

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Robinson Nuclear Project Department, Unit No. 2										DOCKET NUMBER (2) 0 5 0 0 0 2 6 1										PAGE (3) 1 OF 0 3	
TITLE (4) Loss of MCC-5																					
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 2	0 3	8 5	8 5	0 0 8	0 0	0 3	0 4	8 5				0 5 0 0 0									
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																			
POWER LEVEL (10)		20.402(b)				20.406(c)				50.73(a)(2)(v)				73.71(b)							
0 0 0		20.406(a)(1)(i)				50.38(e)(1)				50.73(a)(2)(v)				73.71(c)							
		20.406(a)(1)(ii)				50.38(e)(2)				50.73(a)(2)(vii)				<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)							
		20.406(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)				Voluntary Report							
		20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)											
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)											
LICENSEE CONTACT FOR THIS LER (12)																					
NAME Carson L. Wright								TELEPHONE NUMBER AREA CODE 8 0 3 3 8 3 - 4 5 2 4													
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	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC							
B	E C	B K R W L 2 0		N																	
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR					
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO											

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

Abstract

On February 3, 1985, the Plant was in cold shutdown. Decontamination activities using pressurized water caused a short circuit on a terminal board for the radiation monitor R-21 vacuum pump. This subsequently lead to the loss of a motor control center MCC-5. An oversized feeder breaker for R-21 (located on MCC-5) failed to open soon enough to prevent a current surge from tripping the MCC-5 feeder breaker (located on bus E1). The R-21 feeder breaker was replaced with a breaker of appropriate size to prevent recurrence.

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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			
Robinson Nuclear Project Dept., Unit 2	0 5 0 0 0 2 6 1	8 5	0 0 8	0 0	0 2	OF	0 3

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

Description

On February 3, 1985, with the reactor in cold shutdown, a decontamination team was working in the New Fuel Building Air Handling Room. At approximately 1500 hours, water was inadvertently sprayed by this team into the spent fuel building upper level exhaust radiation monitor (R-21) cabinet. This caused a short circuit in the terminal board. Flashing and sparking were noted at the R-21 cabinet. The short circuit caused instantaneous high current levels to be drawn through the R-21 motor controller and caused its destruction.

The R-21 motor controller is located in a cubicle at Motor Control Center (MCC-5) which is in the 1st level of the auxiliary building. The destruction of the R-21 motor controller caused a short circuit on the line side of the R-21 motor feeder breaker located in the same cubicle in MCC-5. These events caused electrical current to rise to an excessive level causing an overcurrent trip of the MCC-5 feeder breaker. The MCC-5 feeder breaker is powered from emergency Bus E1 which is powered by "A" emergency diesel generator. Loss of MCC-5 resulted in the loss of its associated emergency equipment.

Cause

Evaluation of this event determined that the R-21 motor feeder breaker instantaneous overcurrent trip device was oversized and unable to adequately protect the R-21 motor controller. The overcurrent condition caused a supply side breaker (MCC-5 feeder breaker) to trip on overcurrent.

Detailed Electrical Description of Incident (Refer to Figure 1)

Water was inadvertently sprayed into the terminal board for the 2 horsepower vacuum pump motor for R-21 (name plate full load running current 3.1 amps). This caused a short circuit between two phases. The high current generated by this fault caused the immediate failure of one phase of the motor starter overload. The current in the other two phases was in excess of the maximum interrupting capacity of the motor controller contactor, caused a flash in the motor controller cubicle and caused failure of the contactor. The motor controller contactor having failed resulted in a short circuit on the line side of the motor feeder breaker. Short circuit protection for the R-21 motor circuit was now bypassed, and fault current from the additional short circuit rose to the overcurrent trip point of the MCC-5 feeder breaker (2800 amps). This device tripped, deenergizing MCC-5.

The magnetic instantaneous trip feature of the 100 amp R-21 breaker was ineffective below 1200 amps (low value of trip band). The 27 amp R-21 motor controller contactor was incapable of interrupting current in excess of 300 amps. Therefore, it has been concluded that no protection was provided by these trips. Additionally, the event was too short in duration for the inverse time protective trip available from the motor feeder breaker to function. The R-21 feeder breaker was found in the tripped position following the incident; however, this could have been from heat generated from the short circuit in the cubical or from the inverse time trip.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

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

Corrective Action

The faulted circuit was isolated from MCC-5, and power was restored at approximately 1600 hours.

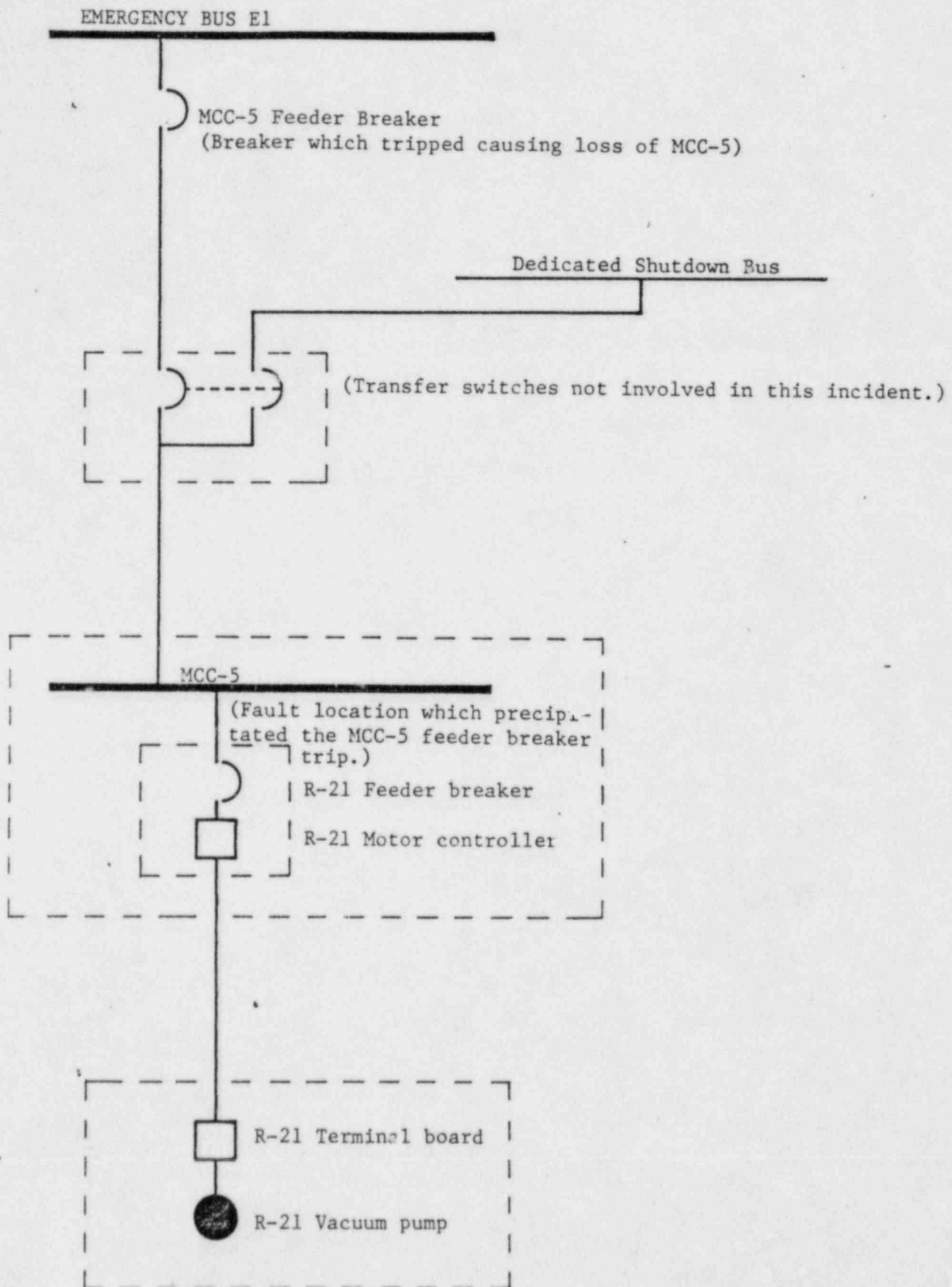
The R-21 motor circuit was analyzed, and a more suitable overload size for the motor circuit was established. A 20 amp overload breaker was installed which will provide an interrupt at 240 amps. This breaker also provides a more favorable inverse time characteristic for the motor circuit.

A survey of motor feeder breaker trip settings for all 480 volt safety-related loads was instituted to see if any other switchboard mounted motor controllers had a problem similar to R-21. Two other motor controllers were found to be fed by 100 amp breakers.

All three improperly sized motor controllers were changed to the 20 amp overload breaker.

The individual involved with initiating the event was disciplined, and his supervisor was counseled to ensure better control of decontamination activities.

FIGURE 1





Carolina Power & Light Company

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POST OFFICE BOX 790  
HARTSVILLE, SOUTH CAROLINA 29550

MAR 4 1985

Robinson File No: 13510C

Serial: RNP/85-469

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261  
LICENSE NO. DPR-23  
LICENSEE EVENT REPORT 85-008

Dear Sir:

In accordance with 10CFR50.73, Licensee Event Report, the enclosed Licensee Event Report is submitted. This report fulfills the requirements for a written report within (30) days of a reportable event and is in accordance with the format set forth in NUREG-1022, September, 1983.

Very truly yours,

R. E. Morgan  
General Manager  
H. B. Robinson S. E. Plant

CLW:sr/C-110

Enclosure

cc: INPO  
H. E. P. Krug  
J. N. Grace

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