

# CATEGORY 1

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9602010112      DOC.DATE: 96/01/29      NOTARIZED: NO      DOCKET #  
FACIL:50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina      05000400  
AUTH.NAME      AUTHOR AFFILIATION  
VERRILLI,M.      Carolina Power & Light Co.  
DONAHUE,J.W.      Carolina Power & Light Co.  
RECIP.NAME      RECIPIENT AFFILIATION

SUBJECT: LER 96-016-00:on 951228,unplanned ESF/RPS actuation occurred due to unexpected opening of "A" RT breaker during testing. Caused by inadequate procedure.Revised procedure & trained appropriate personnel.W/960129 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:Application for permit renewal filed.      05000400

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**CP&L**

Carolina Power & Light Company  
Harris Nuclear Plant  
PO Box 165  
New Hill NC 27562

JAN 29 1996

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

Serial: HNP-96-011  
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1  
DOCKET NO. 50-400  
LICENSE NO. NPF-63  
LICENSEE EVENT REPORT 95-016-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report concerns an unexpected opening of the "A" Reactor Trip Breaker during testing, while the plant was shutdown in Mode-3. This occurrence constitutes an unplanned Reactor Protection System actuation.

Sincerely,



J. W. Donahue  
General Manager  
Harris Plant

MV

Enclosure

c: Mr. S. D. Ebnetter (NRC - RII)  
Mr. N. B. Le (NRC - PM/NRR)  
Mr. D. J. Roberts (NRC - HNP)

9602010112 960129  
PDR ADOCK 05000400  
S PDR

010080

*IF 2/2*  
*1/1*

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Harris Nuclear Plant Unit-1

DOCKET NUMBER (2)

50-400

PAGE (3)

1 OF 3

TITLE (4)

Unexpected opening of the "A" Reactor Trip Breaker during testing, constitutes an unplanned ESFARPS actuation.

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 NAME	DOCKET NUMBER
12	28	95	95	-- 016	-- 00	1	29	96		05000
									FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000

  

OPERATING MODE (9)	3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	0%	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)					
		20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)					
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71					
		20.2203(a)(2)(ii)	20.2203(a)(4)	X 50.73(a)(2)(iv)	OTHER					
		20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A					
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)						

LICENSEE CONTACT FOR THIS LER (12)

NAME

Michael Verrilli Sr. Analyst - Licensing

TELEPHONE NUMBER (Include Area Code)

(919) 362-2303

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)

YES

(If yes, complete EXPECTED SUBMISSION DATE).

X

NO

EXPECTED SUBMISSION DATE (15)

MONTH

DAY

YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 28, 1995, with the plant shutdown in Mode-3 (Hot Standby) and control rods fully inserted, the "A" Train Reactor Trip Breaker unexpectedly opened while performing logic testing on the "A" Train Solid State Protection System (SSPS). The opening of the breaker occurred when the SSPS Logic A Test Switch was returned to the "OFF" position after completing the test for the Pressurizer High Pressure Trip circuitry. This switch is a 23 position, rotary-type switch and during this particular test, was rotated in the clockwise direction from position 7 to the "OFF" position, instead of the most direct route to "OFF", which would have been counter-clockwise. Also, during this portion of the test, the Input Error Inhibit Switch was placed in the "NORMAL" position as procedurally directed. With the plant in Mode-3 and the Input Error Inhibit Switch in the "NORMAL" position, rotating the switch in the clockwise direction through positions 20 & 21 satisfied SSPS logic conditions for generating a reactor trip signal, opening the trip breaker. To determine the cause and ensure that the trip breaker had opened as a result of the testing being performed, Instrument and Control Technicians repeated the applicable portions of the procedure two additional times to re-create the appropriate conditions. The trip breaker again opened during both of these subsequent evolutions. The reactor trip breaker openings were not accompanied by any other Reactor Protection System or Engineered Safety Feature actuation signals. The cause of the initial trip breaker opening was procedural inadequacies in the SSPS logic test procedure. The cause of the two subsequent openings was personnel error. Corrective actions for this event will include procedure revisions and training for appropriate personnel.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (5)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Shearon Harris Nuclear Plant - Unit #1	50-400	95	016	00	2 OF 3

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

**EVENT DESCRIPTION:**

On December 28, 1995, the plant was shutdown in Mode-3 (Hot Standby), with control rods fully inserted. During "A" Train Solid State Protection System (SSPS, EIIS Code-JG) logic testing (MST-I0001), the "A" Reactor Trip Breaker unexpectedly opened at 1430 hours. The opening of the breaker occurred when the SSPS Logic A Test Switch (EIIS Code-JG 33) was being returned to the "OFF" position after completing the test for the Pressurizer High Pressure Trip circuitry. This switch is a 23 position rotary-type switch, which based on discussions with Instrument & Control (I&C) Technicians, had historically been returned to the "OFF" position by counter-clockwise rotation (the shortest and most direct route to "OFF"). During this test, Instrument and Control (I&C) Technicians returned the switch to "OFF" by clockwise rotation. The change in rotational direction was recommended by engineering personnel to reduce the possibility of residue build-up on the switch contacts. Also, during this portion of the test, the Input Error Inhibit Switch (EIIS Code-JG 33) was in the "NORMAL" position as per the test procedure.

Following the unexpected breaker opening, in an effort to determine the cause and ensure that the trip breaker had opened as a result of the testing being performed, I&C Technicians repeated the applicable portions of the procedure two additional times to re-create the appropriate conditions. The trip breaker again opened during both of these subsequent evolutions. At this point, testing was secured to discuss the occurrence with Operations personnel in the main control room and develop a troubleshooting plan.

Investigation into this occurrence revealed that with the plant in Mode-3 and the Input Error Inhibit Switch in the "NORMAL" position, rotating the switch in the clockwise direction through positions 20 & 21 satisfied SSPS logic conditions for generating a reactor trip signal, opening the trip breaker.

The reactor trip breaker openings were not accompanied by any other Reactor Protection System (RPS) or Engineered Safety Feature actuation signals but were determined to be unplanned RPS actuations. A four hour non-emergency report per 10CFR50.72(b)(2)(ii) was made to the NRC at 1717 hours on December 28, 1995.

**CAUSE:**

The cause of this event was procedural inadequacies. The SSPS Logic Test surveillance procedure (MST-I0001) did not address the possibility that a reactor trip signal would be generated at switch positions 20 & 21 if the test was performed in Mode-3 when turbine trip signals are present due to the plant being shut down, and with the Input Error Inhibit Switch in the "NORMAL" position. It also did not specify which direction the test switch should be turned when returning it to the "OFF" position. Investigation into this event revealed that a revision was performed to procedure MST-I0001 following a plant modification in 1985 that inserted the guidance to place the Input Error Inhibit Switch in the "NORMAL" position rather than in the "INHIBIT" position, which was required for P-4 Permissive voltage verification. The above described circumstances that resulted in generating the reactor trip signal were apparently not considered in 1985 during the procedure revision process. The procedure deficiency has remained undetected since 1985 due to the plant normally being in Mode-1 during this test and the switch being rotated counter-clockwise, thus avoiding position 20 & 21.

Also, based on an interpretation of a precaution and limitation in MST-I0001, the I&C technicians deviated from the prescribed test sequence to investigate the condition following the initial unexpected opening of the trip breaker, instead of stopping to develop a troubleshooting plan. This practice resulted in the two subsequent trip breaker openings and was considered as personnel error. Though this error was cognitive in nature, the I&C technicians involved were attempting to gather as much information as possible, prior to informing and discussing the occurrence with the Operations Shift Supervisor in the main control room.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Shearon Harris Nuclear Plant - Unit #1	50-400	95	016	00	3	OF 3

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

**SAFETY SIGNIFICANCE:**

There were no safety consequences as a result of this event. The plant was shutdown with control rods fully inserted in the core and the reactor trip breaker functioned as designed. Had this test been performed at power, SSPS logic conditions would not have been satisfied to generate a reactor trip signal, due to the absence of turbine trip signal inputs.

**PREVIOUS SIMILAR LERs:**

No similar LERs have been reported pertaining to an unplanned Reactor Protection System actuation while shutdown.

**CORRECTIVE ACTIONS COMPLETED:**

1. Procedure revisions were completed for MST-I0001, MST-I0320, MST-I0072 and MST-I0073 to ensure that the Input Error Inhibit switch is placed in the "INHIBIT" position any time that the Logic Test Switch is removed from the "OFF" position. These revisions were completed on January 26, 1996.
2. Management expectations were communicated to appropriate plant personnel regarding the importance of stopping work or testing activities when unanticipated occurrences are encountered. Items emphasized included requirements for developing and executing a troubleshooting plan in accordance with plant troubleshooting procedure MMM-027 and the need for clear and complete communications. This was completed on January 26, 1996.

**EHS CODES:**

Solid State Protection System - JG