



Nebraska Public Power District

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CNSS895792

June 22, 1989

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 89-019 is being forwarded as an attachment to this letter.

Sincerely,

J. M. Meacham
Acting Division Manager of
Nuclear Operations
Cooper Nuclear Station

JMM:sg

Attachment

cc: R. D. Martin
L. G. Kunc1
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V. L. Wolstenholm
G. A. Trevors
INPO Records Center
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Cooper Nuclear Station										DOCKET NUMBER (2) 0 5 0 0 0 2 9 8				PAGE (3) 1 OF 0 4										
TITLE (4) Inadvertent Actuation of Group Isolations While Performing Design Change Activities Due to Lifting Incorrect Leads																								
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	2	4	8	9	8	9	0	1	9	0	0	6	2	2	8	9	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)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)										
		20.405(a)(1)(i)				50.36(c)(1)				<input type="checkbox"/> 50.73(a)(2)(v)				73.71(c)										
		20.405(a)(1)(ii)				50.36(c)(2)				<input type="checkbox"/> 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)				<input type="checkbox"/> 50.73(a)(2)(viii)(A)														
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				<input type="checkbox"/> 50.73(a)(2)(viii)(B)														
		20.405(a)(1)(v)				50.73(a)(2)(iii)				<input type="checkbox"/> 50.73(a)(2)(ix)														
LICENSEE CONTACT FOR THIS LER (12)																								
NAME Donald L. Reeves, Jr.										TELEPHONE NUMBER 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 NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs														
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)

On May 24, 1989, at 1:40 P.M. and again, on June 9, 1989, at 1:57 P.M., while shutdown for the 1989 Maintenance/Refueling Outage, Group 2, 3, and 6 Isolations occurred as a result of Design Change (DC) activities. The initial actuation occurred when, contrary to the intent of the DC, energized "panel" side versus "field" side leads were being disconnected on a terminal strip to facilitate implementation of a DC associated with the Drywell Equipment Drain and Floor Drain Sump Isolation Valve limit switch upgrade. The second set of isolations occurred as a follow-up activity to the DC, when relanding of the leads that had initially been loosened was being performed. In both cases, when the "panel" side connections were loosened, the "neutral" interconnection for a series of relays in Panel 9-41 was broken, resulting in de-energizing several relays. As a result, the Group Isolations occurred.

The root cause of these actuations was due to Human Factors and communications deficiencies. With regard to the first trip, access to the terminal strip in the panel was limited, preventing the QC Inspector from adequately viewing the work of the construction electrician. Additionally, the construction electrician and, possibly, the QC Inspector apparently were not familiar with the different appearance of field versus panel wire. These deficiencies were subsequently overcome by increased technical direction and procedural controls. With regard to the second trip, had the personnel involved questioned the design engineer regarding the work to be done, it would have been evident that the isolations would occur if jumpers preserving the relay neutral interconnections were not used. Through inclusion of this event in the Industry Events training program for Operations Department and Electrical Maintenance personnel, the importance of communications will be stressed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED JMB NO. 3150-0104
EXPIRES: 8/31/88

FACILITY NAME (1) Cooper Nuclear Station	DOCKET NUMBER (2) 0 5 0 0 0 2 9 8 8 9 -	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

A. Event Description

On May 24, 1989, at 1:40 P.M. while implementing a Design Change (DC) associated with the Drywell Equipment Drain and Floor Drain Sump Isolation Valve limit switch upgrade, the following Group Isolations occurred when, contrary to the intent of the DC, "panel" side terminal strip connections in Panel 9-41 were loosened in preparation for lifting energized electrical leads:

- Group 2 - Primary Containment Isolation
- Group 3 - Reactor Water Cleanup (RWCU) (Channel A, only)
- Group 6 - Secondary Containment, including Standby Gas Treatment System actuation

The leads intended to be lifted by the DC were "field" side leads; however, as noted above, the leads that were in the process of being disconnected by a construction electrician were the "panel" side leads. The effect of loosening the terminal strip "panel" side connections was to interrupt the neutral circuit for several relays.

Upon realizing that relay actuations had occurred, the construction electrician retightened the "panel" side connectors that had been loosened. The Group Isolations were reset, the Residual Heat Removal (RHR) System was re-established in the Shutdown (S/D) Cooling Mode, and RWCU and Reactor Building Ventilation were restored to normal operation.

On May 31, 1989, subsequent to completion of this phase of the DC, the "field" side leads that had been correctly lifted following the event on May 24, were reterminated. During the process, it was noted that the "panel" side leads to the terminal strip connections that had previously been loosened were not fully inserted and required relanding. On June 9, at 1:57 P.M., relanding of the leads was accomplished. During the course of this activity, the Group Isolations that had previously occurred (when the panel side leads had been initially loosened on May 24), were actuated.

B. Plant Status

At the time of these events, the plant was shutdown for the 1989 Maintenance/Refueling Outage.

C. Basis for Report

Unplanned actuations of Group Isolation ESFs, reportable in accordance with 10CFR50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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

D. Cause

The cause of these events is attributed to Human Factors deficiencies. Whereas, the DC instructions identified the wire and specific leads to be lifted, apparently it was not clear to the electrician and, possibly, the QC Inspector performing the activity, that only the "field" side connectors should be loosened, not the "panel" side. More detailed guidance in the design change instructions and/or increased technical direction on the scene by the design engineer, both of which were employed when the field leads were successfully reterminated on May 31, are considered to be contributing causes. Also of note is the fact that access to the terminal strip in the panel is very restricted. As a result, the QC Inspector could not readily see which side of the terminal strip the electrician was loosening. Consequently, the potential for the electrician and inspector to question one another as to which connection should be loosened was inhibited.

The cause of the event on June 9 was due to insufficient communications. Had personnel involved been aware of the circumstances surrounding the initial event, the second trip could have been avoided by installing jumpers to preserve the relay neutral interconnection.

E. Safety Significance

None. The Group Isolations functioned as designed and their actuation had no impact on refueling/operational activities in progress. Following each event, the Group Isolations were reset, S/D Cooling was re-established, and the RWCU System and Reactor Building Ventilation System were restored to operation.

F. Safety Implication

Activities of this nature would not normally be conducted at power. However, if these isolations occurred at power, of most concern to continued plant operation would be the Group 6 Isolation. This is due to the fact that upon isolation of the Reactor Building Ventilation System, external ventilation to the Reactor Recirculation Pump Motor Generators (RRMG) is lost. The subsequent RRMG temperature increase could be severe enough to result in RRMG set trip(s) and loss of the corresponding Reactor Recirculation Pump(s). If both pumps were lost, the reactor would be manually scrammed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

G. Corrective Action

Immediate corrective action taken was to review with the electrician and QC Inspector the intent of the DC instructions and the location of the "field" side leads which were to be lifted. Based upon this direction, DC activities continued and the correct "field" side leads were lifted as specified in the DC. Subsequently, prior to reconnecting the leads, further guidance was incorporated in the DC instructions to verify that the field leads to be reconnected were correct and that the correct terminal strip connections were located. Further corrective action to be taken includes routing of this LER to Engineering Management for their use in disseminating information regarding this event to departmental personnel. Additionally, this event will be incorporated into the Industry Events training program for Operations and Electrical Maintenance personnel wherein the importance of communications will be stressed.

H. Past Similar Events

None.