Nebraska Public Power District

COOPER NUCLEAR STATION
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TELEPHONE (402) 825-3811

CNSS903683

May 30, 1990

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 90-005, Revision 0, is being forwarded as an attachment to this letter.

Sincerely,

G. R. Horn
Division Manager of
Nuclear Operations
Cooper Nuclear Station

GRH:bjs

Attachment

cc: R. D. Martin
L. G. Kuncl
R. E. Wilbur
V. L. Wolstenholm
G. A. Trevors
INPO Records Center
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NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
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-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Cooper Nuclear Station	0 5 0 0 0 2 9 8	1 OF 0 3

TITLE (4) Unplanned Actuation of Group Isolation Engineered Safety Features Upon Loss of Power From the B RPS Motor Generator Set Due To a Relay Contact Deficiency.

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 4	3 0	9 0	9 0	— 0 0 5	— 0 0	0 5	3 0	9 0		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	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, NRC Form 366A)
		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
Donald L. Reeves, Jr.	AREA CODE 4 0 2 — 8 2 5 - 3 8 1 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	
E	J C	R L Y	G 0 8 0	Y							

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 April 30, 1990, at 12:48 P.M., with the plant shutdown for the 1990 Refueling Outage, the B Reactor Protection System (RPS) Motor Generator (MG) Set Output Breaker tripped, resulting in closure of isolation valves associated with Groups 2, 3 and 7 Isolations (Reactor Coolant, Reactor Water Cleanup [RWCU] and Reactor Coolant Sampling) and a full Group 6 Isolation (Secondary Containment, including startup of the Standby Gas Treatment [SGT] System). At 1:00 P.M., the B RPS bus was repowered from its alternate source and the Group Isolations were reset. All systems were then restored to their normal shutdown lineup, with the Residual Heat Removal (RHR) System in the Shutdown Cooling mode. Reactor Coolant System temperature was 115 degrees Fahrenheit.

The root causes of the event were determined to be due to an equipment malfunction and a Preventive Maintenance (PM) program deficiency. During the investigation, it was noted that jarring of the control cubicle was sufficient to cause relay actuations, tripping the output breaker. It is postulated that the contact deficiency caused the initial event.

As a result of the discovery of the relay contact deficiency, the three relays installed in the B RPS MG set output voltage monitoring circuit were replaced. Subsequently, the relays in the A RPS MG set control cabinet were inspected and the contacts were cleaned. No deficiencies were noted in contact operation. Periodic inspection, cleaning and replacement of these relays will be added to the PM program.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Cooper Nuclear Station	0 5 0 0 0 2 9 8	9 0	0 0 5	0 0	0 2 OF 0 3

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

A. Event Description

On April 30, 1990, at 12:48 P.M., the B Reactor Protection System (RPS) Motor Generator (MG) Set Output Breaker tripped, resulting in closure of isolation valves associated with Groups 2, 3 and 7 Isolations (Reactor Coolant, Reactor Water Cleanup [RWCU] and Reactor Coolant Sampling) and a full Group 6 Isolation (Secondary Containment, including startup of the Standby Gas Treatment [SGT] System). At 1:00 P.M., the B RPS bus was repowered from its alternate source and the Group Isolations were reset. All systems were then restored to their normal shutdown lineup.

B. Plant Status

Shutdown with the Residual Heat Removal (RHR) System in the Shutdown Cooling mode of operation; Reactor Coolant System temperature, 115 degrees Fahrenheit.

C. Basis For Report

Unplanned actuations of Group Isolation Engineered Safety Features (ESFs), reportable in accordance with 10CFR 50.73 (a)(2)(iv).

D. Cause

Equipment malfunction and Preventive Maintenance (PM) program deficiency. The relay contacts in the normally energized General Electric CR-120 relay used to monitor MG set output voltage and trip the output breaker of the MG set upon sensing abnormal voltage conditions, were not properly making up. During the investigation conducted by Electrical Maintenance and Engineering personnel, jarring of the MG set control cubicle was sufficient to cause relay actuations and a trip of the MG set output breaker. It was postulated that the relay contact deficiency caused the initial event.

E. Safety Significance

None. Groups 2, 3 and 7 Isolation Valve actuations and the Group 6 Isolation performed as designed. As noted in the Event Description, upon restoration of power to the B RPS Bus, the isolations were reset and systems were restored to their pre-trip condition. During the approximate 12 minute time frame when Shutdown Cooling was lost due to closure of the suction valves (Group 2 Isolation valves), Reactor Coolant System temperature remained constant at 115 degrees Fahrenheit.

F. Safety Implications

If a similar event were to occur at power, the valve actuations and Group Isolations received would be nearly identical. (The primary difference would be associated with the Shutdown Cooling Isolation valves, in that they would already be closed).

F. Safety Implications (Continued)

Under extreme (hot) environmental conditions, with the plant at rated power, loss of the normal Reactor Building Ventilation System would be of concern due to the loss of ventilation to the Reactor Recirculation Pump MG sets. If ventilation were not immediately restored, MG set winding temperatures would increase quite rapidly to their trip setpoint, resulting in the loss of one or both Recirculation Pump MG sets and the associated Reactor Recirculation (RR) Pumps. If both RR Pumps were lost, the worst case situation, operator action would be taken to manually scram the reactor.

G. Corrective Action

As noted previously, the B RPS bus was repowered from its alternate supply, and licensed Control Room operators took the necessary actions to restore systems and components to their pre-trip operational state. As a result of the discovery of the CR-120 relay contact deficiency, the three relays installed in the MG set output voltage monitoring circuit were replaced. Subsequently, the relays in the A RPS MG set control cabinet were inspected and the contacts were cleaned. No deficiencies were noted in contact operation. Inspection and cleaning of these relays in both RPS MG sets will be added as an element of the PM program. Additionally, the coils for these normally energized relays will be replaced periodically.

H. Similar Events

There have been instances of General Electric CR-120 relay coil failures reported during the past several years. The most recent of these was reported in LER 88-025, Primary and Secondary Containment Isolation (Groups 2 and 6) Due to Relay Failures, dated October 27, 1988. Whereas, coil failures have occurred in the past, in this instance the coil had not failed. Instead the deficiency was associated with the relay contacts.