

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Perry Nuclear Power Plant, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 4 0	PAGE (3) 1 OF 0 3
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TITLE (4) Personnel Error Results in Deenergizing Auxillary Building Ventilation Fan Trip Relay Causing Loss of Ventilation and Reactor Water Cleanup Containment Isolation

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	0 4	8 8	8 8	0 1	6 0	0 0	6 0	3 8			0 5 0 0 0
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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 D 10	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(a)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.406(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"/> 20.406(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 365A)						
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
<input type="checkbox"/> 20.406(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 Gregory A. Dunn, Compliance Engineer, Extension 6484	TELEPHONE NUMBER
	AREA CODE: 2 1 6 2 5 9 - 3 7 3 7

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

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 4, 1988 at 1610, an unexpected Reactor Water Cleanup (RWCU) containment isolation occurred due to pump room high differential temperature. Technicians performing calibration of the loss of power trip relay time delay for Auxillary Building Ventilation (AB HVAC) exhaust fan A inadvertently deenergized the exhaust fan B trip relay. This resulted in a loss of cooling to the RWCU pump rooms and subsequent RWCU isolation.

The cause of this event was the technician removing the leads for the AB HVAC exhaust fan A trip relay did not take adequate precautions to ensure the trip relay for exhaust fan B remained energized. Contributing to the event was the alarm for RWCU differential temperatures being continuously actuated due to an unassociated parameter on the same recorder exceeding the alarm setpoint, thereby masking any subsequent alarms. There was no active alarm associated with the fan trip. Therefore, the operators were not immediately alerted to the fan trip.

In order to prevent recurrence, a caution has been added to the repetitive task for calibration of the time delay for the fan A trip relay to use a jumper to ensure fan B trip relay remains energized. The technicians will be trained to this event. The leak detection recorder has been modified such that each input will actuate an alarm at its respective setpoint.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

On May 4, 1988 at 1610, an unexpected Reactor Water Cleanup (RWCU) [CE] outboard containment isolation occurred due to a loss of Auxillary Building Ventilation (AB HVAC) [VF]. At the time of the event the plant was in Operational Condition 1 (Power Operation) with reactor power approximately 100 percent of rated and reactor vessel [RPV] pressure approximately 1000 psig.

On May 4, 1988 at approximately 1400, technicians commenced a repetitive task to verify the calibration of the time delay for AB HVAC exhaust fan A loss of power trip relay. While removing the leads from the relay, the technician inadvertently deenergized the loss of power trip relay for the AB HVAC exhaust fan B. The two relays are connected in parallel such that the power supply leads to each relay are attached to the same terminal. The leads were momentarily separated when the technician lifted the leads from the terminal. At approximately 1415, the AB HVAC exhaust fan B tripped and the RWCU pump rooms temperatures increased to just below the isolation trip setpoint for RWCU pump room differential temperature. The operators were unaware of the AB HVAC exhaust fan B tripping, therefore, no immediate actions were taken. At 1610 the RWCU pump room B temperature exceeded the isolation trip setpoint resulting in an outboard containment isolation of RWCU. The control room operator verified all automatic actuations were complete and a system inspection verified no system leakage. AB HVAC exhaust fan A had been tagged out of service for maintenance. The tagout was cleared and AB HVAC exhaust fan A was placed in service at 1645. RWCU warmup was commenced at 1900 and RWCU was returned to service at 1953.

The cause of the event was personnel error. The technician removing the leads for the AB HVAC exhaust fan A loss of power trip relay did not take adequate precautions to ensure the loss of power trip relay for exhaust fan B remained energized even though he was aware of the potential fan trip. Contributing to the event was the alarm for RWCU differential temperatures being continuously actuated. The RWCU pump room temperatures exceeded the alarm setpoint for RWCU pump room differential temperature, however, because of an unassociated parameter exceeding the alarm setpoint of the recorder the alarm was continuously actuated. Five differential temperature parameters feed the recorder, each with its own required alarm setpoint. The recorder only has one alarm circuit, so any parameter exceeding the setpoint (which is set at the lowest of the required setpoints) will actuate the alarm and mask any subsequent alarms. There was no active alarm associated with the fan trip since the fan was deenergized. The alarm circuitry for AB HVAC exhaust low flow will only actuate if the fan is running. Therefore, the operators were not alerted to the AB HVAC exhaust fan trip.

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

The RWCU system is used to control reactor water chemistry, reduce reactor water inventory during startup and shutdown, and minimize temperature gradients when recirculation pumps are not operating. A RWCU containment isolation occurring at high reactor power may cause reactor coolant conductivity to slowly increase until the system is returned to service. In addition, during shutdown with little or no internal recirculation flow, reactor vessel thermal stratification may also occur. During this event the time out-of-service for RWCU was short and these effects minimal. The RWCU pump rooms differential temperature detection is part of the Leak Detection system, designed to isolate the RWCU containment penetrations should a RWCU system leak develop in the RWCU pump room. Since no system leakage existed and the system responded as designed, this event is considered to be of no safety significance.

Previous similar events occurred on March 10 and 11, 1988 as discussed in LER 88-010. On March 10 the damper for the AB HVAC exhaust fan A failed closed due to failure of the solenoid control valve. On March 11 the AB HVAC exhaust fan was secured to facilitate roughing filter replacement. Both of these events resulted in RWCU pump rooms high differential temperatures and RWCU containment isolation. As a result of these events, repetitive tasks have been generated to periodically replace the AB HVAC solenoid control valves and additional information was added to the system operating instruction concerning impact on RWCU when the AB HVAC is secured. Since the operators were not aware of the AB HVAC exhaust fan B tripping and no component failures were involved with the most recent event, the previous corrective actions could not have prevented the RWCU isolation.

In order to prevent recurrence, a caution has been added to the repetitive task for calibration of the time delay for AB HVAC exhaust fan A loss of power trip relay to use a jumper to ensure the loss of power trip relay for exhaust fan B remains energized. All Instrumentation and Control technicians will be trained to this event and the need to inform the Unit Supervisor of potential impact on operating equipment prior to commencing any maintenance task. A design change has modified the leak detection recorder such that each parameter input will actuate an alarm at its respective setpoint.

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