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June 20, 1990
PY-CEI/NRR-1191 L

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

Perry Nuclear Power Plant
Docket No. 50-440
LER 90-010

Dear Sir:

Enclosed is Licensee Event Report 90-010 for the Perry Nuclear Power Plant.

Sincerely,

A handwritten signature in cursive script, appearing to read 'M. D. Lyster'.

Michael D. Lyster
Vice President, Nuclear - Perry

MDL:njc

Enclosure: LER 90-010

cc: T. Colburn
NRC Resident Inspector

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

9006260059 900620
PDR ADOCK 05000440
S PDC

Operating Companies
Cleveland Electric Illuminating
Toledo Edison

Handwritten initials, possibly 'JL' or 'JL22', with a vertical line to the right.

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 (P-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20548, 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** PAGE (3) **1 OF 3**

TITLE (4) **Inadequate Procedures in Conjunction with Rod Control and Information System Malfunction Result in Technical Specification Violation**

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)
05	21	1990	90	010	00	06	21	1990			05000

OPERATING MODE (9) **1**

POWER LEVEL (10) **1.00**

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

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)	<input type="checkbox"/> 20.73(a)(2)(iv)	<input type="checkbox"/> 20.73(b)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 20.20(a)(1)	<input type="checkbox"/> 20.73(a)(2)(v)	<input type="checkbox"/> 20.73(b)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 20.20(a)(2)	<input type="checkbox"/> 20.73(a)(2)(vi)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 205A)
<input type="checkbox"/> 20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 20.73(a)(2)(ii)	<input type="checkbox"/> 20.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 20.73(a)(2)(iii)	<input type="checkbox"/> 20.73(a)(2)(vii)(B)	
<input type="checkbox"/> 20.405(a)(1)(vi)	<input type="checkbox"/> 20.73(a)(2)(iv)	<input type="checkbox"/> 20.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: **Henry L. Hegrat, Compliance Engineer, Extension 6855**

TELEPHONE NUMBER: **216 259-1373**

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
X	A, A	X, F, M, R, G, O, 8, 0		N					
X	A, A	E, C, B, D, G, O, 8, 0		N					

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 4/3 from single-space typewritten text) (16)

On May 21, 1990 at 1950, plant operators failed to implement Technical Specification action requirements for inoperable control rod scram accumulators. A failure of the Rod Control and Information System (RC&IS) resulted in the inability to receive updated leak detector and pressure detector information required for accumulator operability. With more than one control rod scram accumulator inoperable, Technical Specifications require the associated control rods to be declared inoperable, and immediate verification of Control Rod Drive Pump operation. Approximately two hours later, operators realized that thirty-two control rod scram accumulators were inoperable and implemented the required actions.

The cause of this event was inadequate procedures. Although equipment malfunction initiated this event, lack of procedural guidance for operator response to this particular type of failure resulted in a Technical Specification violation.

To prevent recurrence, operations procedures have been revised to include more detailed guidance to assist operators in determining control rod and control rod scram accumulator operability. An investigation into possible Technical Specification changes for improved clarification is also being conducted. 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 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 9 0	LER NUMBER (3)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (if more space is required, use additional NRC Form 308A (10-89))

On May 21, 1990 at 1950, Plant Operators did not perform Technical Specification 3.1.3.3 Action a.2.a immediately when the Rod Control and Information System [AA] (RC&IS) malfunctioned in a mode resulting in thirty-two control rod scram accumulators being inoperable. At the time of the event, the unit was in Operational Condition 1 (Power Operation) at approximately 100 percent of rated thermal power. The Reactor Pressure Vessel [RPV] was at saturated conditions at approximately 1017 psig.

On May 21, 1990 at 1950, the RC&IS analyzer locked up, resulting in one hundred seventy-seven control rod scram accumulators being inoperable due to inability to receive updated leak detector and pressure detector information (required for operability per Technical Specification 4.1.3.3 items b.1 and b.2). Operators responded to the event by placing the analyzer in the manual test mode, which restored accumulator monitoring functions for all but 32 of 177 control rods. Additionally, operators checked local accumulator pressure indications to ensure proper accumulator pressure. At 2158 plant operators realized that they were not receiving updated accumulator information from thirty-two control rod scram accumulators. At 2207 plant operators performed Technical Specification 3.1.3.3 Action a.2.a, by declaring the associated control rods inoperable and immediately verifying that at least one control rod drive pump was operating by inserting at least one withdrawn control rod at least one notch. With more than eight control rods inoperable, Technical Specification 3.1.3.1 requires the reactor to be placed in at least Hot Shutdown within 12 hours.

On May 21, 1990 at 2223, Instrumentation and Control Technicians began troubleshooting the problem. A malfunctioning transformer (General Electric XFMR model 157C4544P065) and transponder card (General Electric ECBDB model 145C3326BAG001) were replaced and the 32 control rods were declared operable on May 22, 1990 at 0250.

The cause of this event was inadequate procedures. Although equipment malfunction initiated this event, lack of procedural guidance for operator response to this particular type of failure resulted in a Technical Specification violation. Because the Off-Normal Instruction (ONI-C11-1) "Inability to Move Control Rods (Unit 1)" and System Operating Instruction (SOI-C11 (RC&IS)) "Rod Control and Information System (Unit 1)" did not address, in the necessary detail, the implications of an RC&IS analyzer lockup, the operators failed to determine operability of the affected accumulators in a timely manner. Additionally, although accumulator information was restored to the unaffected rods by placing the analyzer in Test Mode, procedural guidance for this activity was not included in the associated operating instructions.

The RC&IS provides the operator with the means to make changes in nuclear reactivity by the operator manipulating control rods so that the reactor power level and power distribution can be controlled. This system includes the interlocks that inhibit rod movement (rod block) under certain conditions. The RC&IS does not include any of the circuitry or devices used to automatically or manually scram the reactor. In addition, the mechanical devices of the control rod drives and the control rod hydraulic system are not included in the RC&IS.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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-30), 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) 05000440	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 305A's) (17)

The scram accumulator stores sufficient energy to fully insert a control rod at any vessel pressure. The accumulator is a hydraulic cylinder with a free-floating piston. The piston separates the water on top from the nitrogen below. A check valve in the accumulator charging line prevents loss of water pressure in the event supply pressure is lost. During normal operation, the accumulator piston is seated at the bottom of its cylinder. Loss of nitrogen decreases the nitrogen pressure, which actuates a pressure switch and sounds an alarm in the control room. To ensure that the accumulator is always able to produce a scram, it is continuously monitored for water leakage. A float type level switch actuates an alarm if water leaks past the piston barrier and collects in the accumulator instrumentation block.

In this event, all the scram accumulator level and pressure switches continued to function properly. However, when RC&IS malfunctioned, the information provided by those switches for the thirty-two affected control rod scram accumulators was no longer able to be sent to the control room in the event of accumulator trouble. This inability to monitor accumulator parameters resulted in the inoperability of the thirty-two control rod scram accumulators in accordance with Technical Specification 4.1.3.3 and the requirement to declare the thirty-two associated control rods inoperable in accordance with Technical Specification 3.1.3.3 Action a.2.

After repairs were implemented and the analyzer was reset, there were no accumulator alarms present for the thirty-two affected accumulators. Additionally, during the entire period of inoperability for the thirty-two affected control rods, a control rod drive pump was operating. Based on the availability of control rod drive hydraulic pressure, availability of the scram accumulators if needed, and satisfaction of the remaining Technical Specification action requirements, this event is not considered to be safety significant.

No other previous events involving scram accumulator/control rod inoperability due to RC&IS malfunction have been previously reported. Research of previous condition reports and work orders reveals that similar situations have occurred numerous times in the past. Because knowledge of number of occurrences and their exact dates and times will not contribute to the effectiveness of corrective actions, further investigation will not be completed.

To prevent recurrence ONI-C11-1 and SOI-C11(RCIS) have been revised to include more detailed information about RC&IS analyzer lockups, appropriate actions and references to applicable Technical Specification to assist operators in determining control rod and control rod scram accumulator operability. An investigation into possible Technical Specification changes for improved clarification is also being conducted. 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].