

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 (F-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) **Perry Nuclear Power Plant, Unit 1** DOCKET NUMBER (2) **0 5 0 0 0 4 4 0 1** PAGE 13 **1 OF 0 1 3**

TITLE (4) **RWCU Isolation on High Delta Flow While Attempting to Shift Pumps**

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)
01	01	91	91	001	00	01	03	91		0 5 0 0 0 0
										0 5 0 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)

OPERATING MODE (9) 2	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(e)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(a)
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.36(e)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(a)
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.36(e)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
	<input type="checkbox"/> 20.406(a)(1)(vi)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME **Henry L. Hegrat, Compliance Engineer, Extension 6855** TELEPHONE NUMBER **2 1 1 6 2 5 9 1 - 3 7 1 3 7**

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS

SUPPLEMENTAL REPORT EXPECTED (14)

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

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen (15) line-space typewritten lines) (16)

On January 1, 1991 at 1935, while attempting to shift Reactor Water Cleanup (RWCU) system flow from the B pump to the A pump, a Delta-Flow High RWCU isolation occurred. At the time of discovery, the Plant was in Operational Condition 2 (Startup). Reactor Pressure Vessel (RPV) temperature was 170 degrees Fahrenheit and reactor pressure was atmospheric. The Operator started the A RWCU pump for a 24 hour run and secured the B RWCU pump. RWCU flow dropped off considerably and the B RWCU pump was restarted approximately 3 minutes later. The A RWCU pump was then secured. A Delta-Flow High RWCU isolation occurred within 1 minute because of flow imbalances within the RWCU system resulting from this evolution. Upon investigation, it was discovered that the A RWCU pump discharge valve was closed. RWCU flow was then properly re-established in accordance with System Operating Instruction SOI-G33, "Reactor Water Cleanup System", using the B RWCU pump.

The root cause of this event was personnel error, inattention to detail, by the Control Room Operator. The operator started the A RWCU pump without first verifying that the pump discharge valve had been opened.

The corrective actions taken for this event include counseling the operator involved and discussing the event during Operator requalification training.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST (ICR) IS 1.5 HRS PER YEAR. COMMENTS REQUIRED TO BURDEN ESTIMATE TO THE ADDRESS IN THE REPORTS (ADMINISTRATION BRANCH (F-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		ICR	SEQUENTIAL NUMBER	REVISION NUMBER		
Perry Nuclear Power Plant, Unit 1	05000440000	0	0	1	9	2 OF 3

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

On January 1, 1991 at 1935, while attempting to shift Reactor Water Cleanup (RWCU) [CE] system flow from the B pump [P] to the A pump, a Delta Flow-High RWCU isolation occurred. At the time of discovery, the Plant was in Operational Condition 2 (Startup). Reactor Pressure Vessel [RPV] temperature was 170 degrees Fahrenheit and reactor pressure was atmospheric.

A work order was written on December 18, 1990, to drain and flush the A RWCU pump bearing housing as required to clean the housing. Out-of-Service tags were hung on the A RWCU pump breaker, the breaker fuses, the control switch and the discharge valve on December 19, 1990, to allow the Operations and Maintenance personnel flexibility in running the pump following the drain and flush operations. Out-of-Service tags are used to provide control over the operation of a component in situations like this when personnel safety is not in jeopardy, but control is desired.

On January 1, 1991 the Control Room Operator was requested to start the A pump for a 24 hour run. The operator started the A RWCU pump at 1928 and secured the B RWCU pump 27 seconds later after observing what appeared to be normal flow and discharge pressure. RWCU flow dropped off considerably when the B RWCU pump was secured and the B RWCU pump was restarted approximately 3 minutes later. The A RWCU pump was then secured. A Delta Flow-High RWCU isolation occurred within 1 minute because of flow imbalances within the RWCU system resulting from this evolution. Upon investigation, it was discovered that the A RWCU pump discharge valve was closed. RWCU flow was then properly re-established in accordance with System Operating Instruction, SOI-G33, "Reactor Water Cleanup System", using the B RWCU pump.

Because the pump has no minimum flow recirculation capability and because the pump was run against shutoff head for approximately 3 minutes, an engineering evaluation was performed to determine the future operability of the pump. The bearing housing was flushed again, and the pump was run for 48 hours. The pump was declared fully operational on January 8, 1991.

The root cause of this event was personnel error, inattention to detail, by the Control Room Operator. System Operating Instruction (SOI-G33), "Reactor Water Cleanup System" requires that a valve lineup be performed prior to starting up the system. Although the valve lineup was current at the time of the event, the Out-of-Service tags hung for this evolution modified the valve lineup by allowing the maintenance Person in Charge to control the opening and closing of the A RWCU pump discharge valve as needed to perform the drain and flush evolutions. When Out-of-Service tags are used, the Control Room operator is solely responsible for the actual pump and valve manipulations to ensure that proper lineups are maintained for the existing operating conditions. In this case, the operator was handed the tagout which identified the A RWCU pump control switch, the pump breaker, the breaker fuses and the pump discharge valve as being under maintenance control and he was given permission to operate these components as necessary under their tags to conduct the pump retest.

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TEXT CONTINUATION

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FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (8)

PAGE (3)

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
91	001	001

Perry Nuclear Power Plant, Unit 1

05000440

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TEXT IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC FORM 366A's (17)

When called upon to restart the A RWCU pump, however, he failed to check the position of the A RWCU pump discharge valve prior to starting the pump. The discharge valve was closed.

The RWCU system is used to control reactor water chemistry, control reactor water inventory during start up and shutdown, and minimize temperature gradients when recirculation pumps are not operating. The RWCU differential flow instrumentation is part of the Leak Detection System (LDS) and in conjunction with the Nuclear Steam Supply Shutoff (NSSS) system is designed to isolate RWCU flow in the event of a line break in the system. The Leak Detection System compares RWCU suction flow with the discharge flow and generates an isolation signal when high differential flow exists for a duration of greater than 45 seconds. A genuine differential flow situation existed in this instance resulting in a trip and isolation of RWCU system flow for a short period of time. This loss of RWCU flow did not have a significant effect on plant chemistry control. Additionally, the RWCU isolation function performed as designed to isolate the plant on a Delta Flow High signal. Therefore, this event is not considered safety significant.

Previous RWCU isolation caused by high differential flow have been discussed (see LER's 89-025, 89-034, 90-008 and 90-022). However, none of these events were attributable to personnel error.

The corrective actions taken for this event include counseling the Operator involved and discussing the event during Operator requalification training.

Energy Industry Identification System Codes are identified in the text as [XX].