

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9209040154      DOC. DATE: 92/09/01      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.  
HINNANT, C. S.      Carolina Power & Light Co.  
RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 92-012-00: on 920802, one of three secondary relays failed to actuate, causing TS 3.0.3 to be entered. Caused by failure of under-voltage relay to actuate. Procedure will be revised to provide guidance for tripped condition. W/920831 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: S  
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Application for permit renewal filed.      05000400

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	<u>REG FILE</u> 02	1	1	RES/DSIR/EIB	1	1		
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EXTERNAL:	EG&G BRYCE, J H	2	2	L ST LOBBY WARD	1	1		
	NRC PDR	1	1	NSIC MURPHY, G. A	1	1		
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*2nd distribution due to incorrect docket #.*

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**Carolina Power & Light Company**

P.O. Box 165 • New Hill, NC 27562

G. E. VAUGHN  
Vice President  
Harris Nuclear Project

AUG 31 1992

Letter Number: HO-920127

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 92-012-00

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,

C. S. Hinnant  
General Manager  
Harris Nuclear Project

MV:dmw

Enclosure

cc: Mr. S. D. Ebnetter (NRC - RII)  
Mr. N. B. Le (NRC - RII)  
Mr. J. E. Tedrow (NRC - SHNPP)  
Mr. G. E. Vaughn

040050

MEM/LER92-012/1/OS1

9209040154 920901  
PDR ADOCK 05000440  
PDR

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Shearon Harris Nuclear Power Plant - Unit #1		DOCKET NUMBER (2) 0   5   0   0   0   4   0   0	PAGE (3) 1   OF   14
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TITLE (4) Technical Specification 3.0.3 entry due to failure of 1B-SB Emergency Bus Undervoltage Relay.

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	0   2	9   2	9   2	0   1   2	0	0   9	0   1	9   2			0   5   0   0   0

OPERATING MODE (8) 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	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)							
	20.406(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)							
	20.405(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)							
	20.405(a)(1)(iii)	X 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)(x)								

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Michael Verrilli Specialist - Regulatory Compliance	AREA CODE 9   1   9	3   6   2   -   2   3   0   3	

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPSDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPSDS	
B	J   E	2   7	B   4   5   5	Y						

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)

**ABSTRACT:**

On August 2, 1992, while performing Operational Surveillance Testing on the 1B-SB 6.9KV Safety Bus Under Voltage Devices (OST-1124), one of the three SECONDARY relays failed to actuate. Efforts to place this relay in the tripped condition exceeded the one hour time limit allowed by the Technical Specification (TS) action statement. This resulted in entering TS 3.0.3. This was caused by the failure of the under-voltage relay to actuate during testing and difficulty experienced in tripping the channel. The faulty relay was replaced and tested within approximately two hours and TS 3.0.3 was exited. Corrective action to prevent recurrence will be a procedure revision that will provide guidance for placing the relay in the tripped condition.

On August 12, 1992, during a review of the event, it was identified that OST-1124 did not positively verify the operability of all three PRIMARY under voltage relays. This test had previously been deemed satisfactory, if the appropriate alarms were annunciated at the main control board. This was due to the systems two out of three logic making it possible to receive the required alarm with one of the relays not operating properly. Upon this determination, one of the three primary relays was considered inoperable until OST-1124 was revised to physically verify operability of all three. The revised version of OST-1124 was completed one hour and twenty minutes later, thus causing TS 3.0.3 to be entered for twenty minutes. This was caused by a deficient surveillance procedure and an inadequately designed relay test circuit. Corrective actions to prevent recurrence will include a procedure revision and a relay test circuit design change.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Shearon Harris Nuclear Power Plant Unit #1	DOCKET NUMBER (2)  0   5   0   0   0   4   0   0   9   2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		-	0   1   2	-	0   0   0   2	OF 0   4

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

**EVENT DESCRIPTION:**

On August 2, 1992 the plant was in Mode-1 at 100% power. Operations Surveillance Test (OST-1124) was being conducted on the 1B-SB Safety Bus Under Voltage Relays (EIIIS: JE/27). Step #7.2.10 of this test requires the target flags for the secondary under voltage relays to be reset. This step assumed that the relays had successfully actuated. At 0237 hours, operators observed that the target flag for one of the three relays was not in the tripped condition. This indicated that the relay had not actuated to the tripped position as required by the test. This information was immediately conveyed to the Shift Supervisor in the main control room. Technical Specification (TS) 3.3.2.c action statement #15 requires the relay to be placed in the tripped condition within one hour or enter TS 3.0.3. At 0315 the relay assembly was physically removed from its cabinet. This action was initially determined to comply with the TS requirement. However, additional investigation revealed that removing the relay did not place the channel in the tripped condition and at 0449 hours, TS 3.0.3 was entered due to exceeding the one hour time limit. Plans were made to be in Mode-3 by 0900 hours if the relay could not be tripped or replaced with a spare and satisfactorily tested. Approximately two hours later replacement of the relay was completed and at 0658 hours, satisfactory testing allowed the plant to exit TS 3.0.3.

During subsequent review of the event and development of corrective actions, it was identified that procedure OST-1124 did not positively verify the operability of all three primary under voltage relays. The test had previously been deemed satisfactory if the appropriate alarms were annunciated at the main control board, but due to the systems "two out of three logic", it was possible to receive the required alarm with one of the three relays not operating properly. This determination was made at 1200 on August 12, 1992, at which time one of the three primary relays was considered inoperable until adequate testing could be developed and completed to verify operability of all three. This condition once again invoked the one hour time limit of TS 3.3.2.c action statement #15. Plans were made at this point to begin plant shutdown at 1500, based on the potential for entry into TS 3.0.3, if testing could not verify operability. A revised version of OST-1124, that included physical verification of contact actuation, was developed to resolve the operability concern for the primary relays. This test was completed satisfactorily at 1320 on August 12, 1992. TS 3.0.3 was entered at 1300 and exited at 1320 upon completion of this test.

**CAUSE:**

There were two causes for the initial 3.0.3 entry. The first was a failure of the 1B-SB 6.9KV Safety Bus Under Voltage Secondary Relay (27A-1/1712) to actuate during surveillance testing. Investigation revealed that the relay's actuation setpoint had drifted outside the required band and prevented the relay from tripping at the specified voltage. This relay was calibrated during the past refueling outage which ended in May 1991 and had demonstrated satisfactory

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TEXT CONTINUATION

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FACILITY NAME (1) Shearon Harris Nuclear Power Plant Unit #1	DOCKET NUMBER (2) 0   5   0   0   0   4   0   0	LER NUMBER (6)			PAGE (3)	
		YEAR 9   2	SEQUENTIAL NUMBER -   0   1   2	REVISION NUMBER -   0   0	0   3	OF 0   4

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

CAUSE: (continued)

performance during each of the 17 monthly surveillance tests conducted up to this event. The second cause that contributed to entering TS 3.0.3 was that a pre-developed plan for placing the relay in the tripped condition was not available. The initial action taken to comply with the TS requirement for tripping the relay was to remove the relay from the cabinet. Subsequent investigation which included additional voltage readings, revealed that this action did not place the circuit in the tripped condition. By the time this determination was made, a large portion of the one hour time limit had been consumed.

The cause for the TS 3.0.3 entry that occurred on August 12, 1992 was the inadequacy of surveillance test OST-1124 and the design for the relay test circuitry. The acceptance criteria for OST-1124 had previously been satisfied upon receipt of alarms at the main control board and Auxiliary Equipment Panel #2. The procedure did not require observation or verification of the relays actuation during testing. The test circuit was designed to generate these alarms if two of the three relays actuate. This design configuration was inadequate in that one of the three relays could be potentially inoperable, yet allow the alarms to actuate and meet the required acceptance criteria. To positively verify operability of all three relays, testing was developed to confirm relay actuation upon loss of voltage. Development and performance of this testing took longer than one hour and therefore resulted in TS 3.0.3 entry.

SAFETY SIGNIFICANCE:

There were no safety consequences as a result of this event. Two of the three relays (both primary and secondary) were operable as indicated by previous successful surveillance testing. This ensures that the intended Engineered Safety Feature actuation would have occurred in the event of an actual safety bus under voltage condition.

These events are being reported as TS violations (3.0.3 entry) per 10CFR50.73 (a)(2)(i)(B). There have been no previous similar reports submitted.

CORRECTIVE ACTIONS:

1. The faulty relay was replaced and satisfactory performance of OST-1124 verified its operability on August 2, 1992.
2. OST-1124 was revised to ensure that all three primary and secondary relays trip as required.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9   2	-   0   1   2	-   0   0	0   4	OF 0   4

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

CORRECTIVE ACTIONS: (continued)

3. Clarification will be provided on how to effectively place these relays in the tripped condition.
  
4. During review and discussion of this evolution, it was discovered that the relay circuit resistance was too high to actuate the primary relay target flag coils. This had no impact on the relays trip function, operability or capability to annunciate the control board alarm. A plant modification will be implemented to ensure that these target flags properly indicate that the relay has actuated.

EIIS Information:

Engineered Safety Feature Actuation System - JE (U.V. Relay - 27)