

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Catawba Nuclear Station, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 4 1 3 1 OF 0 4				PAGE (3) 1 OF 0 4		
TITLE (4) Safety Injection During Loss of Control Room 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 1	3 1	8 5	8 5	0 0 9	0 0	0 3	0 1	8 5					0 5 0 0 0			
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																
OPERATING MODE (9)		20.402(b)				20.406(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)		73.71(b)				
POWER LEVEL (10)		20.406(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)		73.71(c)				
0 1 0 0		20.406(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)		<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)				
		20.406(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)		50.72(b)(1)(iv)				
		20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)						
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)						
LICENSEE CONTACT FOR THIS LER (12)																
NAME Roger W. Ouellette, Assistant Engineer - Licensing										TELEPHONE NUMBER 7 1 0 1 4 3 1 7 1 3 1 - 1 7 1 5 1 3 1 0						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS						
X	C	B	V		K 10 1 8 1 5	No										
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 January 31, 1985, at 1723 hours, a safety injection occurred and lasted for about 3 minutes. The safety injection occurred during Loss of Control Room Functional Test, which began at 1423 hours. Operations was attempting to decrease Reactor Coolant (NC) System temperature, as required by the test, by cycling Steam Generator Power Operated Relief Valves (PORV's). During this process, NC System pressure was being controlled by the Pressurizer Heaters and Auxiliary Spray (controlled by Valve 1NV37A). While cycling 1NV37A, the valve became stuck in the intermediate position and could not be closed. Continuous pressurizer spray caused a gradual NC System depressurization to below the Safety Injection (Ss) setpoint. Therefore, this incident is classified as a Component Malfunction.

Recovery from the incident was accomplished by resetting safety injection, closing the cold leg safety injection valves, and manually closing valve 1NV37A. Unit 1 was in Mode 3, Hot Standby, at the time of the incident. This incident is reportable pursuant to 10 CFR 50.73, Section (a)(2)(iv), 10 CFR 50.72, Section (b)(1)(iv), and Technical Specification 3.5.2, Action Statement b.

8503130101 850301
PDR ADOCK 05000413
S PDRIE22
11

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Catawba Nuclear Station, Unit 1	0500041385	-	009	-	00	02	OF 04

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

Test Procedure TP/1/A/2650/03, Loss of Control Room Functional Test, began on January 31, 1985, at 1423 hours. One of the purposes of this procedure was to demonstrate that the Reactor Coolant (NC) System could be cooled down at least 50°F from a steady state Hot Standby condition while the plant is operated from the Auxiliary Shutdown Panels. Soon after the test began, the Reactor was tripped from approximately 18% thermal power by the Auxiliary Shutdown Panel (ASP) controls.

To accomplish NC System cooldown, Steam Generator Power Operated Relief Valves (PORV's) were cycled. During this process, NC system pressure was controlled by pressurizer heaters and Auxiliary Pressurizer Spray (controlled by Valve INV37A, NV supply to PZR AUX Spray Valve). There are four banks of pressurizer heaters, but only two banks can be operated from the ASP's. Also, normal pressurizer spray cannot be controlled from the ASP's; therefore, auxiliary spray had to be used.

While cycling INV37A, the valve became stuck in the intermediate position, allowing continuous pressurizer spray. The two banks of pressurizer heaters could not compensate for the spray, and NC System pressure gradually decreased.

Personnel at the ASP were not concerned about initiating a Safety Injection (Ss) signal due to NC System pressure decrease. Operators have been instructed the all Ss Logic is blocked to the sequencer after transfer of control to the ASP's. However, they have not been instructed that certain valves will automatically reposition during an Ss Actuation while at the ASP's. In actuality, an Ss signal still initiates through the Solid State Protection System (SSPS) to certain components. An Ss signal is only blocked to the Diesel Generator Sequencer and the components controlled directly at the ASP's.

Also, Procedure OP/1/A/6100/04, Shutdown Outside the Control Room From Hot Standby to Cold Shutdown, contains the following:

"NOTE: Safety Injection Signals do not have to be blocked before decreasing pressure, since all Ss logic to the sequencer is negated and all sequencer related actions (due to Ss signal) cease once the transfer switches are engaged; only the blackout sequencer will operate."

The above does not adequately explain the effect of an Ss signal on plant operation. This procedure was not in use at the time of the incident, but operators are trained on this procedure, and it is to be put into use to shut the plant down following Loss of Control Room Procedure, AP/1/A/5500/17.

Therefore, Operations did not attempt to further arrest the NC System pressure decrease. Pressure decreased to 1845 psig and an Ss signal occurred. At this time, valves INI9A and INI10B opened to allow cold leg injection. Both Centrifugal Charging Pumps (CCP) were operating before the Ss signal. The CCP's were previously injecting water through the normal charging line, but upon Ss signal, water diverted to the cold leg injection flow path. Also during Ss signal, Component Cooling (KC) valves 1KC56A and 1KC81B opened. These valves allowed full flow to the Residual Heat Removal (ND)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Catawba Nuclear Station, Unit 1	0 5 0 0 0 4 1 3 8 5	—	0 0 9	—	0 0 0	3 OF	0 4

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

Heat Exchangers. KC Pump A1 and A2 discharge pressure dropped, and the pumps operated at high flow conditions.

The Control Room Nuclear Control Operator (NCO) recognized that Safety Injection had been initiated, and that pressurizer level had increased to approximately 58%. He then reset Train A and B safety injection, and closed valves 1NI9A and 1NI10B to terminate the injection. The NCO also closed valves 1KC56A and 1KC81B to terminate KC pump high flow conditions. During the safety injection, the NCO at the ASP dispatched an Operator to manually close 1NV37A, terminating pressurizer spray.

Safety Injection into the NC System cold leg lasted about 3 minutes. The Loss of Control Room Test was completed and control was transferred back to the control room at 1805 hours.

Valve 1NV37A is a Limitorque Electric Motor operated 2" Kerotest Globe Valve. The last work performed on this valve was under Nuclear Station Modification CN-10435 on 11/3/84, which changed the torque settings.

CORRECTIVE ACTION

- 1) The Nuclear Control Operator in the Control Room reset safety injection and closed valves 1NI9A and 1NI10B to terminate the safety injection.
- 2) Nuclear Equipment Operator manually closed 1NV37A to terminate pressurizer spray.
- 3) Steps were inserted into Procedure OP/1/A/6100/04, Shutdown Outside the Control Room from Hot Standby to Cold Shutdown, to open the feeder breakers to the following valves to prevent re-positioning upon reaching the safety injection setpoint:
 - 1NI9A (Centrifugal Charging Pump to Cold Leg Isolation)
 - 1NI10B (Centrifugal Charging Pump to Cold Leg Isolation)
 - 1KC56A (KC to ND Heat Exchanger 1A Supply Isolation)
 - 1KC81B (KC to ND Heat Exchanger 1B Supply Isolation)
- 4) To clarify and detail the affects of a safety injection signal while controlling a unit from the Auxiliary Shutdown Panel, the following statement was added to the Auxiliary Feedwater (CA) Section of the Plant Summary Manual:

"When the ASP is in local, sequencer actuation is blocked, but all valves which receive Ss or St signals will position to their ESF position."
- 5) Work Request 14248 OPS was issued to investigate and repair 1NV37A. The torque switch was found to be out of adjustment, preventing proper operation of the valve. The torque switch was replaced, and 1NV37A successfully cycled.

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

- NRC FORM 366A
(9-83)

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

March 1, 1985

TELEPHONE
(704) 373-4531

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 413/85-09 concerning a safety injection during the Loss of Control Room Test. This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H. B. Tucker
Hal B. Tucker

RWO:slb

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

Palmetto Alliance
2135½ Devine Street
Columbia, South Carolina 29205

Robert Guild, Esq.
P. O. Box 12097
Charleston, South Carolina 29412

Mr. Jesse L. Riley
Carolina Environmental Study Group
854 Henley Place
Charlotte, North Carolina 28207

American Nuclear Insurers
c/o Dottie Sherman, ANI Library
The Exchange, Suite 245
270 Farmington Avenue
Farmington, CT 06032

M&M Nuclear Consultants
1221 Avenue of the Americas
New York, New York 10020

NRC Resident Inspector
Catawba Nuclear Station

IE22
1/1