NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES 4/30/92
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)	DOCKET NUMBER (2)	PAGE (3)
Perry Nuclear Power Plant, Unit 1	0 5 0 0 0 4 4 0	1 OF 0 3

TITLE (4)
Inadequate Instruction Results in Outboard Balance of Plant 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 0 0
0 4	3 0	9 2	9 2	—	0 1 0	—	0 0	0 5	2 9	9 2		0 5 0 0 0

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
5	0 0 0	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Henry L. Hegrat, Compliance Engineer, Extension 5185	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On April 30, 1992, at 1112, maintenance activities to replace control relays resulted in an inadvertent Outboard Balance of Plant Containment Isolation. The activities were being performed under an Instrumentation and Controls (I&C) work order. The plant was placed in the appropriate condition for the relay replacement by inserting the trip signal on one isolation channel. The work order was intended to then direct technicians to replace the relays on the tripped channel; however, in accordance with the work order instructions, technicians removed a relay that was not part of the tripped isolation channel. When the relay was removed, another isolation channel tripped and completed the logic to cause an Outboard Balance of Plant Containment isolation.

The cause of this event is an inadequate work order. The I&C personnel who were responsible for the planning and reviewing of the work order did not notice that one of the relays was in a channel that would cause the initiation of the Balance of Plant Isolation signal if the relay was removed.

I&C personnel involved in this event have assisted in the investigation and have been adequately made aware of their errors. To prevent recurrence, I&C personnel involved with the planning and review of work orders will be trained to this event with emphasis placed on the importance of attention to detail in all aspects of work order preparation and review. As part of the established requalification training program, all plant licensed operators will be instructed on the lessons learned from this event.

I. Introduction

On April 30, 1992, at 1112, maintenance activities to replace control relays [RLY] resulted in an inadvertent Outboard Balance of Plant Containment Isolation [JM]. At the time of the event, the plant was in the third refueling outage in Operational Condition 5 (Refuel). The Reactor Pressure Vessel [RPV] head was removed and reactor coolant temperature was at approximately 81°F. This event is being reported under 10CFR50.73(a)(2)(iv).

II. Description of Event

On April 30, 1992, at 0850, Surveillance Instruction (SVI-B21-T1402), "RWCU Isolation Logic System Functional Test" was commenced as part of an Instrumentation and Controls (I&C) work order to replace control relays. The relay replacement was being performed to prevent degradation of relays due to aging. SVI-B21-T1402 was utilized, as part of the work order, to place the plant in the appropriate condition for the relay replacement by inserting the trip signal on the "A" isolation channel. The work order was intended to then direct technicians to replace the appropriate relays for current plant conditions. At 1112 technicians removed relay 1B21-K0148D in accordance with the work order instructions. Relay 1B21-K0148D was not part of the tripped isolation channel and when the relay was removed, the "D" isolation channel tripped. The tripping of the second channel completed the Outboard Balance of Plant Containment Isolation portion of the Nuclear Steam Supply Shutoff System logic. The isolation signal caused various valves to close as required including valves in the Fuel Pool Cooling and Cleanup system [DA] which closed and isolated the operating decay heat removal system. The source of the isolation signal was determined, operators took the appropriate actions in accordance with plant procedures, and at 1125, decay heat removal flow was restored.

III. Cause of Events

The cause of this event is an inadequate work order. An I&C planner was responsible for assembling materials and constructing the work order, and within it, the job traveler which provided the step-by-step procedure for testing, changing the relay, and retesting the relay. Additionally an I&C supervisor reviewed the package to ensure that it could be worked as written. The I&C personnel who were responsible for the planning and reviewing of the work order did not notice that the 1B21-K0148D relay was in a channel that would cause the initiation of the Balance of Plant Isolation signal if the relay was removed.

IV. Analysis of Event

The design objective for the containment isolation systems is to allow normal or emergency passage of fluids through the containment boundary while preserving the ability of the boundary to prevent or limit the escape of fission products that may result from postulated accidents so that site boundary dose guidelines specified by 10CFR100 are not exceeded. The objective is achieved by provision

for automatic isolation of appropriate lines that penetrate the containment boundary. The Balance of Plant Isolation valves and logic are part of that provision and they functioned as designed during the event. During this event, alternate methods of decay heat removal were available and decay heat removal flow was promptly restored by control room operators. Reactor coolant temperature did not increase noticeably and this event is not considered to be safety significant.

V. Corrective Actions

I&C personnel involved in this event have assisted in the investigation and have been adequately made aware of their errors. To prevent recurrence, I&C personnel involved with the planning and review of work orders will be trained to this event with emphasis placed on the importance of attention to detail in all aspects of work order preparation and review. As part of the established requalification training program, all plant licensed operators will be instructed on the lessons learned from this event.

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