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) Auto Start of Motor Driven Auxiliary Feedwater Pumps During Turbine Impulse Pressure Chamber Test

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 0 0 0
0 1	0 4	8 5	8 5	— 0 0 1	— 0 0	0 2	0 1	8 5		0 5 0 0 0

OPERATING MODE (9)	3
POWER LEVEL (10)	0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

	20.402(b)		20.405(c)	X	50.73(a)(2)(iv)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)
	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)(x)

	73.71(b)
	73.71(e)
X	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	50.72(b)(2)(ii)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Roger W. Ouellette, Assistant 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 January 4, 1985, at 1352:56 hours, Motor-Driven Auxiliary Feedwater (CA) Pumps 1A and 1B auto-started during testing of the Turbine Impulse Chamber Pressure. The testing initiated an inadvertent reactor trip signal, which in turn, automatically tripped Main Feedwater (CF) pump 1A (CF pump 1B was not running), and started CA Pumps 1A and 1B. At the time of the incident, Unit 1 was in Mode 3 (Hot Standby), with an average Reactor Coolant temperature (Tave) of 559°F and Pressurizer pressure of approximately 1830 psig. To recover from the incident, the switch was returned to normal, the reactor trip breakers were closed, CA Pumps 1A and 1B were tripped, CF pumps 1A and 1B were reset, and CF pump 1B was started.

This incident is classified as a Personnel Error. The Instrument and Electrical (I&E) Supervisor of the test crew N/A'd a step in the Turbine Impulse Pressure Chamber test section of the procedure without thoroughly analyzing the impact on plant operation. If that step would have been performed, this incident would not have occurred.

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)

Instrument Procedure IP/1/A/3222/00B (Analog Channel Operational Test Channel II 7300) is performed by the Instrument and Electrical (I&E) group monthly per Work Request 3634SWR to satisfy Technical Specification Surveillance Requirements 4.3.1.1 and 4.3.2.1 for Channel II of the Process Control System. Section 10.8 of the procedure is the test of the Turbine Impulse Chamber Pressure. During that section, the Turbine Impulse Pressure test switch is placed in the test position, which in turn simulates greater than 10% turbine or reactor power. The actuation of one of two impulse pressure channels serves as an input that gives a P-7 Signal, a signal that unblocks "at power" reactor trips if the Reactor Trip Breakers are closed and P-13 status light (Turbine not at power) is lit. A combination of the P-7 signal and any of the following will initiate a Reactor Trip; 1) High Pressurizer Level, 2) Low Pressurizer pressure, 3) Reactor Coolant Pump Bus Underfrequency, 4) Reactor Coolant Pump Bus Undervoltage, 5) Two Reactor Coolant Loops Loss of Flow.

During the performance of procedure IP/1/A/3222/00B, two significant plant conditions existed. First, the Unit was in Mode 3 with the pressurizer pressure being maintained at approximately 1830 psig. This was because the Upper Head Injection (UHI) System was out of service due to Nuclear Station Modification (NSM) #CN-10337 and because of a high concentration of entrained gases in the UHI accumulator. Second, rod drop testing was being performed per IP/0/A/3220/01 (Full Length Rod Cluster Control Assembly Drop Timing-IRE System).

On January 4, 1985, at approximately 1300 hours, Section 10.8 of IP/1/A/3222/00B was started when the I&E Technician notified the Senior Reactor Operator that one Channel of Turbine Impulse Pressure would be tested. Step 10.8.1 of the procedure gave the following conditions:

> If Rx trip breakers are closed and 1SI18.14.01 (P-13 Turbine not at power) is on, verify the following annunciators are not in alarm state:
>
> 1AD06.01.09 PZR Hi Level Alert
> 1AD06.04.08 PZR Lo Press Alert
> 1AD06.06.05 UV NC Pump Bus Alert
> 1AD06.04.05 Under freq. NC Pump Bus Alert
>
> Verify that not more than one of the following annunciators are in the alarm state:
>
> 1AD06.01.01 Loop A Lo Flow Alert
> 1AD06.01.02 Loop B Lo Flow Alert
> 1AD06.01.03 Loop C Lo Flow Alert
> 1AD06.01.04 Loop D Lo Flow Alert
>
> If any of these conditions exist, DO NOT PROCEED, notify I&E Supervisor.

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

The I&E Technician found that the Reactor trip breakers were closed for rod drop testing and 1SI18.14.01 was lit. Then he checked the other alarms. He found annunciator 1AD06.04.08 lit. This was because pressurizer pressure was less than 1945 psig. The I&E Technician then asked the Shift Technical Advisor (STA) and Nuclear Control Operator (NCO) about the effects on plant operation by continuing with the procedure. The STA and NCO related to him the effects on safety injection by continuing with the procedure. The STA told the I&E Technician that safety injection would not be affected. After this conversation, the I&E Technician discussed the step with I&E Supervisor A. After further discussing the step with I&E Supervisor B and an I&E Staff Engineer, I&E Supervisor A decided to continue with the procedure and N/A'd step 10.8.1. This decision was made because low power reactor trips were believed to be blocked due to the indication of status light 1SI18.11.02 (P-7 low power Reactor Trips blocked). Also, the decision was based on the conversations with the STA and NCO.

At 1351:52:872 hours, the Turbine Impulse Pressure test switch was placed in the test position per step 10.8.3 of IP/1/A/3222/00B by the I&E Technician. Simultaneously, low power reactor trips were unblocked and a pressurizer low pressure reactor trip signal was initiated. The reactor trip breakers opened. Since Tave was low at the time, a combination of low Tave and a Reactor Trip signal gave a Feedwater Isolation signal. This tripped Main Feedwater (CF) pump A (CF pump B was not running but also received a trip signal). Loss of both CF pumps caused the auto-start of both motor-driven Auxiliary Feedwater (CA) pumps.

Immediately after the incident, the I&E Technician placed the Turbine Impulse Pressure test switch in the normal position. The Reactor Trip breakers were closed, CF pump 1A was reset, and both CA pumps were shutdown by the NCO. When the NCO attempted to return CF pump 1A to service, its discharge valve would not reopen. The NCO then reset and placed CF pump 1B in service to feed the steam generators. A work request was issued to repair CF pump 1A's discharge valve.

This incident is classified as a Personnel Error. Since I&E Supervisor A N/A'd and initialed step 10.8.1 in IP/1/A/3222/00B, he is responsible for analyzing the impact on plant operation of not performing the step. However, I&E Supervisor A did not review logic diagrams or drawings before making his decision. He was under the assumption that P-7 Reactor Trips were blocked, and was unaware that moving the Turbine Impulse Pressure test switch to the test position would unblock those trips. There was also miscommunication. The I&E Supervisor relied on conversation with the STA and NCO instead of discussing the issue with the appropriate individual, the Shift Supervisor.

The I&E Technician found that the Reactor trip breakers were closed for rod drop testing and 1SI18.14.01 was lit. Then he checked the other alarms. He found annunciator 1AD06.04.08 lit. This was because pressurizer pressure was less than 1945 psig. The I&E Technician then asked the Shift Technical Advisor (STA) and Nuclear Control Operator (NCO) about the effects on plant operation by continuing with the procedure. The STA and NCO related to him the effects on safety injection by continuing with the procedure. The STA told the I&E Technician that safety injection would not be affected. After this conversation, the I&E Technician discussed the step with I&E Supervisor A. After further discussing the step with I&E Supervisor B and an I&E Staff Engineer, I&E Supervisor A decided to continue with the procedure and N/A'd step 10.8.1. This decision was made because low power reactor trips were believed to be blocked due to the indication of status light 1SI18.11.02 (P-7 low power Reactor Trips blocked). Also, the decision was based on the conversations with the STA and NCO.

At 1351:52:872 hours, the Turbine Impulse Pressure test switch was placed in the test position per step 10.8.3 of IP/1/A/3222/00B by the I&E Technician. Simultaneously, low power reactor trips were unblocked and a pressurizer low pressure reactor trip signal was initiated. The reactor trip breakers opened. Since Tave was low at the time, a combination of low Tave and a Reactor Trip signal gave a Feedwater Isolation signal. This tripped Main Feedwater (CF) pump A (CF pump B was not running but also received a trip signal). Loss of both CF pumps caused the auto-start of both motor-driven Auxiliary Feedwater (CA) pumps.

Immediately after the incident, the I&E Technician placed the Turbine Impulse Pressure test switch in the normal position. The Reactor Trip breakers were closed, CF pump 1A was reset, and both CA pumps were shutdown by the NCO. When the NCO attempted to return CF pump 1A to service, its discharge valve would not reopen. The NCO then reset and placed CF pump 1B in service to feed the steam generators. A work request was issued to repair CF pump 1A's discharge valve.

This incident is classified as a Personnel Error. Since I&E Supervisor A N/A'd and initialed step 10.8.1 in IP/1/A/3222/00B, he is responsible for analyzing the impact on plant operation of not performing the step. However, I&E Supervisor A did not review logic diagrams or drawings before making his decision. He was under the assumption that P-7 Reactor Trips were blocked, and was unaware that moving the Turbine Impulse Pressure test switch to the test position would unblock those trips. There was also miscommunication. The I&E Supervisor relied on conversation with the STA and NCO instead of discussing the issue with the appropriate individual, the Shift Supervisor.

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

It was felt that the procedure was adequate in that it instructed the person to not proceed if any of the conditions were met. However, the effects of not performing the step were not clearly stated.

CORRECTIVE ACTION

1. Turbine Impulse Pressure test switch placed in normal position.
2. Reactor trip breakers closed.
3. Main Feedwater pumps reset.
4. CA Pumps shutdown.
5. Main Feedwater Pump 1B started.
6. Work Request originated to repair valve 1CF10.
7. I&E will research step 10.8.1 in IP/1/A/3222/00B to see if there are any circumstances that the step can be N/A'd. If they exist, they will be listed in the procedure step. If they do not exist, a statement will be added to the step to ensure the individual performing the procedure is aware of the consequences of not performing the step.
8. Personnel will be made aware of the possible effects of N/Aing steps in a procedure through review of this incident.

SAFETY ANALYSIS

All systems functioned as designed upon receipt of a reactor trip signal. Recovery from the incident was achieved promptly.

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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February 1, 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 413/85-01 concerning the auto-start of motor-driven Auxiliary Feedwater pumps during Turbine Impulse Chamber Pressure test. 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 1/30

Hal B. Tucker

RWO:slb

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
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