

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): LaSalle County Station Unit 2										DOCKET NUMBER (2): 0 5 0 0 0 3 7 4										PAGE (3): 1 OF 0 4																													
TITLE (4): RCIC Temperature Leak Detection Miswired																																																	
EVENT DATE (5): 0 5 0 3 8 5										LER NUMBER (6): 0 2 1 0 0 0 5 2 9 8 5										REPORT DATE (7): 0 5 0 3 8 5										OTHER FACILITIES INVOLVED (8):																			
MONTH DAY YEAR										YEAR SEQUENTIAL NUMBER REVISION NUMBER										MONTH DAY YEAR										FACILITY NAMES										DOCKET NUMBER (S)									
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OPERATING (9000-30): 1										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11):																																							
POWER LEVEL (10): 0 0 0										2C 402(b)										2C 408(c)										2C 73(a)(2)(iv)										73.71(b)									
										2C 408(a)(1)(i)										2C 38(a)(1)										2C 73(a)(2)(v)										73.71(c)									
										2C 408(a)(1)(ii)										2C 38(a)(2)										2C 73(a)(2)(vi)										OTHER (Specify in Abstract below and in Text, NRC Form 305A)									
										2C 408(a)(1)(iii)										X 2C 73(a)(2)(ii)										2C 73(a)(2)(vii)(A)																			
										2C 408(a)(1)(iv)										2C 73(a)(2)(iii)										2C 73(a)(2)(viii)(B)																			
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										2C 408(a)(1)(vi)										2C 73(a)(2)(v)										2C 73(a)(2)(x)																			
LICENSEE CONTACT FOR THIS LER (12):																																																	
NAME: Kermit C. Wittenburg, extension 772																				TELEPHONE NUMBER: AREA CODE 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 NRC																																																	
B I J C B L 1 G 1 7 5 N																																																	
SUPPLEMENTAL REPORT EXPECTED (14):																																																	
YES (If yes, complete EXPECTED SUBMISSION DATE):																				X NO										EXPECTED SUBMISSION DATE (15):																			
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16):																																																	
<p>On 3/25/85 with Unit 2 in Cold Shutdown, while performing an instrument surveillance, it was determined that the Div. II high area temperature trip unit for Reactor Core Isolation Cooling (RCIC, BN) Leak Detection (LD, IJ) system did not respond to temperature changes at the sensor. Further investigation on 5/3/85 showed that labels for two cables were swapped while enroute to the Control Room trip units. As a result, ambient temperature sensor, 2E31-N004B, was wired to delta temperature trip unit, 2E31-N603B, while inlet delta temperature sensor 2E31-N005B was wired to ambient temperature trip unit, 2E31-N602B.</p> <p>The as installed location of 2E31-N005B, being adjacent to the inlet air duct rather than in the air stream did not result in a loss of the ambient temperature sensing loops. Both Division I and Division II ambient trip units were operational at all times.</p> <p>A special test of the remaining available LD sensors showed proper temperature response. Sensors in the main steam tunnel will be tested per Modification M-1-2-84-177. A mechanism will be developed to insure that all LD local temperature sensors are heat checked on a periodic basis for correct wiring</p>																																																	
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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

I. EVENT DESCRIPTION

On March 25, 1985, with Unit 2 in Cold Shutdown, LIS-RI-204, the "Unit 2 RCIC Equipment Area Temperature and Differential Temperature Calibration" was performed. It was determined that the Division II High Area Temperature Trip Unit for the Reactor Core Isolation Cooling (RCIC, BN) Leak Detection (LD, IJ) system did not respond to temperature changes at the sensor. Upon failure of the instrument surveillance, Work Request L47773 was written to correct the problem. Upon investigation on May 3, 1985, with Unit 2 still in Cold Shutdown, it was discovered that the cables from the sensors in the Reactor Building basement to the Control Room were incorrectly labeled. Prior to reaching the Control Room, the labels on the room high temperature signal cable (2LD054) and the room inlet temperature signal cable (2LD052) were reversed. As a result, the sensor (2E31-N004B) for ambient temperature was wired to a differential trip unit (2E31-N603B) while the sensor (2E31-N005B) for differential temperature was wired to an ambient trip unit (2E31-N602B).

II. CAUSE

No evidence of work performed since initial construction can be found which would have caused the error in the labeling of the cables involved. Based upon this information, it is likely that the error occurred during initial construction.

III. PROBABLE CONSEQUENCES OF THE OCCURRENCE

The LaSalle County Station Technical Specifications do not include the RCIC Equipment Differential Temperature as RCIC system isolation actuation instrumentation. The reversal of the cables for sensors 2E31-N005B and 2E31-N004B, while resulting in a loss of the Division II differential temperature Leak Detection system did not compromise the Technical Specification 3.3.2 requirements.

The as installed location of element 2E31-N005B is adjacent to the inlet air (supply air) duct to the RCIC room rather than actually located in the inlet air stream. The reversal of the cables for 2E31-N004B and 2E31-N005B temperature elements does not result in a loss of the ambient temperature sensing loop since both elements sense ambient temperatures.

Both Division I and Division II ambient temperature sensing systems were available and would have functioned to provide an alarm and isolation of the RCIC system had a leak occurred.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

## IV. CORRECTIVE ACTION

An investigation was initiated to determine why the Pre-Operational Test did not discover the cable label swap.

During the Unit 2 Pre-Operational Test the thermocouples were read with a temperature transduction (millivolt source) and the reading compared with Control Room indication. The room high temperature sensor was replaced by the transduction (locally) and a high temperature signal sent to the indicating trip unit. Comparison of the readout from the transduction and the Control Room indication was used to verify the operability of the indicator, trip setpoints, and proper actuation of the trip logic. It can only be concluded that an error was made when testing sensor 2E31-N004B.

The room differential trip unit was tested by replacing both the inlet and outlet sensors with separate transductions. The signal was varied from the outlet sensor to check the differential temperature indicator, trip setpoint and proper actuation of the trip logic. There is no documentation that the inlet sensor signal was varied to check proper response in the Control Room. It should be noted that a temperature increase at sensor 2E31-N005B (inlet) would drive the differential temperature indication to read out at zero degrees or below.

A review of the Unit 1 Pre-Operational Test shows that a thermometer was placed by the installed thermocouples and a heat gun used to heat both while comparing Control Room indication. This was performed on the high ambient sensors and both legs of the differential units.

Although both test methods were valid, the failure to test the room differential temperature inlet sensors on Unit 2 (as was done on Unit 1) did not allow a second opportunity to catch the wiring error.

A special test, IST-85-52, was performed on May 7, 1985, to verify a proper temperature response for all Unit 2 Leak Detection sensors with the exception of the two cables involved and the main steam tunnel sensors. The two RCIC cables are to be tested by Work Request L47773 while the sensors in the main steam tunnel are to be covered by Modification M-1-2-84-177 test. All sensors tested by IST-85-52 showed proper wiring installation.

Long term corrective actions include a mechanism to insure that all Leak Detection local temperature sensors are heat checked on a periodic basis to validate proper wiring. Also, all modifications to the Leak Detection temperature monitoring system sensors and cabling will include a functional test initiated at the sensor.

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TEXT (If more space is required, use additional NRC Form 305A's) (17)

V. PREVIOUS OCCURRENCES

The only similar event of this nature is documented in DVR 1-1-84-200. On September 5, 1984, the input leads on the Unit 1 RCIC Equipment Area Differential Temperature Trip Unit were reversed. The leads (which are lifted to perform routine surveillance testing) were mis-landed upon completion of the previous surveillance test. As a result of that event, all Riley leak detection temperature modules on both units were checked against the appropriate wiring diagrams to insure the cables were landed properly. This action would not have discovered the wiring error discussed in this report since, as labeled, the correct wires were landed. In addition to the wiring verification, the Instrument Maintenance Department began adding a step to all appropriate instrument surveillances to heat up the thermocouples and observe proper response on the trip unit when allowed by ALARA considerations. Adding this step to the procedures resulted in the discovery of the event discussed in this report.

VI. NAME AND TELEPHONE NUMBER OF PREPARER

Kermit C. Wittenburg, 815/357-6761, extension 772.



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

May 29, 1985

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

Dear Sir:

Reportable Occurrence Report #85-021-00, Docket #050-374 is being submitted to your office in accordance with 10CFR 50.73.

*for R.D. Buehler*  
G. J. Diederich  
Station Manager  
LaSalle County Station

GJD/DRR/kg

Enclosure

xc: NRC, Regional Director  
INPO-Records Center  
File/NRC