

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8903280293      DOC. DATE: 89/03/22      NOTARIZED: NO      DOCKET #  
 FACIL: 50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina      05000400  
 AUTH. NAME      AUTHOR AFFILIATION  
 HOWE, A.J.      Carolina Power & Light Co.  
 WATSON, R.A.      Carolina Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 89-005-00: on 890222, reactor trip on low steam generator level w/steam/feed mismatch.

W/8      ltr.

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 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Application for permit renewal filed.      05000400/

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) SHEARON HARRIS NUCLEAR POWER PLANT - UNIT ONE	DOCKET NUMBER (2) 0 5 0 0 0 4 0 0 1	PAGE (3) 0 3
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TITLE (4) REACTOR TRIP ON LOW STEAM GENERATOR LEVEL WITH STEAM/FEED MISMATCH DUE TO PERFORMANCE OF CALIBRATION TEST PROCEDURE

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	2	2	8	9	8	9	0	0	5	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) 1 0 0	<input type="checkbox"/>	20.402(b)	<input type="checkbox"/>	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
	<input type="checkbox"/>	20.405(a)(1)(i)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)			
	<input type="checkbox"/>	20.405(a)(1)(ii)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	<input type="checkbox"/>				
	<input type="checkbox"/>	20.405(a)(1)(iii)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	<input type="checkbox"/>				
	<input type="checkbox"/>	20.405(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	<input type="checkbox"/>				
<input type="checkbox"/>	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)	<input type="checkbox"/>					

LICENSEE CONTACT FOR THIS LER (12)									
NAME ANDREW J. HOWE - SENIOR SPECIALIST							TELEPHONE NUMBER 9 1 9 3 6 2 - 2 7 1 9		
AREA CODE									

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)		
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO							MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On February 22, 1989, at 1314, with the plant at 100% power and 878 net MWe, a reactor trip on low steam generator level coincident with steam/feedwater flow mismatch occurred during the performance of a calibration test procedure for steam generator level channel L-474. The section of the procedure being performed caused an isolation of feedwater to A steam generator, causing the steam/feed flow mismatch. A low level signal was already present when the channel was removed from service for the test, so the trip signal occurred almost immediately after the isolation valves closed. The plant was stabilized in hot standby at 557°F after the trip, with all three auxiliary feedwater pumps automatically starting due to low steam generator levels.

The cause of the trip was performance of a section of the procedure intended to be conducted during shutdown. Cautions in the procedure, intended to alert personnel of the impact on plant operation, were reviewed by the technicians, and by the operators on shift including the shift foreman, but the cautions were not sufficiently explicit to be understood by these individuals.

The plant was returned to service at 2255 of the same day. The procedures which test the feedwater control logic will be revised to ensure explicit instructions are provided as to the effect on performance of the test on the feedwater valve lineup. A review of other calibration procedures which could impact power operations will be conducted to ensure adequate precautions are provided.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	0 0 5	0 0	0 2	0 0	0 3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

EVENT DESCRIPTION

The plant was operating at full power producing 885 net MWe on February 22, 1989. Maintenance Surveillance Test procedure MST-I-0023, Steam Generator 1A Narrow Range Level Loop (L-474) - Protection Set I Calibration, was in progress. This procedure is performed once per 18 months to calibrate level transmitter 474 (L-474) (EIIS:JB), and includes calibration of the nonsafety control interlocks which actuate an isolation of feedwater to steam generator A.

At approximately 1314, isolation and regulating valves for A steam generator closed, causing a steam/feedwater flow mismatch. With level instrument L-474 removed from service for the test, this completed the logic for a reactor trip on low steam generator level with steam/feed flow mismatch for A steam generator.

The plant response to the trip was as expected. All three auxiliary feedwater pumps (EIIS:BA) eventually started on low steam generator water level. The main feedwater pumps (EIIS:SJ) tripped shortly after the reactor trip, due to low flow occurring when the feedwater regulating valves closed on interlock at 564°F Reactor Coolant System average temperature. The pump's recirculation valve did not open quickly enough to keep the pump flow rate above the trip setpoint.

CAUSE

The feedwater isolation and regulating valves closed when a low level signal was initiated by the performance of Section 7.16 of the test procedure, which is a section to test the nonsafety feedwater valve control interlocks. A narrow range steam generator level of greater than 5% is required to open main feedwater isolation and regulating valves to permit main feedwater flow to the steam generators. This interlock is required to minimize the potential for water hammer events in the steam generator during start up of the main feedwater system. This section of the test procedure is not intended to be performed while the plant is at power.

Prior to performance of Section 7.16, per the procedure, the technicians were required to obtain permission from the control operator to conduct that portion of the test procedure. The procedure provided cautions intended to alert personnel of the effect on feedwater valve position while performing that section. The operator discussed these cautions with the technicians, with the senior control operator and with the shift foreman. It was believed that the test would only actuate one channel of 2/3 logic needed to cause feedwater to isolate, and so permission was granted to conduct Section 7.16.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

CAUTION (continued)

The cautions in the test procedure were not sufficiently explicit so that personnel would understand that a feedwater isolation would occur. Other procedures which test this function contain identical cautions, but some procedures recently revised included more detailed descriptions, identifying specifically which valves would isolate.

The operators secured from the test and the plant was returned to service at 2255 that same day.

SAFETY SIGNIFICANCE

There were no safety consequences as a result of this event. The reactor trip was normal and safety systems responded, as required.

This event is reportable as an actuation of the reactor protection and engineered safeguards systems per 10CFR50.73(a)(2)(iv). There have been no previous similar events involving a reactor trip during performance of instrument calibrations.

CORRECTIVE ACTIONS

1. The level and pressure channel calibration procedures which test the feedwater isolation control logic will be revised to delete the feedwater bypass logic test. Separate procedures designated for use only during shutdown will be prepared to test the feedwater bypass logic.
2. A review is being conducted of other 18 month test calibration procedures to identify those which cannot be performed in their entirety without having a similar impact on the plant.

HARRIS NUCLEAR PROJECT  
P.O. Box 165  
New Hill, NC 27562

MAR 2 1 1989

File Number: SHF/10-13510C  
Letter Number: HO-890037 (0)

U.S. Nuclear Regulatory Commission  
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SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1  
DOCKET NO. 50-400  
LICENSE NO. NPF-63  
LICENSEE EVENT REPORT 89-005-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,



R. A. Watson  
Vice President  
Harris Nuclear Project

RAW:tbb

Enclosure

cc: Mr. R. A. Becker (NRR)  
Mr. W. H. Bradford (NRC - SHNPP)  
Mr. S. D. Ebnetter (NRC - RII)

MEM/LER-89-005/1/OS1

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