

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Catawba Nuclear Station, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 4 1 1 3 1				PAGE (3) 1 OF 014								
TITLE (4) Auto-Start of Auxiliary Feedwater During Testing of Reactor Trip Breakers																						
EVENT DATE (5)			LER NUMBER (8)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (6)												
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES N/A				DOCKET NUMBER(S) 0 5 0 0 0									
1	1	15	3	5	8	5	0	6	5	0	0	1	2	1	3	8	5	0	5	0	0	0
OPERATING MODE (9) 3		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																				
POWER LEVEL (10) 01010		20.402(b)				20.405(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)								
		20.405(a)(1)(i)				50.38(c)(1)				50.73(a)(2)(v)				73.71(c)								
		20.405(a)(1)(ii)				50.38(c)(2)				50.73(a)(2)(vi)				<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 365A)								
		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)(ix)				50.72(b)(2)(ii)								
LICENSEE CONTACT FOR THIS LER (12)																						
NAME Roger W. Ouellette, Associate Engineer - Licensing										TELEPHONE NUMBER AREA CODE 71014 317131-17151310												
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						
<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 November 15, 1985, at 1804:50 hours, the Motor-Driven Auxiliary Feedwater (CA) (EIIS:BA) Pumps auto-started following a trip of the operating Main Feedwater (CF) (EIIS:SJ) Pump Turbine. CF Isolation and the trip of CF Pump 1B occurred when the local CLOSE switch for Reactor Trip Breaker A was pressed while the Control Room switch was in the TRIP position. Operators immediately secured the CA Pumps and restarted CF Pump 1B. Unit 1 was in Mode 3, Hot Standby, at the time this incident occurred.

This incident is classified as being caused by a Defective Procedure, because the procedure for testing the Reactor Trip Breakers did not contain appropriate steps to ensure that the Reactor Trip Breaker Control Switches in the Control Room were in the CLOSE position prior to testing.

This incident is reportable pursuant to 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)

BACKGROUND

The Reactor Trip Breakers provide a path for power to the Rod Control Drive System (EIIS:AA). When a reactor trip occurs, either by an undervoltage or shunt trip, the breakers open, thus removing power from the Rod Control System which allows the Control Rods to drop into the core. A monthly functional test is performed on A Train and B Train Reactor Trip Breakers per procedures IP/0/A/3200/08A and IP/0/A/3200/08B, respectively. Semi-annually, preventive maintenance is performed on the Reactor Trip Breakers per procedure MP/0/A/20001/05, Reactor Trip Breaker Inspection and Preventive Maintenance. Upon completion of the preventive maintenance, a functional verification of A Train and B Train Reactor Trip Breakers is required per procedures IP/0/A/3200/10A and IP/0/A/3200/10B, respectively. The monthly and semi-annual functional tests are similar except for the semi-annual containing steps to record the response time on a visicorder.

Tripping the Reactor Trip Breakers using the Control Room switches causes the contact for the undervoltage relay to be opened and a P-4 signal to be generated within the Solid State Protection System (SSPS) (EIIS:JC). A low average temperature (Tave) condition will exist if the primary system temperature is below 564 degrees F. If the P-4 and the Low Tave conditions are present simultaneously, the SSPS will initiate feedwater isolation to the Steam Generators, and trip both Main Feedwater (CF) Pump Turbines (CFPT's). Tripping both CF Pumps will cause the two Motor Driven Auxiliary Feedwater (CA) Pumps to start. However, the CF isolation and CF pump trip can be blocked prior to opening the Reactor Trip Breakers from the Control Room by pressing the manual reset buttons located on the Main Control Board. The Reactor Trip Breakers also have local OPEN and CLOSE pushbuttons at the Reactor Trip Switchgear Cabinets that are not used under normal plan operation.

DESCRIPTION OF INCIDENT

On October 17, 1985, Standing Work Requests 3220 SWR and 3221 SWR were issued to perform the semi-annual preventive maintenance on Reactor Trip Breakers A and B, respectively. Work began and was completed on November 13, 1985. On November 15, 1985, the functional test on Reactor Trip Breaker B was begun. Later that day, technicians notified the Nuclear Control Operator (NCO) that the test had been satisfactorily completed and the Reactor Trip Breakers were in the closed position. The NCO informed the technicians that he was opening both A and B Train Breakers. The NCO blocked CF Isolation by pressing the CF Isolation manual reset buttons, and then opened the Reactor Trip Breakers from the Control Room. Tave was less than 564 degrees F, and at this point in Mode

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

3, the Rod Control System was not required to be operable.

Approximately one hour later, the technicians contacted the NCO again and informed him that they were ready to begin the functional test for Reactor Trip Breaker A. The technicians proceeded with the test. Step 10.2.3 requires them to verify that Reactor Trip Breakers A and B are closed. The technicians instructed the Nuclear Equipment Operator (NEO) to close the breakers. When the switch for Reactor Trip Breaker A was closed locally at the breaker at 1804:49 hours, it immediately reopened due to the undervoltage interlock contact from the Control Room Reactor Trip switch being open. Feedwater isolation occurred, and CFPT 1B tripped. CA Motor Driven Pumps A and B automatically started at 1804:50 upon loss of CF. At 1808:25 hours, both CA Pumps were secured, and at 1810:47 hours, CFPT 1B was placed back in service.

After all systems were returned to previous alignment, Operators closed the Reactor Trip Breakers using the Control Room switches, and the functional test of Reactor Trip Breaker A was satisfactorily completed at 2133 hours.

CONCLUSIONS

The Reactor Trip Breaker switches in the Control Room open a contact to the undervoltage coil when they are placed in the TRIP position. This undervoltage condition caused the breaker to immediately open when it was attempted to be closed from the local switch. Because the unit was in Mode 3 and Tave was less than 564 degrees F, the effect of the breaker reopening without the CF Isolation Manual Reset being pressed caused CF Isolation and CFPT 1B to trip. Subsequently, CA Motor Driven Pumps A and B automatically started.

When the technicians completed testing of Reactor Trip Breaker B, the NCO was notified per step 10.4.17 of the functional test procedure for Reactor Trip Breaker B. The NCO was under the impression that all Reactor Trip Breaker testing was complete, therefore, with the Rod Control System not required to be operable at this point in Mode 3, he opened A and B Reactor Trip Breakers. The technicians returned approximately an hour later to perform Reactor Trip Breaker A functional test. The controlling procedure, IP/O/A/3200/10A, did not contain any prerequisites to instruct the technicians to have the NCO close the Reactor Trip Breakers. When the technicians reached step 10.2.3, which required them to verify that Reactor Trip Breakers A and B were closed, the local CLOSE pushbutton on the breaker was pressed and the incident occurred.

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U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
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Catawba Nuclear Station, Unit 1	050004138	5	065	00	04	OF	04

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

Since the controlling test procedure did not contain a prerequisite that required the Reactor Trip Breakers to be closed from the Control Room prior to beginning the test, and step 10.2.3 did not instruct the technicians to contact the Control Room to ensure the breakers were closed, this incident is classified as being the result of a Defective Procedure.

No other incidents of this nature have occurred at Catawba in the past.

CORRECTIVE ACTIONImmediate

The Motor Driven CA Pumps were secured, and Main Feedwater was re-established by starting CFPT 1B.

Planned

Procedures IP/0/A/3200/10A, IP/0/A/3200/08A, and IP/0/A/3200/08B will be revised to include steps that will ensure the Reactor Trip Breakers are closed from the Control Room.

SAFETY ANALYSIS

During this incident, all systems functioned as designed. CF Isolation and CF Pump trip occurred when the Reactor Trip Breaker opened and Tave was less than 564 degrees F. Also, the Motor Driven CA Pumps auto-started when CF Pump 1B was tripped. Steam Generator levels remained constant at approximately 60% throughout this incident. This ensured a heat sink for the Reactor Coolant System. The health and safety of the public were not affected by this incident.

DUKE POWER COMPANY

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

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December 13, 1985

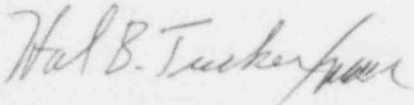
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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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 413/85-65 concerning an auto-start of the Auxiliary Feedwater System during testing of the reactor trip breakers. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

RWO:slb

Attachment

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American Nuclear Insurers
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December 13, 1985

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NRC Resident Inspector
Catawba Nuclear Station