

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Catawba Nuclear Station, Unit 1

DOCKET NUMBER (2)

0 5 0 0 0 4 1 3

PAGE (3)

1 OF 0 3

TITLE (4)

Inadvertent Repositioning of Various Engineered Safeguards Features Valves

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	8	2	2	8	4	8	4	0	0	8	0	0	0	0	0	0
0	8	2	2	8	4	8	4	0	0	8	0	0	0	0	0	0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																																							
5	<table border="1"><tr><td>20.402(b)</td><td>20.406(c)</td><td>X</td><td>50.73(a)(2)(iv)</td><td>73.71(b)</td></tr><tr><td>20.406(a)(1)(i)</td><td>50.36(c)(1)</td><td></td><td>50.73(a)(2)(v)</td><td>73.71(c)</td></tr><tr><td>20.406(a)(1)(ii)</td><td>50.36(c)(2)</td><td></td><td>50.73(a)(2)(vii)</td><td></td></tr><tr><td>20.406(a)(1)(iii)</td><td>50.73(a)(2)(i)</td><td></td><td>50.73(a)(2)(viii)(A)</td><td></td></tr><tr><td>20.406(a)(1)(iv)</td><td>50.73(a)(2)(ii)</td><td></td><td>50.73(a)(2)(viii)(B)</td><td></td></tr><tr><td>20.406(a)(1)(v)</td><td>50.73(a)(2)(iii)</td><td></td><td>50.73(a)(2)(ix)</td><td></td></tr></table>										20.402(b)	20.406(c)	X	50.73(a)(2)(iv)	73.71(b)	20.406(a)(1)(i)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)	20.406(a)(1)(ii)	50.36(c)(2)		50.73(a)(2)(vii)		20.406(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		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)	
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LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME	Roger W. Ouellette, Assistant Engineer - Licensing	AREA CODE	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 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 August 22, 1984, at 1401 hours, relay K603 of Unit 1 Train A Solid State Protection System (SSPS) was inadvertently actuated. As a result, various Engineered Safeguard Features (ESF) valves repositioned to their respective safety positions. Unit 1 was in Mode 5 at the time of this incident, approximately one month after initial fuel load. Centrifugal Charging (NV) Pump 1B was in service, pumping through the normal charging flowpath with letdown from the Residual Heat Removal (ND) System. The pump was in service to maintain seal flow to the Reactor Coolant Pumps. Actuation of relay K603 caused charging to swap to the emergency path through valve 1NI-9A. Thirty seconds after discovering that the affected valves would not remain in their normal positions, NV Pump 1B was secured. Relay K603 remained actuated for approximately 1½ hours.

The exact cause of relay K603 becoming actuated has not been determined. However, due to the close proximity of IAE Crew A Technicians, it is possible that relay K603 was unknowingly bumped and actuated, thereby initiating this event.

This incident is reportable pursuant to 10CFR 50.73 Sect. (a)(2)(iv) and 50.72 Section b(2)(ii). Technical Specifications were not violated.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Catawba Nuclear Station, Unit 1	05000413	84	008	0	00	2	OF 03

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

The Output Relay Bays of the Solid State Protection System (SSPS) contain master relays, slave relays, and fuses necessary to implement required safeguard outputs and/or train associated circuitry. The Output Relay Cabinet contains the master relays which are energized by the safeguards output cards. The master relay contacts apply power to a number of slave relays. The slave relay contacts, in turn, apply power to plant process equipment, such as pumps, valves, and relay coils. Relay K603 is a slave relay, governed by master relay K501. Relay K603 is a Westinghouse 4-Pole relay with 4 Pole Adder and Latch Attachment.

The cause of this incident was the inadvertent actuation of relay K603 of the Train A Solid State Protection System.

On the day of this event, Unit 1 was in Mode 5. The normal charging flowpath was in service to maintain seal flow to the Reactor Coolant Pumps. Normal charging in Mode 5 utilizes the Volume Control Tank (VCT) as the suction source to the Charging Pumps and letdown is from the Residual Heat Removal (RD) System. Charging was performed by NV Pump 1B.

The valves that re-positioned due to the relay actuation were 1NI-9A, 1NV-312A, and 1FW-33A.

Valve 1FW-33A serves as a suction valve for the Refueling Water (FW) Recirculation Pumps 1A and 1B. The only consequence of the closing of 1FW-33A was the tripping of FW Recirculation Pump 1B due to a pump/valve interlock.

The closing of 1NV-312A (Charging Line Cont Isol) and the opening of 1NI-9A (Centrifugal Charging Pump to Cold-Leg Disch Isol) caused the charging flowpath to swap from normal to emergency. Normally, charging pump suction would swap from the Volume Control Tank (VCT) (1NV-188A and 1NV-189B in series) to the Refueling Water Storage Tank (1NV-252A and 1NV-253B in parallel). However, since 1NV-252A remained closed (power removed), 1NV-188A remained open and pump suction remained aligned to the VCT. The immediate operator action taken following the discovery of the re-positioned valves was to open valve 1NV-312A. With 1NI-9A and 1NV-312A both open momentarily, a large discharge flow path existed for NV Pump 1B which, in turn, caused VCT level to draw down rapidly. The pump was immediately secured. By 1730 hours, normal charging and letdown were re-established.

Between 1300 and 1400 hours, IAE Crew A Personnel began an investigation on valve 1NV-252A. The IAE Technicians entered the train A SSPS Output Relay Cabinet, which contains the subject relay, K603. It is not known how the relay became actuated. An individual slave relay can be actuated electrically from the Engineered Safeguards Test Cabinet. If the relay had been actuated electrically, it would have been heard by the Technicians, which it was not. On the other hand, when considering manual actuation of the relay, the latching sound made by the relay is not nearly as audible. This Westinghouse latching relay has a plunger protruding approximately  $\frac{1}{4}$  inch, which actuates the relay when it is pushed inward. Relay K603 is located in the top row of relays, out of reach from the floor. Reliability of the circuit logic and discredit for a spurious actuation signal was demonstrated subsequently by IAE Crew B conducting IP/O/A/3200/02, Solid State Protection System Line Periodic Testing Procedure. It was possible to inadvertently actuate the relay manually and not realize what had happened. The relay remained actuated for  $1\frac{1}{4}$  hours.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

The problem was cleared when the Performance Engineer, after noticing relay K603 latched in, reset the relay.

This incident did not cause any release of radioactive material, radiation exposure, or personnel injuries. It is considered to be an isolated case.

CORRECTIVE ACTION

When normal charging was lost (closure of 1NV-312A), Operators immediately tried to re-open 1NV-312A. After finding that 1NV-312A would not remain open, NV Pump 1B was secured. IAE was contacted to investigate and correct the problem with the various valves failing to their safety position. Relay K603 was reset by the Performance Engineer approximately 1½ hours after it was actuated. The circuit logic associated with relay K603 was successfully tested per procedure IP/O/A/3200/02.

The only significance of this event on plant operations was the loss of seal flow to the Reactor Coolant Pumps, which were not operating.

The health and safety of the public were not affected by this incident.

**DUKE POWER COMPANY**

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

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
(704) 373-4531

September 21, 1984

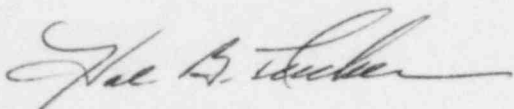
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U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 413/84-08 concerning inadvertent repositioning of various Engineered Safeguards Features valves. 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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Atlanta, Georgia 30339

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Catawba Nuclear Station

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