

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) Failure of Chiller Linkage and Fan Power Supply Causes Loss of both Trains of Control Room Ventilation and Entry Into Technical Specification 3.0.3.

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										
0	5	1 5	8	8	8	0	1	9	0	0	0	6	1	0	8	8	DOCKET NUMBER(S) 0 5   0 0   0 0		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)									
POWER LEVEL (10) 1 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(e)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)							
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(x)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Gregory A. Dunn, Compliance Engineer, Extension 6484	TELEPHONE NUMBER 2 1 1 6   2 5 9   - 3 7 3   7
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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										
1	K	M	C	O	N	C	1	4	7	N									

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 May 15, 1988 at 1715 both trains of the Control Room Heating, Ventilation and Air Conditioning (CRHVAC) System were declared inoperable for the Emergency Recirculation mode due to equipment failures placing the plant into Technical Specification (TS) 3.0.3. A plant shutdown was initiated at approximately 1736, and an Unusual Event was declared at 1750. Train B of the CRHVAC system was returned to service and declared operable at 2005 and TS 3.0.3 exited. The Unusual Event was terminated at 2204, and the plant returned to normal operations.

The causes of the equipment failures were a mechanical failure of the compressor guide vane linkage connector on Train B and an intermittent fault in the motor starter circuit of the supply fan for Train A resulting in a blown fuse.

The compressor guide vane linkage connector, the train A motor starter and all three mainline fuses were replaced and have subsequently operated satisfactorily. Since this event, no further faults have occurred during the start of the Train A supply fan. No additional corrective actions are planned at this time.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR 8 8	SEQUENTIAL NUMBER 0 1 9	REVISION NUMBER 0 0	0 2	OF 0 3

TEXT (If more space is required, use additional NRC Form 388A's) (17)

On May 15, 1988 at 1715 both trains of the Control Room Heating, Ventilation and Air Conditioning (CRHVAC) System [VI] were declared inoperable for the Emergency Recirculation mode placing the plant in Technical Specification 3.0.3. An Unusual Event was declared at 1750. At the time of the event, the plant was in Operational Condition 1 at approximately 100 percent of rated thermal power and the reactor vessel [RPV] pressure was approximately 1010 psig.

A plant operator while investigating the cause of high chiller outlet temperature on plant equipment rounds discovered a broken linkage connector [CON] in Control Complex Chiller B [CHU] at approximately 1645. This linkage connector enables the compressor guide vane [TCO] to be positioned to control the amount of cooling. As a result of this failure automatic control of the chiller outlet temperature was lost, and the outlet temperature would vary slowly with plant load. Control Room operators were notified at 1646, and Train B of the CRHVAC system was secured. The the Control Room operator then attempted to start Train A, however the Supply Fan [FAN] failed to start. The ensuing investigation discovered a blown mainline fuse [FU] (Phase C) and a tripped thermal overload [42] at 1706. The Unit Supervisor then declared both trains A and B inoperable for performing the Emergency Recirculation mode of operation and TS 3.0.3 actions were initiated at 1715. A power reduction began at approximately 1736, and at 1750 an Unusual Event was declared.

Normal CRHVAC was maintained during the replacement of the 'B' chiller linkage connector. At 2005 the Unit Supervisor declared Chiller 'B' operable and Train B operable for the Emergency Recirculation mode of operation, TS 3.0.3 was exited and the plant returned to normal operation. At approximately 2130, Train A was successfully started 4 times within a 5 minute period in the normal mode of operation, while starting currents were being monitored on all 3 phases. The Unusual Event was terminated at 2204. Train A of CRHVAC was placed in secured status for additional troubleshooting of its supply fan.

The 'B' chiller may have been operating with the linkage connector broken for several days. Based on a review of the plant equipment rounds, the connector failed sometime between the conduct of second shift rounds on May 9th and 10th. On May 15 the broken linkage connector was discovered when an equipment operator was investigating the reason that the 'B' chiller was not loading properly.

The cause of the event was equipment failure, i.e. mechanical failure of the guide vane linkage connector and an intermittent electrical fault resulting in a blown fuse. A review of equipment history revealed no other failures of this kind on the Control Complex Chiller System [KM] and only one other similar failure on a different chiller system. The cause of the fuse operation in the power supply of Fan A is believed to be an intermittent fault in the motor starter [19]. An inspection of the motor starter revealed a crack in the Bakelite phase barrier for Terminal 3. The cause of the crack is unknown. As a result, the starter and all three mainline fuses were replaced. The Supply Fan was started several times without the fault recurring. Subsequent inspection did not identify any indications of an electrical arc through the crack in the interphase insulation of the motor starter.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR 8   8	SEQUENTIAL NUMBER —   0   1   9	REVISION NUMBER —   0   0	0   3	OF 0   3

TEXT (If more space is required, use additional NRC Form 388A's) (17)

The CRHVAC system provides cooling, heating, ventilation, and, when required, smoke removal for the control room, and equipment areas during normal plant operation, and during periods of emergency (loss-of-coolant accident or high radiation conditions or high toxic gas level). The Emergency Recirculation mode provides the necessary supplementary particulate and halogen filtration of the air supplied to the control room areas during emergency conditions and other abnormal conditions to reduce the radiation dose for personnel protection. At the time of the event the plant was operating at 100% power, this created a relatively high load on the 'B' chiller prior to the failure. In the event Emergency Recirculation mode of operation was required, the CRHVAC system would have been able to operate on the 'B' train. However, the amount of cooling would not have been controlled automatically by the 'B' chiller. Additionally, if necessary the redundant 'C' chiller could have been manually lined up to provide cooling. The Normal mode of the CRHVAC was maintained throughout the event except during the intervals between swapping of the operating CRHVAC train. Therefore, this event had no safety significance. No previous similar events have been identified.

Since this event, no further faults have occurred during the start of the Train A supply fan. No additional corrective actions are planned at this time.

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



# THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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Al Kaplan

VICE PRESIDENT  
NUCLEAR GROUP

June 10, 1988  
PY-CEI/NRR-087! L

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

Perry Nuclear Power Plant  
Docket No. 50-440  
LER 88-019

Dear Sir:

Enclosed is Licensee Event Report 88-019 for the Perry  
Nuclear Power Plant.

Very truly yours,

Al Kaplan  
Vice President  
Nuclear Group

AK:njc

Enclosure: LER 88-019

cc: T. Colburn  
K. Connaughton

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

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