



Nebraska Public Power District

COOPER NUCLEAR STATION
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CNSS933140

June 10, 1993

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 93-022, Revision 0, is forwarded as an attachment to this letter.

Sincerely,

R. L. Gardner
Plant Manager

RLG/ju

Attachment

cc: J. L. Milhoan
G. R. Horn
J. M. Meacham
R. E. Wilbur
V. L. Wolstenholm
D. A. Whitman
INPO Records Center
NRC Resident Inspector
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CNS Training
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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 1										PAGE (3) 1 OF 4																					
TITLE (4) Unplanned Isolation Of 4160 VAC Bus From Emergency Station Service Transformer And Start Of Diesel Generator Number 2																																									
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)								
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0 5			1 4			9 3			9 3			0 2			2			0 0			0 6			1 0			9 3									0 5 0 0 0					
OPERATING MODE (9) N						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						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)						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)(j)						50.73(a)(2)(viii)(A)																							
						20.405(a)(1)(iv)						50.73(a)(2)(H)						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 John R. Myers														TELEPHONE NUMBER AREA CODE 4 0 2 8 2 5 1 - 3 8 1 1																											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																									
CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NRCDS		CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NRCDS																															
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)																																									
<p>On May 14, 1993, at approximately 5:40 pm, actions were initiated to load test the new replacement Emergency Station Service Transformer (ESST) previously installed by a design change during the 1993 outage. Bus 1G was powered from the ESST and Buses 1A, 1B and 1F were powered from the Normal Station Service Transformer (NSST). A licensed operator was lowering the secondary voltage on the ESST to a range of 3980 to 4180 volts. Annunciator "Emergency Transformer Low Voltage" was received; however, an actual low voltage condition did not exist. The annunciation indicated that the ESST secondary voltage was too low to allow automatic transfer of emergency Buses 1F or 1G to the ESST. The operator increased the ESST secondary voltage to correct the apparent low voltage condition. After raising the voltage to 4330 volts, the undervoltage annunciator cleared.</p> <p>The voltage of 4330 volts was above the overvoltage trip setpoint on Bus 1G; however, the ESST overvoltage annunciator originated from Bus 1F and is active only when Bus 1F is fed from the ESST. After a designed time delay of five minutes Bus 1G automatically isolated from the ESST on high voltage, and Diesel Generator No. 2 started and loaded Bus 1G. This resulted in a half Group 1, 2, 6 and 7 isolation, and a full Group 3 isolation, as designed.</p> <p>This event was caused by human factors and unanticipated design problems. An additional input to the existing annunciator window has been provided to indicate high secondary voltage on the ESST when Bus 1G is powered from the ESST, and the existing annunciator label has been changed to more accurately describe the condition being annunciated. The annunciator and operating procedures have been updated to more clearly explain the operation of the ESST and the annunciation associated with the transformer and buses.</p>																																									

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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 3	LER NUMBER (6)			PAGE (3) 0 2 OF 0 4		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
			0 2 2	0 0			

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

A. Event Description

On May 14, 1993, at approximately 5:40 pm, a Special Instruction for a Maintenance Work Request was initiated to load test the new replacement Emergency Station Service Transformer (ESST) previously installed by a design change during the current 1993 outage. The purpose of the Special Instruction was to connect the ESST to the 4160 VAC 1G Bus in accordance with Station Procedures and exercise the Load Tap Changer (LTC) to ensure its proper operation.

The ESST breaker to the 4160 VAC bus (1GS) was closed at 5:44 pm. This powered Bus 1G from the ESST and left Buses 1A, 1B and 1F powered from the Normal Station Service Transformer (NSST). Per design change instructions, a licensed operator was proceeding to lower the secondary voltage on the ESST via the tap changer into the range of 3980 to 4180 volts. At 5:46 pm annunciator "Emergency Transformer Low Voltage" was received, however, an actual low voltage condition did not exist on either Bus 1F or Bus 1G. The purpose of the annunciation was to indicate that the ESST secondary voltage was too low to allow automatic transfer of Bus 1F or Bus 1G to the ESST. This interlock is to ensure adequate voltage is available to sequence Emergency Core Cooling System loads onto Buses 1F and 1G under Design Basis Accident conditions. However, because of the annunciator window labeling, the operator commenced to raise the ESST LTC to correct the apparent low voltage condition. At 5:48 pm, after raising the voltage to 4330 volts, the undervoltage annunciator cleared.

The voltage of 4330 volts on Bus 1G was above the overvoltage trip setpoint of the Bus 1G overvoltage relay; however, the ESST overvoltage annunciator originated only from the overvoltage relay for Bus 1F and was active only when Bus 1F was fed from the ESST. With the low voltage annunciator clear and no high voltage annunciation present, the operator understood that the Bus 1G voltage was acceptable. Five minutes later (the designed time delay), Bus 1G was automatically isolated from the ESST by breaker 1GS tripping on high voltage, and Diesel Generator No. 2 started and loaded Bus 1G. This event resulted in a half Group 1, 2, 6 and 7 isolation, and a full Group 3 isolation, as designed.

B. Plant Status

The plant was in cold shutdown and defueled.

C. Basis for Report

Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature, reportable in accordance with 10 CFR 50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
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TEXT (If more space is required, use additional NRC Form 356A's) (17)

D. Cause

This event was caused by human factors and unanticipated design problems. The annunciator window label, "Emergency Transformer Low Voltage," did not accurately describe the condition that existed when this alarm was received. This annunciator originates from an undervoltage relay that monitors ESST open circuit secondary voltage. The setpoint of the relay ensures that adequate voltage is available for the F and G critical buses to transfer to the ESST during a Design Basis Accident. If the voltage is inadequate, Buses 1F and 1G will not transfer to the ESST, but will instead transfer to the diesel generators. Because of the window label, the operator understood an undervoltage condition existed on Bus 1G which had been manually transferred to the ESST. If the window had been labeled to accurately describe the existing condition, the operator would have been aware that the bus was not in danger of tripping on low voltage.

After the ESST voltage was increased to clear the low voltage alarm, the voltage was above the Bus 1G overvoltage relay setpoint. The annunciation for this condition originated from the overvoltage relay for Bus 1F and was not active unless Bus 1F was powered from the ESST. Because the overvoltage condition was not annunciated, the operator was not aware of the overvoltage. During the design of the annunciation scheme for overvoltage protection, connection of only one of the buses to the ESST was not considered. The connection of only one of the buses would not occur automatically unless there was a component failure or human miscue. Because of the low probability of this condition, it was not anticipated.

E. Safety Significance

Technical Specifications do not require the ESST to be available in a cold shutdown condition. The USAR states the Safety Design Basis for the ESST as being capable of providing electric power to all equipment which is essential for the safe shutdown of the reactor. Because the reactor was in a cold shutdown condition and defueled, and two other offsite power sources and both emergency diesel generators were available, this event had minimal safety significance.

F. Safety Implications

If this event had occurred during plant operation, the same actions and equipment actuations would have resulted. However, this event was initiated by a test performed on new equipment as part of its installation, and this testing would not be performed when this equipment was required to be available. The magnitude of the high voltage was not enough to cause degradation of other plant equipment.

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

An additional separate input to the existing annunciator window has been provided to indicate a high secondary voltage on the ESST when Bus 1G is powered from the ESST. The existing annunciator label, "Emergency Transformer Low Voltage," has been changed to more accurately describe the condition it is monitoring. The label states that the ESST breaker for the bus will be prevented from automatically closing if a low voltage condition exists on the ESST. This eliminates any confusion that a low voltage condition exists on the bus when actual bus voltage is acceptable. The annunciator and operating procedures have been updated to more clearly explain the operation of the ESST and the annunciation associated with the transformer and buses.

H. Similar Events

None.