

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 September 26, 1994.

CORRECTIVE ACTIONS

Following the closing of the HPCI steam supply outboard isolation valve, a verification was performed to ensure that no steam leak or high temperature condition existed. The HPCI System was restored thirty-three minutes after the initial event in accordance with operating procedures.

The involved I&C personnel were counseled by I&C Supervision regarding the importance of self checking all work actions in accordance with the station STAR (Stop; Think; Act; Review) Program. This event will furthermore be reviewed with all I&C personnel, placing emphasis on the importance of remaining attentive on repetitive tasks, such as monthly functional tests and calibrations. PP&L is continuing to examine ways for enhancing work evolution human performance.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

ADDITIONAL INFORMATION

Failed Component Identification: None

Previous Similar Events:

LER 50-387/85-028-00 reported an unplanned close of the HPCI steam supply inboard isolation valve due to connection of test equipment to the wrong terminals during calibration of a pressure switch.

LER 50-387/88-002-00 reported an unplanned closure of the HPCI steam supply outboard isolation valve during I&C troubleshooting. It was believed that a meter placed across the contacts of a temperature module shunted the module's trip contacts, causing the closure of the valve.