

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8906120070 DOC. DATE: 89/06/07 NOTARIZED: NO DOCKET #
 FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylvania 05000387
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SUBJECT: LER 89-016-00: on 890510, RWCU sys isolated on high differential flow during sys fill & vent.

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June 7, 1989

U.S. Nuclear Regulatory Commission
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Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 89-016-00
FILE R41-2
PLAS -368

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

Attached is Licensee Event Report 89-016-00. This event was determined to be reportable per 10CFR50.73(a)(2)(iv) in that an unplanned actuation of an Engineered Safety Feature occurred when the Reactor Water Cleanup System isolated on a high differential flow signal.


R.G. Byram
Superintendent of Plant - Susquehanna

MLC/mjm

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Susquehanna Steam Electric Station - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 8 7 1	PAGE (3) 1 OF 0 3
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TITLE (4)
Reactor Water Cleanup System Isolated on High Differential Flow During System Fill & Vent

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	1 0	8 9	8 9	0 1 6	0 0 0	6 0	7 8	9			0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (8) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(e)	<input checked="" type="checkbox"/> 50.73(e)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(e)(1)(i)	<input type="checkbox"/> 50.38(c)(1)	<input type="checkbox"/> 50.73(e)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(e)(1)(ii)	<input type="checkbox"/> 50.38(c)(2)	<input type="checkbox"/> 50.73(e)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(e)(1)(iii)	<input type="checkbox"/> 50.73(e)(2)(i)	<input type="checkbox"/> 50.73(e)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(e)(1)(iv)	<input type="checkbox"/> 50.73(e)(2)(ii)	<input type="checkbox"/> 50.73(e)(2)(viii)(B)							
	<input type="checkbox"/> 20.405(e)(1)(v)	<input type="checkbox"/> 50.73(e)(2)(iii)	<input type="checkbox"/> 50.73(e)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)

NAME Michael L. Crist - Compliance Evaluator	TELEPHONE NUMBER
	AREA CODE: 7 1 7 NUMBER: 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 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)

On May 10, 1989 at 0240 hours with Unit 1 in Condition 5, the Reactor Water Cleanup (RWCU) System isolated on a high differential flow signal. The isolation occurred as Operations personnel were filling the system. As part of a preplanned sequence, the vessel cavity water head was being used to fill the system. As the RWCU outboard containment isolation valve was throttled open to fill the outboard piping the system isolated on a high differential flow signal. After verifying no system leakage existed, the isolation signal was cleared at 0300 hours. The system fill and vent was resumed without incident.

During the initial portion of the fill and vent process, no flow existed at the points where effluent flow is measured to derive the differential flow signal. Since no flow existed at these points the differential flow summer sensed system influent flow as a differential flow. Review of computer data history indicated that the differential flow signal trended closely with the system influent flow. When influent flow reached the high differential flow setpoint the isolation occurred. A section has been added to the RWCU operating procedure describing this fill and vent method. In addition, the event will be reviewed with Operations personnel with emphasis on the guidelines for performing an evaluation outside of existing procedures.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Unit 1 Susquehanna Steam Electric Station	DOCKET NUMBER (2) 0 5 0 0 0 3 8 7 8 9	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	- 0 1 6	- 0 0	0 2	OF	0 3

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

DESCRIPTION OF EVENT

On May 10, 1989 at 0240 hours during the Unit 1 Fourth Refueling and Inspection Outage, Unit in Condition 5, an Engineered Safety Feature (ESF) actuation occurred when Reactor Water Cleanup (RWCU, EIIS Code: CE) System's inboard and outboard containment isolation valves, HV-144-F001 and HV-144-F004 respectively, automatically closed. Shift Supervision (licensed, utility) evaluated plant conditions and determined the preferred method to fill and vent the RWCU System would be through the F001 and F004 valves using the vessel cavity water head as the fill source. The plant conditions were Reactor depressurized, Reactor cavity flooded with coolant temperature less than 140 degrees F. Although the evolution was preplanned, it was outside of existing operating procedures. Just prior to the event, all RWCU piping inside primary containment had been filled up to the inboard side of F004. As Control Room Operators monitored system flow, an Operator (nonlicensed, utility) manually throttled open the F004 valve to fill the system's outboard piping. In approximately thirty seconds system flow increased to approximately 60 gpm at which point the Operator was instructed, by Control Room Operators (licensed, utility), to throttle down on the F004 valve. Before the instructions could be carried out the system isolated on a high differential flow signal. After verifying no system leakage existed, the isolation signal was cleared at 0300 hours. The system fill and vent was resumed without incident.

CAUSE OF EVENT

The RWCU System isolated due to high differential flow signal. The RWCU System's high differential flow logic compares the influent and effluent flows as a system leak detection method. One flow element measures influent flow while two flow elements measure effluent flow, (i.e., blowdown flow and feedwater return flow). The two effluent flows are summed and compared to the influent flow. Any differential is then compared with the differential flow setpoint.

During the initial portion of the fill and vent process no flow existed at the points where effluent flow is measured to derive the differential flow signal. The RWCU letdown flow valve HV-144-F033 and Feedwater (EIIS Code: SJ) return flow valves HV-14182A and HV-14182B were closed. Since no flow existed at these points, the differential flow summer sensed system influent flow as a differential flow. Computer data history indicated that the differential flow trended very closely with the system influent flow. When influent flow reached 60 gpm, the high differential flow trip setpoint, the isolation logic actuated.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

REPORTABILITY/ANALYSIS

The event was determined to be reportable per 10CFR50.73(a) (2) (iv) in that Unit 1 experienced an unanticipated Engineered Safety Feature actuation when the Reactor Water Cleanup System isolated on a system high differential flow signal.

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 a high differential flow signal. The intended function would have been performed regardless of power level.

CORRECTIVE ACTIONS

The RWCU System was unisolated and the system fill and vent was resumed without incident. Actions to prevent recurrence will consist of reviewing event with Operations personnel, with emphasis on the guidelines for performing an evolution outside existing procedures. In addition, a section has been added to operating procedure OP-161-001, RWCU System, to allow system filling via F001 and F004 valves when plant conditions support this configuration. Appropriate cautions have been included for the high differential flow setpoint and possible isolations.

ADDITIONAL INFORMATION

Failed Component Identification: None.

Previous Similar Events: None.

There have been past ESF actuations involving RWCU isolations initiated from system high differential flow signals. It was determined from a review of these events, however, that causal factors for previous events were not the same.