

### 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 2
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TITLE (4) High Reactor Vessel Level Following Opening of Main Steam Isolation Valves Results in Reactor Protection System Actuation Due to Faulty Relay

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)
04	28	88	88	014	0	05	27	88			0 5 0 0 0

OPERATING MODE (9) 3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 0.00	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(c)	<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"/> 50.36(e)(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"/> 50.36(e)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<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, Ext. 6484	TELEPHONE NUMBER 2 1 5 2 5 9 - 1 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	
X	J C	R L Y	A 3 4 8	Y						

SUPPLEMENTAL REPORT EXPECTED (14) <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On April 28, 1988 at 1605 a Reactor Protection System (RPS) actuation occurred on reactor vessel high level (Level 8, +219.5 inches above top of active fuel) due to a faulty bypass relay in RPS Division I Channel A. Division II RPS was already in a tripped condition for the performance of neutron monitoring instrumentation surveillances. The Main Steam Isolation Valves were opened resulting in reactor vessel level swell above the high level RPS trip setpoint. Although the Level 8 trip should have been bypassed in this Operational Condition, RPS Division I Channel A tripped causing a full RPS actuation. RPS was reset when reactor vessel level decreased below the RPS high level trip setpoint.

Initial troubleshooting and bench tests determined this event was caused by a failure of contacts to close in the bypass relay for RPS Channel A high reactor vessel level. In order to prevent recurrence the relay has been replaced and the new relay functionally tested. The old relay is being returned to the manufacturer for confirmatory failure analysis.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8   8	-   0   1   4	-   0   0	0   2	OF 0   2

TEXT (If more space is required, use additional NRC Form 308A's) (17)

On April 28, 1988 at 1605 a Reactor Protection System (RPS)[JC] actuation occurred on reactor vessel [RPV] high level (Level 8, +219.5 inches above top of active fuel) due to a faulty bypass relay. At the time of the event the plant was in Operational Condition 3 (Hot Shutdown) with reactor vessel pressure approximately 290 psig and reactor coolant temperature approximately 410 degrees.

On April 28, 1988 surveillances were being performed on Division II neutron monitoring instrumentation and the associated RPS channel was placed in a tripped condition as required by Technical Specification 3.3.1. Reactor vessel level was approximately 212 inches above top of active fuel as measured by Narrow Range Level instruments. At 1605 the inboard Main Steam Isolation Valves [SB] were opened resulting in reactor vessel pressure decrease and subsequent reactor vessel level swell to approximately 230 inches above top of active fuel. Although the Level 8 trip should have been bypassed in this Operational Condition, RPS Division I Channel A tripped causing a full RPS actuation. Since the plant was shutdown, all Control Rods were full in and no Control Rod movement resulted from the RPS actuation. Reactor vessel level decreased below the RPS high level trip setpoint (219.5 inches above top of active fuel) and RPS was reset at 1612.

Initial troubleshooting determined the cause of this event was a failure of a relay (Agastat Model #EPCI-002)[RLY] which normally bypasses the reactor vessel high level trip in RPS when the plant is in Operational Conditions 2, 3, 4 and 5. When the reactor mode switch is not in "Run" position the relay is energized and contacts close to bypass the reactor vessel high level trip. Additional bench testing identified the contacts failed to close which allowed RPS Channel A to trip when reactor vessel water level reached the high level trip setpoint.

A reactor scram from high reactor vessel level is intended to offset the addition of reactivity effect associated with the introduction of a significant amount of relatively cold feedwater as described in USAR Chapter 15.1.2. This scram feature is only effective when the reactor mode switch is in "Run" position because at thermal power level below 15 percent of rated, the safety margins are more than adequate without a reactor scram. Since the relay failure only affected the bypass function for the reactor vessel high level scram, this event is not considered safety significant. No previous similar events have been identified.

In order to prevent recurrence, the relay has been replaced and the new relay functionally tested. The old relay is being returned to the manufacturer for confirmatory failure analysis. If any additional substantial information is identified a supplemental report will be submitted.

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