



PERRY NUCLEAR POWER PLANT  
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PERRY, OHIO 44081  
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Michael D. Lyster  
Vice President - Nuclear

January 17, 1991  
PY-CEI/NRR-1294 L

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

Perry Nuclear Power Plant  
Docket No. 50-440  
LER 90-040

Dear Sir:

Enclosed is Licensee Event Report 90-040 for the Perry Nuclear Power Plant.

Sincerely,

Michael D. Lyster

MDL:SC::njc

Enclosure: LER 90-040

cc: NRR Project Manager  
Sr. Resident Inspector

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

9101220464 910117  
PDR ADOCK 05000440  
S FDR

Operating Units  
Cleveland Electric Illuminating  
Toledo Edison

280035

1-22  
11

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 (F-630), 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): **0 5 0 0 0 4 4 1 0** PAGE (3): **1 OF 0 3**

TITLE (4): **Reactor Water Cleanup System Isolation Caused by a Blown Fuse While Troubleshooting Isolation Circuitry.**

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)
12	18	89	09	04	00	01	17	91		0 5 0 0 0 0

OPERATING MODE (9): **4**

POWER LEVEL (10): **01010**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 20.406(a)(1)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	<input type="checkbox"/> 50.73(a)(2)(ix)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 73.71(c)	<input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)
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LICENSEE CONTACT FOR THIS LER (12)

NAME: **Henry L. Kegrat, Compliance Engineer, Extension 6855** TELEPHONE NUMBER: **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 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: **12** DAY: **18** YEAR: **89**

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

On December 18, 1990 at 0108 while performing a work order to correct the cause of the Reactor Water Cleanup (RWCU) system outboard isolation valves [ISV] not opening with the RWCU LD (Leak Detection) Isolation Bypass switch in "Normal", a Division 1 RWCU outboard isolation occurred. At the time of occurrence, the Plant was in Operational Condition 4 (Cold Shutdown). Reactor Pressure Vessel (RPV) temperature was 120 degrees F and reactor pressure was atmospheric. Immediate corrective action was taken to suspend work and to verify that all affected valves had isolated properly.

The root cause of this event is indeterminate personnel error. An I&C Technician was performing a work order that required lifting a wire and relugging it. The wire being relugged had been verified to be deenergized at both ends prior to commencing work. Precautions to prevent inadvertent shorting were taken. However, the RWCU isolation occurred at about the same time as the lifting of the lug, indicating that the events were probably related. Wiring to the two fuses that blew was in close proximity on both the test switch and on the relay corresponding to the two lugs that were lifted.

The corrective actions taken for this event included inspecting the panel and tools for indications of shorting, replacing the fuses and restoring the RWCU system to normal. This event will be discussed at I&C Section continuing training and at Operator requalification training, to stress the potential for such events during troubleshooting and repair activities.

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 (P-830), 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)  0500044090	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		90	040	00	02	OF 03

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

On December 18, 1990 at 0108 while performing a work order to correct the cause of the Reactor Water Cleanup [CE] (RWCU) system outboard isolation valves [ISV] not opening with the RWCU LD (Leak Detection) Isolation Bypass switch [HS] in "Normal", a Division 1 RWCU outboard isolation occurred. This Engineered Safety Feature (ESF) actuation is reportable under 10CFR50.7. At the time of occurrence, the Plant was in Operational Condition 4 (Cold Shutdown). Reactor Pressure Vessel [RPV] temperature was 120 degrees Fahrenheit and reactor pressure was atmospheric.

A work order was initiated on December 17, 1990 to determine why the appropriate RWCU isolation valves failed to open when the Division 1 RWCU LD Isolation Bypass Switch was placed in "Normal" while performing a cold startup of the RWCU system in accordance with the System Operating Instruction, SOI-G33, "Reactor Water Cleanup System". Troubleshooting revealed an open circuit at a lug-to-wire crimp connection in the RWCU isolation circuitry. While lifting the wire under a work order to replace the lug, a 5 amp fuse [FU] blew deenergizing relays in control circuitry for the Division 1 RWCU outboard isolation valves, causing them to close. A second 5 amp fuse also blew, in the leak detection system, affecting several Control Room alarms and two Emergency Response Information System (ERIS) data points. Immediate corrective action was taken to suspend work and to verify that all affected valves had isolated properly. Following determination of the cause, work was completed, fuses were replaced and the RWCU system was returned to normal. Control Room indication was also verified to have been restored.

The root cause of this event is indeterminate personnel error by an I&C Technician. The wire being relugged had been verified to be deenergized at both ends prior to commencing work. The Responsible System Engineer observed the work and conducted a thorough inspection of the panel following the event. Precautions to prevent inadvertent shorting had been taken and no indication of shorting to ground could be found on any of the tools used in the panel or on components within the panel. The RWCU isolation occurred at about the same time as the lifting of the lugs however, indicating that the events were probably related. Wiring to the two fuses that blew was landed in close proximity on both the test switch and the relay corresponding to the two lugs that were lifted. Working conditions in these panels are cramped and long reaches were required to remove this wire. It is assumed that the I&C technician inadvertently introduced a short during the repair activity.

Contributing to this event was the decision by the I&C Technician, the Responsible System Engineer, the I&C Work Planner and the Unit Supervisor to perform this work with the circuitry only partially deenergized. The RWCU System was not required to be operating at the time of this event and if the test circuitry had been completely deenergized, the probability of unanticipated isolations would have been reduced. Plant administrative procedures assign responsibility for the safe planning of work to the Work Planner and safe execution of the work

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN FOR RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATES TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, 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	LER NUMBER (3)		PAGE (3)	
		YEAR	INITIAL YEAR	REVISION NUMBER	
		9   0	-   4   0	-   0   0	0   3 OF 0   3

TEXT (If more space is required, use additional NRC Form 386A's) (17)

to the Unit Supervisor. Although all of these individuals agree that the work could be safely performed with the circuit partially deenergized, a more prudent decision would have been to completely deenergize the circuitry involved. Also contributing to this event, as well as to many of the previous events of this type, is the design of the cabinets within which the circuitry is contained. The cabinets are deep and narrow, resulting in cramped working conditions.

Previous events were identified in which inadvertent shorting occurred during troubleshooting and repair efforts which resulted in actuations of Engineered Safety Features (see LERs 89-013, 87-016, 86-027, 86-026, 86-009 and 86-003). These events resulted in counseling or disciplinary action, training for I&C technicians and enhancements to the testability configurations of certain circuits. The circuitry involved in this event was not involved in any previous events.

The Nuclear Steam Supply Shutoff System closes all automatically operated, non-ECCS or non-safety system isolation valves, including the RWCU system isolation valves, in the event of a Loss of Coolant Accident (LOCA) or any other event that should initiate the isolation of containment. During this event, the Division 1 RWCU isolation valves were inoperable. The Division 2 valves, however, were operable and would have provided adequate isolation upon receipt of an NS<sup>4</sup> isolation signal. Therefore, this event is not considered safety significant.

The corrective actions taken for this event included inspecting the panel and tools for indications of shorting, replacing the fuses and restoring the RWCU system to normal. The individuals who performed the evolution have been significantly involved with the investigation. This event will be discussed at I&C Section continuing training and at Operator requalification training, stressing the potential for such events during troubleshooting and repair activities.

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