NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Catawba Nuclear Station, Unit 1	0 5 0 0 0 4 1 3	1 OF 0 4

TITLE (4)

Inadvertent Actuation of Control Room Ventilation System

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 7	2 9	8 5	8 5	—	0 4 8	—	0 0	0 8	2 8	8 5		0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 2 8	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)	X 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)	50.72 (b)(2)(ii)
		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
	AREA CODE
Roger W. Ouellette, Associate Engineer-Licensing	7 0 4 — 3 7 3 - 7 5 3 0

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	

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 July 29, 1985, at 1936 hours, the B train of the Control Room Ventilation System (VC) was actuated during preoperational testing of the Unit 2 B-Train Diesel Generator (D/G) Load Sequencer. In order to simulate a blackout condition, the test procedure specified that a lockout relay was to be manually actuated by depressing the plunger on the relay. Due to the close proximity of the plunger with other electrical equipment, the test coordinators chose to electrically actuate an overcurrent relay by installing a jumper. The actuation of the overcurrent relay caused the normal incoming breaker to B train 4160V Bus 2ETB to trip. The subsequent undervoltage conditions actuated the Unit 2 B Train D/G Load Sequencer. The Control Room Area Filter Train B Pressure Fan Motor was automatically started following the 8 second under voltage test by the sequencer.

This event is classified as a Personnel Error. The test procedure was not followed correctly. In addition, a procedure change was not initiated as required by station directives.

Unit 1 was operating at about 28% power and Unit 2 was under construction at the time of the incident.

This incident is reportable per 10 CFR 50.73 section (a)(2)(iv) and 10 CFR 50.72 section (b)(2)(ii).

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

Test Procedure, TP/2/A/1350/09B, Diesel Generator Load Sequencer Preoperational Test-Train B, verifies, among other items, that sequencer actuation due to blackout (B/O) is blocked by the 4160V essential lockout relays. In carrying out this section of the procedure, a jumper is placed between terminals B and 18 of lockout relay PL (86N). This maintains overcurrent protection of 2ETB3. In addition, terminal lead number 12 of lockout relay PL(86N) is disconnected to defeat its output to the trip circuit. With these two items implemented, steps 12.11.3 through 12.11.5 of the procedure can be carried out.

The 4160V essential switchgear normal incoming breaker 2ETB3 will trip open and lockout relay PL(86N) will actuate if an overcurrent condition is present on the three phases or neutral phase of 2ETB3. Tripping of 2ETB3 will produce an undervoltage condition on the switchgear and will actuate the load sequencer. The sequencer will begin an 8 second undervoltage test and the diesel generator (D/G) will start. At the end of 8 seconds, if undervoltage still exists, all loads are shed and the associated emergency D/G is connected to the 4160 volt essential switchgear. All loads on the blackout and essential switchgear that are required, are then sequenced onto the D/G. The sequencer adds load to the D/G in such a way as not to overload the D/G. The sequencing process lasts approximately 12 minutes.

When the sequencer begins the 8 second undervoltage check, lockout relay PL(86N) must be in the reset position the entire 8 seconds for the cycle to be completed. In addition, the D/G breaker will not close if the lockout relay PL(86N) is in the lockout position.

In order to maintain a redundant train for the Control Room Ventilation System, the Control Room Area Filter Train B Fan was connected to Motor Control Center 2EMXH which in turn was energized by load center 1ELXB. It was the power from the Unit 1 bus which permitted the fan to start.

On July 29, 1985, at 1820 hours, two test coordinators began performing TP/2/A/1350/09B, Section 12.11, Testing Sequencer Actuation Due to Blackout Is Blocked By the 4160V Essential Lockout Relays. Terminal points B and 18 were jumpered in order to bypass the overcurrent relays (PA51G and PB51) while leaving the overcurrent protection maintained. Terminal number 12 was disconnected so that 2ETB3 would not trip if PL(86N) was manually actuated. Step 12.11.3 describes the manual trip of lockout relay PL(86N) by depressing the coil plunger. The test personnel performing the procedure were not knowledgeable of how to manually trip the lockout relay.

At this time the decision was made to electrically actuate the lockout relay. Alligator clips were connected between terminal points 16 and 18 of overcurrent relay PA51G long enough to cause lockout relay PL(86N) to actuate. Due to the simulated overcurrent, 2ETB3 tripped. The test personnel then attempted to reset the lockout relay which caused the sequencer to begin its 8 second undervoltage check and would have allowed 2ETB3 to be reclosed. When the reset handle on PL(86N) was turned, the mechanism was not placed into the reset position. The sequencer continued its 8 second undervoltage check. At the 8 second mark, all loads were shed and the sequencer began to sequence loads back onto the system. In most cases the breakers for normally supplied loads on 2ETB were racked to the test position and therefore did not actually supply the loads. Since 2EMXH was connected to 1ELXB, power was supplied to the Control Room Area Filter Train B Fan. The control room advised the test personnel that the B-train fan had been started.

Lockout relay PL(86N) apparently returned to the actuated position prior to the closing of breaker 2ETB18 for D/G 2B. The logic prevented closing of the D/G breaker because the lockout relay was actuated.

Since the D/G breaker 2ETB18 did not close and the lockout relay PL(86N) was actuated, the test personnel reset PL(86N) and allowed the load shed, closing of 2ETB18 and sequencing of loads to recur. After sequencing was complete, breaker 2EDF-F01F was opened to de-energize the sequencer. All breakers on the 2ETB Bus were tripped and all the undervoltage relays were reset. Normal power was restored by closing in 2ETB3.

This event is classified as a Personnel Error. The manner in which lockout relay PL(86N) was tripped, deviated from the test procedure. A procedure change had not been made and approved, as required by Station Directives, prior to this deviation. Efforts to prevent recurrence of this problem include discussions with all appropriate personnel about procedure deviation and the proper method for making a procedure change.

When the B/O is actuated, the initial question in the logic is if PL(86N) is tripped or not tripped. If the lockout relay is tripped, an overcurrent condition exists and the sequencer will not start an undervoltage check. If PL(86N) is in the reset position, the sequencer will begin the 8 second undervoltage check. If at any point PL(86N) goes into the tripped condition, the sequencer should stop its undervoltage check and the B/O system events will stop. The test personnel were able to verify PL(86N) was in the tripped position after the load sequencing. This verified that D/G breaker 2ETB18 should not have closed. However, the sequencer should not go through the eight second undervoltage check when PL(86N) is in the tripped position. In this incident the sequencer went through the 8 second check. Since the test personnel cannot verify the setting of PL(86N) during the undervoltage check, the possibility exists that there is a problem in the logic or wiring. Therefore, a recheck of this system and series of events is necessary.

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

The Event Recorder did not function properly during the B/O. A Work Request has been written to investigate and repair this equipment. The recorder lost power during the event and was unable to provide necessary investigative information. This problem needs to be rectified prior to rechecking the B/O system.

CORRECTIVE ACTION

1. Operations personnel shutdown Control Room VC System filter fan and pressure was stabilized.

2. Operations personnel reset undervoltage relays and sequencer. Feeder breakers 2ETB Normal Incoming, 2EXTB, 2EXTF and 2EXTD XFMR were closed per Enclosure 3.2 of procedure TP/2/A/1350/09B.

3. A meeting was held with appropriate test personnel to reinforce the importance of adhering to procedures and following steps for procedure revisions.

4. A Work Request was initiated to investigate and repair the Event Recorder.

5. A section will be added to TP/2/A1350/09B to verify that the sequencer will cycle if the lockout relay is reset and then tripped before the completion of the 8 second under voltage check.

SAFETY ANALYSIS

The B-train Control Room Pressurized Filter Train Fan started due to actuation of the B/O sequencer. Control room personnel felt an increase in pressure within the control room. No safety risk was imposed upon the personnel.

In the event personnel had been performing a work request on the fan, the fan would have been tagged out and inoperable.

No plant personnel safety problems were generated from this incident. The health and safety of the public were not affected by this incident.

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NUCLEAR PRODUCTION

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August 28, 1985

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

Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413

Gentlemen:

Pursuant to 10 CFR 50.73 Section (a) (1) and (d), attached is Licensee Event Report 413/85-48 concerning an inadvertant actuation of the Control Room Ventilation System. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H.B. Tucker/BSS

Hal B. Tucker

RWO/hrp

Attachment

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