

### LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) SHEARON HARRIS PLANT - UNIT 1	DOCKET NUMBER (2) 0 5 0 0 0 4 0 0	PAGE (3) 1 OF 0 3
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TITLE (4)  
REACTOR TRIP

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)
01	21	87	87	004	00	02	20	87			0 5 0 0 0
											0 5 0 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) 0110	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)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)					
	20.405(a)(1)(ii)	50.38(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
	20.405(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(vii)(A)						
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(vii)(B)						
20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)

NAME R. SCHWABENBAUER - REGULATORY TECHNICIAN	TELEPHONE NUMBER 9 1 9 3 6 2 - 2 6 6 9
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

**ABSTRACT**

On January 21, 1987 the plant was separated from the electrical grid and the Reactor power level was being manually reduced to under 10 percent in order to perform Turbine Mechanical Overspeed Trip testing. The Reactor power was being reduced to less than 10 percent to avoid a Reactor trip which would occur if trip testing on the turbine was performed above this level.

At 0016 hours on January 21, 1987 the Reactor tripped while the power level was being reduced due to one Intermediate Range Channel (N-36) which remained in the tripped condition as power was being reduced. The Intermediate Range Channel Trip Reset Value was found to be set too low.

All rods fully inserted into the core and the plant stabilized at nominal operating pressure and nominal operating temperature.

The bistables setpoints were then adjusted with values based on data collected during plant operation at approximately 20 percent power and Westinghouse recommendations.

The plant was restarted at 2036 hours on January 21, 1987. The Turbine Mechanical Overspeed Trip testing was then performed and successfully completed on January 22, 1987 without further incident.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  SHEARON HARRIS PLANT UNIT 1	DOCKET NUMBER (2)  0 5 0 0 0 4 0 0			LER NUMBER (6)			PAGE (3)		
	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER						
	8 7	0 0 4	0 0	0 2	OF	0 3			

TEXT (If more space is required, use additional NRC Form 306A's) (17)

TEXTDescription of Event

On January 21, 1987 the plant was separated from the electrical grid and the Reactor power level was being manually reduced to under 10 percent in order to perform Turbine Mechanical Overspeed Trip testing. The Reactor power was being reduced to less than 10 percent to avoid a Reactor trip which would occur if trip testing on the turbine was performed above this level.

During the process of reducing power the N-36, Intermediate Range Channel High Flux Trip Bistable, did not reset prior to the point where the P-10 interlock reset. As a result, at 0016 on January 21, 1987 the Reactor tripped on "Intermediate Range High Flux".

System Description

The Reactor Protection System for SHNPP includes the following permissives:

P-10 which results when 2 of 4 power range detectors are greater than 10 percent.

P-13 which results when 1 of 2 turbine impulse chamber pressure transmitters are greater than 10 percent turbine-load equivalent.

P-7 which results from the presence of either P-10 or P-13.

A turbine trip initiates a reactor trip above P-7. On decreasing power the reactor trip from the turbine trip is automatically blocked by the reset of P-7. P-10 provides input to P-7. On increasing power P-10 allows the manual block of the Intermediate Range Trip and the Low Setpoint Power Range Trip; and automatically blocks the Source Range Trip and de-energizes the source range high voltage power. On decreasing power the Intermediate Range Trip and the Low Setpoint Power Range Trip are automatically reactivated when P-10 resets.

Cause and Corrective Action

The initial adjustment and settings of the Intermediate Range Instrumentation and Power Range were based on data taken at 5 percent rated thermal power. The percent power was estimated, based on reactor core delta T. The currents measured at 5 percent were extrapolated up to 25 percent power based on predictions of full power instrument currents. The detector curves are not linear in this range and the settings, based on straight line extrapolated data, are very conservative. Additionally, Westinghouse recommended setting the setpoint at 80 percent of the resulting current; the use of a 54 degree delta T for full power core delta T in lieu of a calculated 60 degree delta T; and the use of 50 percent of the trip setpoint value for the bistable resetpoint.

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TEXT (If more space is required, use additional Form 388A's) (17)

Cause and Corrective Action (continued)

As a result, the Intermediate Range Channel N-36 trip bistable was very close to 10 percent and did not reset on decreasing power prior to the reset of the P-10 interlock. The Intermediate Range Channel N-35 Trip Bistable for the other Intermediate Range Channel Reset at approximately 10.5 percent Rated Thermal Power.

The Reactor tripped at 0016 on January 21, 1987. All rods fully inserted into the core. The plant stabilized at nominal operating pressure and nominal operating temperature.

The response of the intermediate range channels was unexpected and not typical of normal operation. Thus while indications of bistable status are available on the main control board, these indications were not noted by the operator during the power change.

Based on data collected during operation at approximately 20 percent Rated Thermal Power and Westinghouse recommendations, the appropriate bistable setpoints were adjusted and the plant restarted on January 21, 1987 at 2036 hours.

The Turbine Mechanical Overspeed Trip testing was then performed and successfully completed on January 22, 1987 without further incident.





Carolina Power & Light Company

HARRIS NUCLEAR PROJECT  
P. O. Box 165  
New Hill, NC 27562  
FEB 20 1987

File Number: SHF/10-13510C  
Letter Number: HO-870370 (0)

U.S. Nuclear Regulatory Commission  
ATTN: NRC Document Control Desk  
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1  
DOCKET NO. 50-400  
LICENSE NO. NPF-63  
LICENSEE EVENT REPORT 87-004-00

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:skm

Enclosure

cc: Dr. J. N. Grace (NRC - RII)  
Mr. B. Buckley (NRR)  
Mr. G. Maxwell (NRC - SHNPP)