



**CENTERIOR
ENERGY**

PERRY NUCLEAR POWER PLANT

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Michael D. Lyster
VICE PRESIDENT - NUCLEAR

February 4, 1991
PY-CEI/NRR-1305 L

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket No. 50-440
LER 91-003

Dear Sir:

Enclosed is Licensee Event Report 91-003 for the Perry Nuclear Power Plant.

Sincerely,

Frank R. Stead for
Michael D. Lyster

MDL:CRE:njc

Enclosure: LER 91-003

cc: NRR Project Manager
Sr. Resident Inspector

U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

9102080015 910204
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S PDR

Operating Companies
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070036

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F 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) Perry Nuclear Power Plant, Unit 1 DOCKET NUMBER (2) 050004401 OF 03 PAGE (3)

TITLE (4) Performance of Inadequate Procedure Results in Main Steam Line Drain Isolations

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)
01	06	91	91	003	00	02	04	91		050000

OPERATING MODE (9) 1 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50 (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(i)	<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(a)(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(a)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 388A)
<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(vii)(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	TELEPHONE NUMBER
<u>Henry L. Hegrat, Compliance Engineer, Extension 6855</u>	<u>21621591-1371317</u>

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS

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 January 6, 1991 at 1311, the performance of an inadequate procedure resulted in Main Steam Line Drain Isolations. Control Room Operators were in the process of restoring Feedwater Heater 6A to service in accordance with system Operating Instruction (SOI-N27) "Feedwater System (Unit One)." At 1257, the Control Room Operators bypassed the trip functions for all four Main Steam Line (MSL) Radiation Monitors and, in addition, placed the NSSSS MSL Drain Isolation Logic Test switches to the "test" position. The resulting logic configuration resulted in the generation of isolation signals to the inboard and outboard MSL Drain Isolation Valves.

The root cause of this event is procedure deficiency. SOI-N27 instructs operators to perform applicable steps of appropriate Surveillance Instructions to bypass the MSL Radiation Monitors. These Surveillance Instructions are used to meet Technical Specification Surveillance requirements and do contain steps that in effect "bypass" MSL Radiation Monitor trip functions; however, these steps are not readily discernible or placed in a specific section separated from other non-applicable steps. As a result, the Control Room Personnel had to determine, without procedural guidance, the "applicable steps" to be performed.

To prevent recurrence, SOI-N27 is being revised to include or reference the appropriate steps to bypass the MSL Radiation Monitors. This event has been discussed with the operators involved and they are aware of the personnel errors that occurred. Additionally, as part of the established requalification training program, all plant licensed operators will be instructed on the lessons learned from this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-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)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Perry Nuclear Power Plant, Unit 1	0 6 0 0 0 4 4 0 9 1	0 0 3	0 0 0	2	OF	0 3

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

On January 6, 1991 at 1311, the performance of an inadequate procedure resulted in Main Steam Line [SB] Drain Isolations. At the time of the event, the plant was in Operational Condition 1 (Power Operation) at approximately 39 percent of rated thermal power, with the Reactor Pressure Vessel [RPV] at saturated conditions at approximately 950 psig.

On January 6, 1991, Control Room Operators were in the process of restoring Feedwater Heater 6A [SN] to service in accordance with System Operating Instruction (SOI-N27) "Feedwater System (Unit One)." The concern for air injection into the RPV during this evolution is referenced in the following NOTE in SOI-N27: "If air is trapped in the feedwater heater and subsequently pushed into the RPV when re-establishing feedwater flow through the heater, a spike on main steam line radiation monitors may occur. This spike may be high enough to cause a MSIV isolation and Reactor scram." As a result of this concern, SOI-N27 directs the operators to bypass the trip functions for both channels in either of two trip systems in the Nuclear Steam Supply Shutoff System [JM] (NSSSS) and the Reactor Protection System [JE] (RPS). At 1257, the Control Room Operators bypassed the trip functions for all four Main Steam Line (MSL) Radiation Monitors [RI], and, in addition, placed the NSSSS MSL Drain Isolation Logic Test switches to the "test" position. At 1311 on January 6, the resulting logic configuration resulted in the generation of isolation signals to the inboard and outboard MSL Drain Isolation Valves [ISV]. Because the isolations were the result of placing the test switches in the "Test" position, and not from a valid isolation signal, the isolation was not indicated by any control room annunciators and the isolation went unnoticed by the operators. After the 6A heater was returned to service, during restoration of the MSL Radiation Monitors, the MSL Drains were discovered closed. After the MSL Radiation monitors were declared operable at 1356, the MSL Drain Valves were re-opened at approximately 1415.

The root cause of this event is procedure deficiency. Regulations Administrative Procedure (OAP-0502) "Preparation of Operating Instructions" requires that procedural steps are adequately specific to ensure that operators are not required to rely only on system knowledge to complete complex system evolutions. The section of SOI-N27 for returning the feedwater heater to service at power did not meet this requirement. SOI-N27 instructs operators to perform applicable steps of appropriate Surveillance Instructions to bypass the MSL Radiation Monitors. These Surveillance Instructions are used to meet Technical Specification Surveillance requirements and do contain steps that in effect "bypass" MSL Radiation Monitor trip functions; however, these steps are not readily discernible or placed in a specific section separated from other non-applicable steps. As a result, after consultation with the Shift Technical Advisor and Instrumentation and Control (I&C) personnel, the control room personnel had to determine, without procedural guidance, the "applicable steps" to be performed.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 900 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (PS30), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Perry Nuclear Power Plant, Unit 1	05000440	91	003	003	3 OF 03

TEXT (if more space is required, use additional NRC Form 386A (1/77))

Contributing factors to this event include personnel errors: failure to follow procedure and inadequate knowledge/training. SOI-N27 specifically referred to Technical Specification Action statements for the inoperability of one trip system, and directed only the channels of one trip system to be bypassed. However the Control Room Operators bypassed the trip functions in both systems, in an attempt to minimize the possibility of an inadvertent RPS or NSSSS actuation. Additionally, the evolution did not require the placing of the test switches in the "Test" position. Instead of bypassing the trip input, as desired this switch manipulation inserts a simulated trip signal, contrary to the intent of the procedure.

Two High Pressure Feed Heaters are the final stage of feedwater heating and use extraction steam from the turbine to heat the feedwater from the feed pumps. They are shell and U-Tube heat exchangers each designed for 50 percent rated feedwater flow through the tube side. The MSL Radiation Monitor instrumentation monitors the radiation level exterior to the Main Steam Lines. The detectors are geometrically located so that each detector is capable of detecting significant increases in radiation levels from any of the Main Steam Lines. In the event of a gross release of fission products from the core, this instrumentation provides channel trip signals to the RPS and the NSSSS to initiate a reactor scram and containment isolation. In this event, returning a High Pressure feedwater heater to service could have forced any trapped air in the heater into the reactor core. Although this amount of air would be relatively small and in the core for a short time, this air, as it passes down the steam lines, can cause the MSL Radiation Monitor to spike upscale causing unnecessary trips of the RPS and NSSSS. During the time all four MSL Radiation Monitors were bypassed, the compensatory measures prescribed by SOI-N27 were in effect. Additionally, all MSL Radiation Monitors were returned to service within the period prescribed by Technical Specification Action requirements. The SOI-N27 provided the guidance to return the high pressure feedwater heater to service without incurring the unnecessary trips except for the Main Steam Line Drain Isolations. The MSL Drain Valves provide a containment isolation mechanism to the flow paths for condensation from areas upstream of the inboard and outboard Main Steam Line Isolation Valves (MSIVs) to the main condenser. The safety function of these valves is to close in the event of an NSSSS isolation signal. This function was proven during the event as all equipment responded as designed, therefore, this event is not considered to be safety significant. No previous similar events have been reported.

To prevent recurrence, SOI-N27 is being revised to include or reference the appropriate steps to bypass the MSL Radiation Monitors. This event has been discussed with the operators involved and they are aware of the personnel errors that occurred. Additionally, 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].