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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9107290157 DOC. DATE: 91/07/23 NOTARIZED: NO DOCKET #
 FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv 05000388
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 STANLEY, H.G. Pennsylvania Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-009-00: on 910624, RWCU steam leak detection instrumentation discovered to be inadvertently actuated during routine functional testing. Caused by adequate verbal communication. Technicians briefed. W/910723 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: LPDR 1 cy Transcripts. 05000388

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July 23, 1991

U.S. Nuclear Regulatory Commission
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SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 91-009-00
FILE R41-2
PLAS - 492

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

Attached is Licensee Event Report 91-009-00. This event was determined reportable per 10CFR50.73(a)(2)(iv) in that an unplanned Engineered Safety Feature actuation occurred when the Reactor Water Cleanup System inboard primary containment isolation valve automatically closed due to an inadvertent actuation of the system's steam leak detection instrumentation during surveillance testing.

H.G. Stanley
Superintendent of Plant - Susquehanna

MLC/mjm

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 2	DOCKET NUMBER (2) 0 5 0 0 0 3 8 8	PAGE (3) 1 OF 0 4
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TITLE (4) **Reactor Water Cleanup System Isolation Due to Less Than Adequate Communication During Surveillance Testing**

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 6	2 4	9 1	9 1	0 0 9	0 0	0 7	2 3	9 1		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	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.38(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.38(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)

NAME Michael L. Crist - Compliance Evaluator	TELEPHONE NUMBER AREA CODE: 7 1 1 7 NUMBER: 5 1 4 2 - 1 3 2 1 9
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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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 2200 hours on June 24, 1991 with Unit 2 operating in Condition 1 at 100% power the Reactor Water Cleanup (RWCU) steam leak detection instrumentation was inadvertently actuated during a routine functional test. This action resulted in the closure of the RWCU inboard primary containment isolation valve, HV-244-F001, and subsequent system isolation. During the functional test of the Main Steam Line Tunnel delta-temperature instrumentation I&C technicians inadvertently connected test equipment to the RWCU steam leak detection instrumentation. This resulted in the generation of a high delta-temperature signal for the RWCU pump room instead of the planned MSLT signal. The error was immediately recognized and corrected. The system responded as designed to the isolation signal and was returned to service at 2211 hours. The root cause of the event was less than adequate verbal communications. The event was determined to be reportable per 10CFR50.73(a)(2)(iv), in that closure of HV-244-F001 constituted an unplanned ESF actuation. There were no safety consequences or compromise to public health or safety as a result of this event. Actions to prevent recurrence will include briefing all I&C technicians on this event, with emphasis on the importance of clear,concise communications and revising the applicable surveillances to remove any confusion factors which may have led to the event.

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 2 Susquehanna Steam Electric Station	DOCKET NUMBER (2) 0 5 0 0 0 3 8 8	LER NUMBER (6)			PAGE (3)	
		YEAR 9 1	SEQUENTIAL NUMBER - 0 0 9	REVISION NUMBER - 0 0	0 2	OF 0 4

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

EVENT DESCRIPTION

At 2200 hours on June 24, 1991 with Unit 2 operating in Condition 1 at 100% power the Reactor Water Cleanup (RWCU, EIIS Code: CE) steam leak detection instrumentation was inadvertently actuated during a routine functional test. This action resulted in the closure of the RWCU inboard primary containment isolation valve, HV-244-F001, and subsequent system isolation. The closure of HV-244-F001 constituted an unplanned Engineered Safety Feature (ESF) actuation.

The event occurred during a routine functional test of the Main Steam Line Tunnel (MSLT, EIIS Code: JM) delta-temperature instrumentation. Instrument and Control (I&C) technicians (utility, other) were performing a monthly functional on the MSLT delta-temperature instrumentation in accordance with surveillance SI-283-209. The surveillance requires the following steps to be performed:

1. Bypass the Unit 2 Division I MSLT steam leak detection logic. This prevents the generation of a MSL half isolation signal during the functional test of the MSLT delta-temperature instrumentation.
2. At Panel 2C614, connect the thermocouple calibrator to "TJ1, test jack 13". The test equipment is used to simulate a MSLT high delta-temperature signal. TJ1 or TJ2 is the nomenclature used in Panel 2C614 to identify the terminal boards that are utilized during surveillance testing of steam leak detection instrumentation. Note, the test equipment connection configuration and terminology for steam leak detection instrumentation is unique as compared to the rest of the station.
3. Trip the channel by raising the test input and confirm that the Unit 2, Division I, MSLT steam leak detection logic has actuated.

Due to a communication error the thermocouple calibrator was connected to TJ1, test jack 3 instead of test jack 13. This resulted in the generation of a RWCU pump room high delta-temperature signal not the expected MSLT high delta-temperature signal. Since the RWCU steam leak detection logic was not bypassed, an isolation signal to the RWCU inboard containment isolation valve was generated per design. The error was immediately recognized and corrected. The system responded as expected to the isolation signal and was returned to service at 2211 hours. At 2320 hours ENS notification was made in accordance with 10CFR50.72(b)(2)(ii).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

CAUSE OF EVENT

The root cause of this event is less than adequate verbal communications. The RWCU isolation occurred when the thermocouple calibrator was improperly connected to the RWCU delta-temperature instrumentation instead of the MSLT delta-temperature instrumentation as a result of a communication error between two I&C technicians. The communication error occurred when one technician was giving instructions to the other technician for connecting the thermocouple calibrator. Only one controlled copy of the surveillance was available at the job site. As such, the communication error was not detected. It should be noted that the technicians did utilize the communication passback practice, however the error went undetected.

Contributing to the event was the wording the procedure used to describe the test equipment connections. The connections are identified as "TJ1, test jack XX". In I&C terminology "TJ" normally means test jack. Due to the procedure wording the technician may have abbreviated the step to remove the redundancy.

REPORTABILITY/ANALYSIS

This event was determined to be reportable per 10CFR50.73(a)(2)(iv), in that an unplanned ESF actuation occurred when the RWCU inboard primary containment isolation valve closed due to an inadvertent actuation of the system's steam leak detection instrumentation.

There were no safety consequences or compromise to public health or safety as a result of this event. This assessment is based on the fact that valve performed its function of containment isolation, as designed. This function would have occurred regardless of reactor power level.

In accordance with the guidance provided in NUREG-1022, Supplement 1, Item 14.1, the required submission date for this report was determined to be July 24, 1991.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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) Unit 2 Susquehanna Steam Electric Station	DOCKET NUMBER (2) 0 5 0 0 0 3 8 8	LER NUMBER (6)			PAGE (3)		
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		9 1	- 0 0 9	- 0 0	0 4	OF	0 4

TEXT (If more space is required, use additional NRC Form 368A's) (17)

CORRECTIVE ACTIONS

Following the RWCU isolation the isolation logic was restored and the system was returned to service. Since the test equipment connection configuration and terminology for steam leak detection instrumentation is unique as compared to the rest of the station the following actions to prevent recurrence were deemed appropriate:

1. Steam leak detection surveillances will be revised to remove confusion factors, e.g. TJ1, test jack 13 will be changed to TJ1-13.
2. I&C technicians will be briefed on this event, with emphasis on the importance of clear, concise communications.
3. I&C will evaluate the issuance of additional copies of surveillance tests as an aid to prevent communication errors.

ADDITIONAL INFORMATION

Failed Component Identification: Not Applicable.

Similar Reportable Events: A review was conducted on past Licensee Event Reports to identify any previous ESF actuations that resulted from test equipment connection errors during surveillance testing. Listed below are the LERs that were determined to be similar:

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

- LER 85-028
- LER 86-017
- LER 87-034
- LER 86-020
- LER 88-007
- LER 89-015

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

- LER 85-022
- LER 87-002
- LER 89-013