

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) Automatic Start of Emergency Service Water Pump A Caused by Reactor Core Isolation Cooling System Initiation Signal Due to Inadequate Load List

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	4	08	89	011	00	05	05	89			0 5 0 0 0
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OPERATING MODES (9) N	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	20.402(b)	20.406(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)					
	20.406(a)(1)(ii)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)					
	20.406(a)(1)(iii)	50.36(c)(2)		50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
	20.406(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(A)						
	20.406(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(viii)(B)						
	20.406(a)(1)(vi)	50.73(a)(2)(ix)		50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME	AREA CODE	
Gregory A. Dunn, Compliance Engineer, Extension 6484	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
<input type="checkbox"/> 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)

On April 8, 1989 at 0215, an unexpected automatic start of the Emergency Service Water (ESW) Pump A occurred due to an actuation of the Reactor Core Isolation Cooling system (RCIC) initiation logic. At the time of the event, the reactor was in Operational Condition "At All Times", with all fuel removed from the reactor. The reactor was depressurized, and reactor coolant temperature was approximately 78 degrees Fahrenheit. The ESW Pump A was immediately shutdown and returned to stand-by readiness.

The cause of the event was a procedural deficiency. Off-Normal Instruction (ONI-R42-2) "Loss of DC Bus ED-1-B (Unit 1)" provided no warning to the operators that opening disconnect 5 on ED1-B-08 would cause a Division 2 Reactor Core Isolation Cooling Systems (RCIC) initiation signal. When the disconnect was opened in an attempt to isolate a ground on the Bus, the RCIC initiation signal caused ESW A pump to automatically start.

In order to prevent recurrence, ONI-R42-2 has been modified to caution the operators about the RCIC initiation signal on a loss of power to ED1B08, disconnect 5. Load lists for DC plant electrical systems will be reviewed for accuracy and revised where necessary. Additionally, alarm response instructions for DC bus grounds have been modified to eliminate the need for disconnecting individual loads during ground isolation procedures. Finally, as a part of the normal licensed operator requalification program, this event will be reviewed with all licensed operators.

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TEXT (If more space is required, use additional NRC Form 288A's) (17)

On April 8, 1989 at 0215, an unexpected automatic start of the Emergency Service Water (ESW) [BI] Pump A occurred due to an actuation of the Reactor Core Isolation Cooling system (RCIC) [BN] initiation logic. At the time of the event, the reactor was in Operational Condition "At All Times", with all fuel removed from the reactor. The reactor was depressurized, and reactor coolant temperature was approximately 78 degrees Fahrenheit.

At 0200 on April 8, 1989, control room operators were notified of the presence of a ground on safety related 120 VDC Bus ED-1-B [BU]. In an attempt to isolate the location of the ground, plant operators were dispatched to affected motor control centers to deenergize individual loads as directed by the control room. Prior to directing the removal of each load from the bus, the control room operators consulted load lists in Off-Normal Instruction (ONI-R42-2) "Loss of DC Bus ED-1-B (Unit 1)" and controlled electrical distribution drawings. Based on this review, plant configuration was modified as necessary in an attempt to prevent undesired plant effects upon load deenergization. At 0215, when disconnect 5 on distribution panel ED-1-B08 was opened, ESW Pump A unexpectedly received an automatic start signal. Control room operators immediately secured the pump and began investigating the cause of the pump start. At 0238, the automatic pump start signal was removed when operators reset the RCIC initiation logic, and at 0245, the control room confirmed that deenergizing ED-1-B08 disconnect 5 caused an RCIC initiation signal, which automatically started ESW Pump A.

The cause of this event is a procedure deficiency. Accepted practice for ground isolation requires operators to sequentially isolate loads from the affected bus to identify the location of the ground fault. Load lists in Off-Normal Instructions and plant drawings are used to identify any loads which require configuration changes prior to being deenergized. In this event, ONI-R42-2 did not adequately identify the RCIC initiation logic as a load supplied by disconnect 5 on ED-1-B08. After properly researching the expected effects of opening this disconnect, the operators were not made aware of the impending RCIC initiation signal.

The Emergency Service Water system is designed to provide a reliable source of service water to safety related components required for certain modes of normal reactor operation, as well as for accident conditions and loss of normal auxiliary power. ESW Pump A is automatically started to support operation of the Reactor Core Isolation Cooling System. In this event, the logic was initiated due to partial deenergization of the RCIC initiation logic circuitry. The RCIC system was unavailable due to plant conditions; however, ESW Pump A automatically started as designed. All system functions performed as required; therefore, this event is not considered to be safety significant. Previous events were identified in which unplanned engineered safety features actuations occurred due to procedural inadequacies involving deenergization of portions of the onsite electrical distribution systems. (See LER's 86-73, 86-79, 87-15 and 87-49). As a result of these events, additional Off-Normal Instructions and load lists were generated for the Reactor Protection System Busses. None of these previous events, however, involved the load lists for non-RPS busses.

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

In order to prevent recurrence, ONI-R42-2 has been modified to enhance the load list for ED-1-B08, disconnect 5. A note has been added to describe effects on the RCIC system when this load is deenergized. Load lists for DC plant electrical systems will be reviewed for completeness and accuracy, and where necessary, information will be provided to warn the operators of expected system actions upon deenergization. Additionally, alarm response instructions for DC Bus grounds have been modified to direct control room operators to obtain maintenance section assistance in performing ground identification. Revised methods for ground identification on DC buses do not require individual loads to be deenergized. Instructions and loads lists for AC plant electrical systems are considered to be satisfactory. Finally, as part of the normal licensed operator requalification program, this event will be reviewed with all licensed operators during requalification training.

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