



Nebraska Public Power District

COOPER NUCLEAR STATION
P.O. BOX 96, BROWNVILLE, NEBRASKA 68021
TELEPHONE (402) 825-3811
FAX (402) 825-5211

CNSS913716

June 7, 1991

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 91-005, Revision 0, is being forwarded as an attachment to this letter.

Sincerely,

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

JMM/bjs

Attachment

cc: R. D. Martin
G. R. Horn
R. E. Wilbur
V. L. Wolstenholm
D. A. Whitman
INPO Records Center
ANI Library
NRC Resident Inspector
R. J. Singer
CNS Training
CNS Quality Assurance

160011

9106130222 910607
PDR ADOCK 05000298
S PDR

Powerful Pride in Nebraska

TE22

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 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.

FACILITY NAME (1)

Cooper Nuclear Station

DOCKET NUMBER (2)

050002981 OF 015

PAGE (3)

TITLE (4) Unplanned Startup Of Diesel Generator Number 2 Due To An Equipment Deficiency That Occurred During Plant Startup While Transferring Loads To The Normal Transformer

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)																														
03	11	91	91	005	00	06	07	91			050000																														
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)																																						
N			<table border="1"><tr><td>20.402(b)</td><td>20.406(c)</td><td>X</td><td>50.73(a)(2)(i)</td><td>73.71(b)</td></tr><tr><td>20.406(a)(1)(i)</td><td>50.36(a)(1)</td><td></td><td>50.73(a)(2)(ii)</td><td>73.71(c)</td></tr><tr><td>20.406(a)(1)(ii)</td><td>50.36(a)(2)</td><td></td><td>50.73(a)(2)(iii)</td><td>OTHER (Specify in Abstract Below and in Text NRC Form 366A)</td></tr><tr><td>20.406(a)(1)(iii)</td><td>50.73(a)(2)(iv)</td><td></td><td>50.73(a)(2)(v)</td><td></td></tr><tr><td>20.406(a)(1)(iv)</td><td>50.73(a)(2)(vi)</td><td></td><td>50.73(a)(2)(vii)</td><td></td></tr><tr><td>20.406(a)(1)(v)</td><td>50.73(a)(2)(viii)</td><td></td><td>50.73(a)(2)(ix)</td><td></td></tr></table>									20.402(b)	20.406(c)	X	50.73(a)(2)(i)	73.71(b)	20.406(a)(1)(i)	50.36(a)(1)		50.73(a)(2)(ii)	73.71(c)	20.406(a)(1)(ii)	50.36(a)(2)		50.73(a)(2)(iii)	OTHER (Specify in Abstract Below and in Text NRC Form 366A)	20.406(a)(1)(iii)	50.73(a)(2)(iv)		50.73(a)(2)(v)		20.406(a)(1)(iv)	50.73(a)(2)(vi)		50.73(a)(2)(vii)		20.406(a)(1)(v)	50.73(a)(2)(viii)		50.73(a)(2)(ix)	
20.402(b)	20.406(c)	X	50.73(a)(2)(i)	73.71(b)																																					
20.406(a)(1)(i)	50.36(a)(1)		50.73(a)(2)(ii)	73.71(c)																																					
20.406(a)(1)(ii)	50.36(a)(2)		50.73(a)(2)(iii)	OTHER (Specify in Abstract Below and in Text NRC Form 366A)																																					
20.406(a)(1)(iii)	50.73(a)(2)(iv)		50.73(a)(2)(v)																																						
20.406(a)(1)(iv)	50.73(a)(2)(vi)		50.73(a)(2)(vii)																																						
20.406(a)(1)(v)	50.73(a)(2)(viii)		50.73(a)(2)(ix)																																						
POWER LEVEL (10)			01210																																						

LICENSEE CONTACT FOR THIS LER (12)

NAME

TELEPHONE NUMBER

Donald L. Reeves, Jr.

AREA CODE

402 825-1381

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

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

YES (If you complete EXPECTED SUBMISSION DATE)

X NO

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

On May 11, 1991, at 3:58 a.m., during plant startup following an unscheduled shutdown, Diesel Generator Number 2 (DG #2) automatically started, but was not required to load, due to a malfunction of the Normal Transformer supply breaker, 1BN. This occurred when transferring loads from the Startup to the Normal Transformer. See attached sketch. Upon closure of the 1BN 4160v Breaker and tripping of the 1BS Breaker (from the Startup Transformer), Breaker 1BG, the normal supply breaker for 4160v 1G Critical Bus, also opened. Upon sensing undervoltage on the 1G Bus, DG #2 automatically started. Within approximately one second, the 1G Bus was reenergized from the Emergency Transformer, functioning as designed. Therefore, the Diesel Generator was not required to load.

The cause of the event was due to insufficient action of the breaker auxiliary switch upon closure of the 1BN Breaker, such that switch contacts in the 1B Bus undervoltage circuit opened, allowing relay 27 X2/1B to deenergize. The subsequent breaker operations occurred due to the undervoltage trip logic being deenergized.

Corrective action taken included inspection of the breaker and auxiliary switch for proper operation and reshimming the breaker to slightly elevate the breaker in its installed position in the cubicle. This resulted in improving the action of the auxiliary switch to achieve contact closure. A further inspection of other 4160v breakers, including the associated auxiliary switches, will be made during the 1991 Refueling Outage. Based on the results of these inspections, further corrective actions will be taken as necessary.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/86

FACILITY NAME (1) Cooper Nuclear Station	DOCKET NUMBER (2) 0 5 0 0 0 2 9 8	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 1	— 0 0 5	— 0 0	0 2	OF	0 5

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

A. Event Description

On May 11, 1991, at 3:58 a.m., during plant startup following an unscheduled shutdown, Diesel Generator Number 2 (DG #2) automatically started, but was not required to load, due to a malfunction of the Normal Transformer supply breaker 1BN. This occurred when transferring loads from the Startup to the Normal Transformer. See attached sketch. When actuated by the Licensed Operator in the Control Room, 4160v Breaker 1BN (the Normal Transformer supply breaker) closed and 1BS (the Startup Transformer supply breaker) automatically opened. However, 4160v Breaker 1BG, the normal supply breaker for 4160v 1G Critical Bus, also opened when 4160v 1B Bus undervoltage relay 27 X2/1B was deenergized. This occurred due to insufficient action of an auxiliary switch which is actuated by closure of 4160v Breaker 1BN. As a result, auxiliary switch contacts in the 1B Bus undervoltage circuit did not make up. Upon sensing undervoltage on the 1G Bus, DG #2 automatically started. Within approximately one second of the undervoltage condition being sensed, the 1G Bus was reenergized from the Emergency Transformer upon closure of 4160v Breaker 1GS. Consequently, the Diesel Generator (DG) was not required to assume 4160v 1G Bus loads.

In addition to startup of DG #2, the following expected safety related actuations occurred as a result of the momentary loss of power on the 4160v 1G Bus:

- A Group 3 Isolation (Reactor Water Cleanup) occurred due to loss of power to RWCU-TIS-99, the Non-regenerative Heat Exchanger outlet temperature switch, resulting in closure of RWCU-MOV-M015 and 18.
- Reactor Building (Secondary Containment) isolation valves closed, although a Group 6 Isolation did not occur.
- Reactor Recirculation Loop Sample Valve RR-AO-740AV, a Group 7 Isolation valve, closed, although a Group 7 Isolation did not occur.
- Suppression Chamber Vacuum Relief Valve, PC-AOV-244AV, opened. It should be noted that this valve functions as a "block" valve for an upstream check valve. Both valves open upon 0.5 psi differential pressure between the Reactor Building and the Suppression Chamber to provide the vacuum relief function. Upon power restoration, it reclosed.
- Service Water Pump D, powered by the 4160v 1G Critical Bus, tripped due to load shedding. The pump sequentially restarted, as designed, approximately 15 seconds following power restoration.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1) Cooper Nuclear Station	DOCKET NUMBER (2) 0 5 0 0 0 2 9 8 9 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		— 0	0 5	— 0 0	0 3	OF	0 5

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

Reactor Equipment Cooling (REC) Pump D, powered from Motor Control Center S fed by 480v Switchgear 1G, was deenergized upon loss of power to the switchgear. The pump sequentially restarted, as designed, approximately 20 seconds following power restoration.

B. Plant Status

Approximately 20 percent power (160 MWe) during startup from an unscheduled shutdown, transferring electrical loads from the Startup Station Service Transformer to the Normal Station Service Transformer.

C. Basis For Report

An unplanned startup of DG #2, considered to be reportable in accordance with the requirements prescribed by 10CFR50.73(a)(2)(iv).

D. Cause

Equipment deficiency. Upon closure of 4160v Breaker 1BN, an auxiliary switch with contacts in the 1B Bus undervoltage circuit did not actuate properly. The 1BN Breaker was inspected and actuation of the auxiliary switch was checked. No discrepancies with switch operation were apparent. Therefore, it is suspected that switch action was not proper due to slightly uneven breaker roller tracks or some slight increase in "play" of the operator linkage. When the 1BS Breaker opened (immediately following closure of 1BN), its contacts in the 1B Bus undervoltage circuit opened. With auxiliary switch contacts from both the 1BN and 1BS Breaker open, relay 27 X2/1B was deenergized. As a result, the undervoltage trip logic "sensed" no power on the 4160v 1B Bus and isolated the 1G Bus in order to ensure the emergency power source (either the Emergency Transformer or DG #2) would not be overloaded.

E. Safety Significance

No significant effect. Appropriate responses to the off normal conditions were taken by the Licensed Control Room Operators. Each of the off normal conditions was evaluated and determined to be appropriate for the initiating condition that occurred. Plant operation was unaffected.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8-31-96

FACILITY NAME (1) Cooper Nuclear Station	DUCKET NUMBER (2) 0 5 0 0 0 2 9 8 9 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		91	005	00	014	OF	05

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

F. Safety Implications

If this event were to occur with the plant at full power, DG #2 would start, as occurred in this situation. There would be virtually no difference in loads lost and isolations received. Of concern would be the loss of normal Reactor Building ventilation and consequent loss of ventilation to the Reactor Recirculation (RR) Pump Motor Generator (MG) sets. If operator response to the loss of ventilation condition was not timely, a trip of the RR Pumps due to MG set winding temperatures could potentially occur. In that case, the reactor would be manually scrammed as required by station procedures.

G. Corrective Action

The breaker was reinstalled (racked in) and shimmed slightly to elevate its position in the cubicle. Breaker (and auxiliary switch) operation was then found to be satisfactory. During the forthcoming 1991 Refueling Outage, an inspection will be made of other 4160v Breakers. The operation and integrity of the associated auxiliary switches and operating arms will be checked. Based upon the results of these inspections, further corrective actions will be taken as necessary.

H. Similar Events

None

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 6/30/88

FACILITY NAME (1)

DOCKET NUMBER (2)

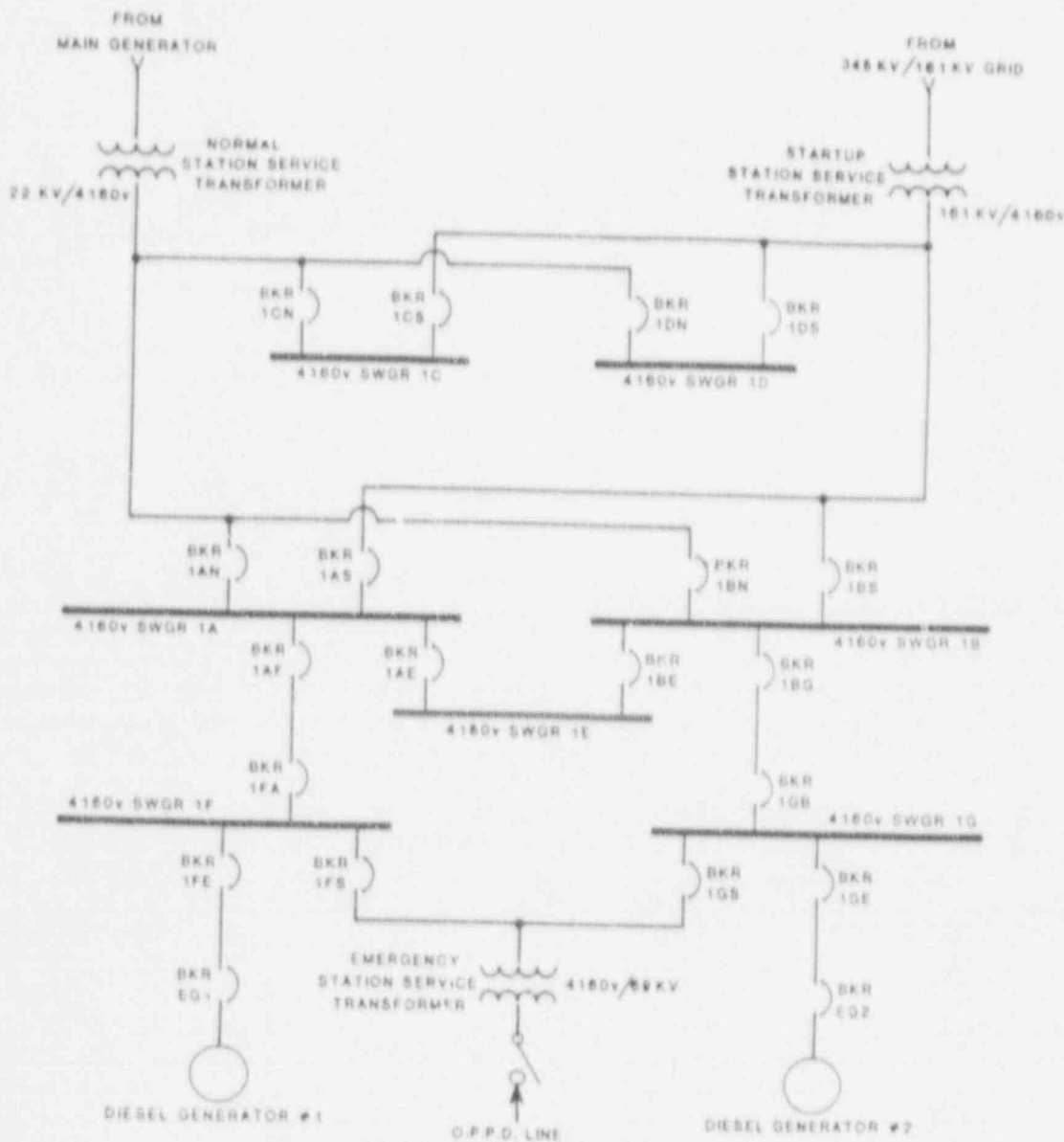
LER NUMBER (5)

PAGE (3)

Cooper Nuclear Station

0 3 0 0 0 2 9 8 9 1 - 0 1 0 5 - 0 1 0 1 5 OF 0 5

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



4160v DISTRIBUTION SYSTEM

FIGURE 4 REV. 5

COR001-01

CXAM275