

## 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 20549, 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 (3) OF 0 3																															
TITLE (4) Unexpected Actuation of B Train of Control Room Emergency Recirculation System During System Restoration Due to Inadequate Off-Normal Instruction.																																																			
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																																	
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1 1		2 0		9 0		9 0		0 3		3		0 0		1 2		4 9				0 5 0 0 0 0																															
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)																																																	
5		20.402(b)										20.406(a)										<input checked="" type="checkbox"/> 50.73(a)(2)(iv)										73.71(b)																			
POWER LEVEL (10)		0 0 0										20.406(a)(1)(i)										50.36(a)(1)										50.73(a)(2)(v)										73.71(a)									
												20.406(a)(1)(ii)										50.36(a)(2)										50.73(a)(2)(vi)										OTHER (Specify in Abstract below and in Text NRC Form 350A)									
												20.406(a)(1)(iii)										50.73(a)(2)(iii)										50.73(a)(2)(vii)(A)																			
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LICENSEE CONTACT FC, THIS LER (12)																																																			
NAME										TELEPHONE NUMBER																																									
Henry L. Hegrat, Compliance Engineer, Extension 6855										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 NRC		CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NRC																																	
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)																																									
YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO																																									
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)																																																			
<p>On November 20, 1990 at 0248, the B train of the Control Room Heating, Ventilation and Air Conditioning (CRHVAC) System actuated unexpectedly in the Emergency Recirculation mode of operation when temporary power to a power distribution panel, K-1-N, was removed to allow restoration of the normal power supply. All equipment responded as designed, and the system was returned to normal operation.</p> <p>The root cause of this event was an inadequate instruction. The Unit Supervisor, reviewing the tagout for system restoration, referred to Off-Normal Instruction (ONI-R25-2) "Loss of a Non-essential 120V Bus (Unit 1)" to determine expected plant response to the evolution; however, the instruction was inadequate as it did not provide the correct guidance concerning the effects on the CRHVAC system when K-1-N was deenergized.</p> <p>To prevent recurrence, ONI-R25-2 has been revised to reflect the correct guidance during loss of power to the K-1-N bus. Additionally, Operations is developing more detailed system operating instructions to provide better guidance for the operations of low voltage electrical systems. Finally, as part of the established requalification training program, this event will be discussed with all plant licensed operators.</p>																																																			
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TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Perry Nuclear Power Plant, Unit 1	0500044090	0	33	0	002 OF 03

TEXT (IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC FORM 366A &amp; (17))

On November 20, 1990 at 0248, the B train of the Control Room Heating, Ventilation and Air Conditioning (CRHVAC) [VI] System actuated unexpectedly in the Emergency Recirculation mode of operation when temporary power to a power distribution panel, K-1-N, was removed to allow restoration of the normal power supply. At the time of the event, the plant was in Operational Condition 5 (Refuel), with the Reactor Pressure Vessel [RPV] at atmospheric conditions and reactor water temperature at approximately 78 degrees.

On November 20, 1990, the Unit Supervisor authorized clearance of a tagout which would remove temporary power that was supplying power to distribution panel K-1-N. Prior to this, the Unit Supervisor reviewed Off Normal Instruction (ONI-R25-2) "Loss of a Non-essential 120V Bus (Unit 1)" to determine the effects of a loss of power to K-1-N on plant systems and determine if any mitigating actions should be taken. At this time, both of the CRHVAC trains were considered inoperable due to duct work modifications; however, the A train was operating in the Emergency Recirculation mode and the B train was in the standby readiness mode. At 0248, plant operators removed temporary power from panel K-1-N to enable restoration of its normal power supply. When power to the distribution panel was removed, the Common Airborne Radiation Monitor Panel [IL] and an associated instrument, Control Room Airborne Gas Radiation Monitor [RI], were deenergized. Upon the loss of power to this instrument, the CRHVAC B train received an automatic initiation signal and started in the Emergency Recirculation mode. The A train continued to operate in the Emergency Recirculation mode throughout the event. At 0258, normal power was restored to K-1-N. At 1216 the A train was returned to normal operation and the B train was placed in the standby readiness mode.

The root cause of this event was an inadequate instruction. The Unit Supervisor reviewed the tagout with the appropriate Off-Normal Instruction for a loss of power to K-1-N. The instruction was inadequate in that it did not provide the correct guidance concerning the effects on the CRHVAC system when K-1-N was deenergized. This instruction had previously included information regarding initiation of Emergency Recirculation when power is lost to K-1-N. However, a previous revision to the instruction in November of 1988 removed the subject information. The revision was made in response to a design change which removed the automatic initiation of the Emergency Recirculation mode due to a loss of power to Ethylene Oxide Monitors [45]. The review of this change only focused on the effect of Ethylene Oxide monitors. Therefore, it was not recognized that a loss of power to K-1-N would still cause an automatic initiation of the Emergency Mode of the CRHVAC system due to a loss of power to the Control Room Airborne Gas Radiation Monitor.

The CRHVAC system provides cooling, heating, ventilation, and when required, smoke removal for the control room and equipment areas during normal plant operation, and during periods of emergency (LOCA or high radiation conditions or high chlorine gas level). The Emergency Recirculation mode provides the necessary supplementary particulate and halogen filtration of the air supplied to

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Perry Nuclear Power Plant, Unit 1	0 5 0 0 0 4 4 0	9 0	— 0 3 3	— 0 0	0 3 OF 0 3	

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

the control room areas during emergency conditions and other abnormal conditions to reduce the radiation dose for personnel protection. The Emergency Recirculation mode will automatically initiate upon receipt of a high chlorine gas, high radiation, Loss Of Offsite Power (LOOP) or Loss Of Coolant Accident (LOCA) signal. In this event, the B train properly responded as designed to the automatic initiation signal, while the A train continued to operate in Emergency Recirculation. This event is not considered to be safety significant. A review of previous events identified two CRHVAC Emergency Recirculation actuations since 1986 that were a result of inadequate surveillance and operating instructions (refer to LERs 86073 and 89008). In both cases, precautions were added to these instructions; however, none of the procedural changes implemented as corrective actions would have prevented the November 20 event.

As a result of previous events, and the recognized need to provide complete guidance for loss of various plant power supplies, the Plant Operations Section has maintained a continuing effort to ensure that Electrical Operating Instructions are complete and accurate. For example, detailed load lists have been developed for 125 VDC distribution systems and included in the Plant Data Book. The inaccuracy in ONI-R25-2 was the direct result of an error in the procedure revision process and is considered to be an isolated event.

To prevent recurrence, ONI-R25-2 has been revised to reflect the correct guidance during loss of power to the K-1-N bus. Additionally, Operations is developing more detailed system operating instructions to provide better guidance for the operation of low voltage electrical system. Finally, as part of the established requalification training program this event will be discussed with all plant licensed operators.

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