LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
LaSalle County Station Unit 2	0 5 0 0 0 3 7 4	1 of 0 4

Title (4) Two Emergency Core Cooling Systems Inoperable Caused by Loose Connections on Feed Breaker

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)
										0 5 0 0 0
0 6	1 7	8 8	8 8	0 0 8	0 0	0 7	1 1	8 8		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)									
POWER LEVEL (10)	0 9 1	___	20.402(b)	___	20.405(c)	___	50.73(a)(2)(iv)	___	73.71(b)		
		___	20.405(a)(1)(i)	___	50.36(c)(1)	X	50.73(a)(2)(v)	___	73.71(c)		
		___	20.405(a)(1)(ii)	___	50.36(c)(2)	___	50.73(a)(2)(vii)	___	Other (Specify in Abstract below and in Text)		
		___	20.405(a)(1)(iii)	___	50.73(a)(2)(i)	___	50.73(a)(2)(viii)(A)				
		___	20.405(a)(1)(iv)	___	50.73(a)(2)(ii)	___	50.73(a)(2)(viii)(B)				
		___	20.405(a)(1)(v)	___	50.73(a)(2)(iii)	___	50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER
	AREA CODE
David M. Lyon, Technical Staff Engineer, extension 576	8 1 5 3 5 7 -6 7 6 1

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	V F	F A N	K 1 8 2	N							

SUPPLEMENTAL REPORT EXPECTED (14)		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On June 17, 1988, at 1815 hours with Unit 2 in Operational Condition 1 (Run) at 91% Power, while the Unit 2 Low Pressure Core Spray (LPCS) was operating in the full flow test mode, the LPCS/Reactor Core Isolation Cooling (RCIC) Equipment Cubicle Cooler fan 2VY04C breaker tripped due to thermal overload. At this time, the LPCS and RCIC Systems were declared inoperable in accordance with Technical Specifications 3/4.5.1 and 3/4.5.2 respectively.

Work Request L81404 was initiated to troubleshoot and repair the feed breaker for the fan. Upon inspection of the breaker, it was discovered that the load side terminations of the breaker were loose. The connections were tightened and the fan was restarted by 0243 hours on June 18,1988. Following a successful 2 hour fan run, at 0500 hours on June 18, 1988, the LPCS and RCIC systems were declared operable.

Normal Reactor Building Ventilation was available to support the operation of the LPCS and RCIC Systems during the event, had the systems been required.

This event is being reported pursuant to the requirements of 10CFR50.73(a)(2)(v) due the loss of safety system functions.

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 06-17-88 Event Time: 1815 hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 91%

B. DESCRIPTION OF EVENT

On June 17, 1988 at 1717 hours with Unit 2 in Operational Condition 1 (Run) at 91% power, the Unit 2 Low Pressure Core Spray (LPCS) [BM] System was started in the Full Flow Test Mode in order to circulate the water in the Suppression Pool to minimize temperature stratification. This caused the LPCS and Reactor Core Isolation Cooling (RCIC) [BN] Cubicle Area Cooler Fan, 2VY04C to automatically start. At 1815 hours fan 2VY04C tripped due to thermal overload. At this time, both the Unit 2 LPCS and RCIC Systems were declared inoperable in accordance with Technical Specifications 3/4.5.1 (Emergency Core Cooling Systems (ECCS) - Operating) and 3/4.7.3 (RCIC). At 1819 hours, the Unit 2 LPCS System was secured in order to minimize the heat input from the LPCS motor to the Unit 2 LPCS/RCIC Equipment Cubicle.

At this time, the LPCS/RCIC Cubicle Area Cooler Fan was restarted. The fan ran for 30 seconds and power was lost to its control logic. Operating Department, believing that the control power fuse for 2VY04C had blown, replaced the fuse and restarted the fan. The fan operated until 1905 hours on June 17, 1988. The fan breaker tripped again due to thermal overload at that time.

At 1905 hours, Work Request L81404 was initiated to troubleshoot and repair the feed breaker for fan 2VY04C. Upon inspection of the breaker for the fan at Motor Control Center (MCC) 235Y-2, compartment E3, it was discovered that the load side terminations for the fan were loose. By 0243 hours on June 18, 1988, the fan breaker load side terminations were tightened and 2VY04C was started. The fan operated satisfactorily for well over 2 hours. At 0500 hours on June 18, 1988, following the satisfactory fan operation, the Unit 2 LPCS and RCIC Systems were declared operable.

This event is being reported pursuant to the requirements of 10CFR50.73(a)(2)(v) due to the loss of safety system functions.

C. APPARENT CAUSE OF EVENT

The cause of the 2VY04C fan breaker and control power trips was loose connections on the load side of the feed breaker for the fan. The loose connections set up a contact resistance between the fan motor phases and the breaker connections. Normal fan running current through this contact resistance generated heat which caused components inside the breaker compartment to become hotter than normal. When the fan was running initially, the temperature of the breaker thermal overloads became high enough to trip the feed breaker. Upon the first attempt to restart the fan, the thermal overload tripped after 30 seconds of fan operation causing a loss of power for the fan's motor control circuit. The cause of the heater tripping was again due to higher than normal temperatures inside the breaker compartment. The breaker thermal overloads are both heat sensitive and can trip the feed breaker and control circuitry when they become hotter than normal.

The feed breaker for 2VY04C, which is located in MCC 235Y-2, compartment E3 is inspected every other fuel cycle per LaSalle Electrical Surveillance LES-GM-109, "Inspection of 480 Volt Klockner-Moeller Motor Control Centers." The surveillance on this compartment was last performed on April 4, 1987. This surveillance directs the Electrician to verify the line and load side connections of these breakers are tight. This surveillance does not direct the Electrician to verify the proper torque on these connections unless they are found to be loose.

D. SAFETY ANALYSIS OF EVENT

The purpose of the LPCS/RCIS Equipment Area Cooler, 2VY04C is to provide ventilation and cooling to the LPCS and RCIC equipment cubicles when the LPCS and/or RCIC Systems are operating and normal Reactor Building Ventilation (VR) [VA] is not available (such as during a loss of offsite power or Reactor Building isolation). This event had no safety consequence to the operation of the plant because normal Reactor Building ventilation was available at all times during the time in which 2VY04C was inoperable (1815 hours on June 17, 1988 through 0500 hours on June 18, 1988).

The plant was maintained in a safe condition during the event by adherence to Technical Specifications 3/4.5.1 and 3/4.7.3. Since 2VY04A is an auxiliary component for the LPCS System, the LPCS System was declared inoperable in accordance with Technical Specification 3/4.5.1. This Technical Specification states that the LPCS System must be operable or the plant placed on a 7 day timeclock provided the High Pressure Core Spray (HPCS) [BG] System, the "A", "B" and "C" Low Pressure Coolant Injection (LPCI) are operable. The HPCS "A", "B" and "C" LPCI systems were operable throughout the event. Since 2VY04C is also an auxiliary component for the RCIC System, the RCIC System was declared inoperable in accordance with Technical Specification 3/4.7.3. This Technical Specification states that the RCIC System must be operable or the plant placed on a 14 day timeclock, provided that the HPCS System is operable. The HPCS System was operable throughout the event.

The LPCS and RCIC Systems had been verified to operate satisfactorily, with no trips of 2VY04C observed, during the performance of their quarterly LaSalle Operating Surveillances; LOS-LP-Q1 on April 18, 1988 and LOS-RI-Q3 on April 28, 1988 respectively.

E. CORRECTIVE ACTIONS

Following the initial trip of the LPCS/RCIC Equipment Cubicle Cooler on June 17, 1988 at 1815 hours, the Unit 2 LPCS and RCIC Systems were declared inoperable. 4 minutes later the LPCS pump was shutdown to minimize the heat input to the LPCS/RCIC cubicle.

Work Request L81404 was initiated to repair fan 2VY04C. The fan feed breaker load side terminations were tightened and the fan was restarted by 0243 hours on June 18, 1988. Following a successful fan run, which lasted over 2 hours, the Unit 2 LPCS and RCIC Systems were declared operable.

LaSalle Electrical Surveillance, LES-GM-109, will be revised to direct Electricians to verify that the breaker line and load side connections are torqued to the proper values specified in the surveillance, rather than just verifying the connections tight. AIR 374-200-88-03101 will track this revision.

F. PREVIOUS EVENTS

None.

G. COMPONENT FAILURE DATA

Manufacturer	Nomenclature	Model Number	MFG Part Number
Klockner-Moeller	Motor Control Center	NZMH-160	

Commonwealth Edison
LaSalle County Nuclear Station
Rural Route #1, Box 220
Marseilles, Illinois 61341
Telephone 815/357-6761

July 11, 1988

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Dear Sir:

Licensee Event Report #88-008-00, Docket #050-374 is being submitted to your office in accordance with 10CFR50.73(a)(2)(v).

G. J. Diederich
Station Manager
LaSalle County Station

GJD/DML/kg

Enclosure

xc: Nuclear Licensing Administrator
NRC Resident Inspector
NRC Region III Administrator
INPO - Records Center

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