ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8804130293 DOC. DATE: 88/08/04 NOTARIZED: NO DOCKET #
FACIL: 50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
AUTH. NAME AUTHOR AFFILIATION
SCHWABENBAUER Carolina Power & Light Co.
WATSON, R. A. Carolina Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-007-00: on 880309, plant trip occurred due to loss of feedwater to steam generator B.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 W/8 ltr. SIZE: 5
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Application for permit renewal filed. 05000400

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD2-1 LA	1	1	PD2-1 PD	1	1
	BUCKLEY, B	1	1			
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	AEOD/DOA	1	1	AEOD/DSP/NAS	1	1
	AEOD/DSP/ROAB	2	2	AEOD/DSP/TPAB	1	1
	ARM/DCTS/DAB	1	1	DEDRO	1	1
	NRR/DEST/ADS 7E	1	0	NRR/DEST/CEB 8H	1	1
	NRR/DEST/ESB 8D	1	1	NRR/DEST/ICSB 7	1	1
	NRR/DEST/MEB 9H	1	1	NRR/DEST/MTB 9H	1	1
	NRR/DEST/PSB 8D	1	1	NRR/DEST/RSB 8E	1	1
	NRR/DEST/SGB 8D	1	1	NRR/DLPQ/HFB 10	1	1
	NRR/DLPQ/QAB 10	1	1	NRR/DOEA/EAB 11	1	1
	NRR/DREP/RAB 10	1	1	NRR/DREP/RPB 10	2	2
	NRR/DRIS/SIB 9A	1	1	NRR/PMAS/ILRB12	1	1
	REG FILE 02	1	1	RES TELFORD, J	1	1
	RES/DE/EIB	1	1	RES/DRPS DIR	1	1
	RGN2 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	4	4	FORD BLDG HOY, A	1	1
	H ST LOBBY WARD	1	1	LPDR	1	1
	NRC PDR	1	1	NSIC HARRIS, J	1	1
	NSIC MAYS, G	1	1			

TOTAL NUMBER OF COPIES REQUIRED: LTTR 45 ENCL 44

R I D S / A D D S R I D S / A D D S

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1	0 5 0 0 0 4 0 0	1 OF 0 4

TITLE (4) PLANT TRIP DUE TO A LOSS OF FEEDWATER TO 'B' STEAM GENERATOR CAUSED BY A FAILED FUSE.

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 5 0 0 0
0 3	0 9	8 8	8 8	— 0 0 7	— 0 0	0 4	0 8	8 8		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)	1 0 0	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
R. SCHWABENBAUER - REGULATORY COMPLIANCE TECHNICIAN	9 1 9 — 3 6 2 — 2 6 6 9

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	
B	S J	F U	B 5 6 9	YES							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

The plant was operating in Mode 1, Power Operation, at 100 percent reactor power on March 9, 1988. At 1654 hours, several alarms were received by operators at the Main Control Board indicating low water level in "B" Steam Generator (SG).

Operators observed that the "B" Main Feedwater Regulating Valve (MFRV) had gone shut. The operators then attempted to take manual control of "B" MFRV in an effort to restore water level in "B" SG.However, the operators efforts could not restore the rapidly dropping "B" SG water level as instrument air was lost to "B" MFRV and within 30 seconds the plant tripped due to "B" SG feedwater/ steam flow mismatch with low SG water level.

There were no safety consequences due to this event and plant response to the trip was normal. The Main Steam Isolation Valves (MSIV) were shut at 1657 hours in order to limit cooldown, SG water levels were restored with the Auxiliary Feedwater System, and the plant was stabilized in Mode 3, Hot Standby.

The cause of the event was a failed renewable fuse which fed the solenoid for "B" MFRV. The end cap on the fuse had loosened which resulted in a loss of power to a solenoid which interrupted instrument air to the valve. The valve failed shut cutting off the feedwater supply to "B" SG.

Corrective actions include: replacing the renewable fuse with a nonrenewable type, a hold put on renewable fuses in stock, and replacing identified renewable type fuses as plant conditions permit.

This event is being reported in accordance with 10CFR50.73(a)(2)(iv) as an Engineered Safety System Feature actuation.

IE22

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

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

DESCRIPTION:

The plant was operating in Mode 1, Power Operation, at 100 percent reactor power on March 9, 1988. At 1654 hours several alarms, including feed flow/steam flow mismatch, were received at the Main Control Board (EIIS:IB) and the operators noted no feedwater (EIIS:SJ) flow to "B" Steam Generator (SG) (EIIS:SB), decreasing water level in "B" SG, and "B" SG Main Feedwater Regulating Valve (MFRV) (EIIS:SJ) indicating shut. The operators attempted to take manual control of "B" MFRV in an effort to restore water level in "B" SG. However, the operators efforts could not restore the rapidly decreasing "B" SG water level, and within 30 seconds water level reached the low level setpoint of 38 percent and the plant tripped before any effective corrective action could be taken.

The plant tripped on "B" SG feedwater/steam flow mismatch with low SG water level at 1654 hours. Subsequent to the Reactor (EIIS:AC) trip, both Main Feedwater Pumps (MFP)(EIIS:SJ) tripped, however, the motor driven Auxiliary Feedwater Pumps (AFWP)(EIIS:BA) were already activated by the low level in the 'B' SG. Actuation of the turbine driven AFWP was not required. The Main Steam Isolation Valves (MSIV) (EIIS:SB) were closed at 1657 hours to limit plant cooldown, SG water levels were restored with the Auxiliary Feedwater System (AFW) (EIIS:BA), and the plant was stabilized in Mode 3, Hot Standby. There were no other problems encountered during the transient.

CAUSE:

A work request was prepared to investigate and correct the problem. The repair technicians found that the negative leg fuse (BUSSMAN Model #REN-6) had failed as indicated by a zero voltage reading. The technician pulled the fuse and obtained a continuity reading of approximately 3 ohms. He noted that the fuse was a Renewable (REN) Type and that the end cap was loose. The technician tightened the end cap by hand approximately 1 turn and then obtained a 0 ohm continuity reading. The fuse was returned to its holder and normal voltage to the circuit was restored.

The failed fuse was in the circuit for the Feedwater Isolation Signal to the "B" MFRV. The circuit is normally energized and allows instrument air (EIIS:LD) to be supplied to the air actuator for the 'B' MFRV through a solenoid valve. (SEE ATTACHMENT). When the fuse failed the solenoid repositioned and interrupted the air supply causing the MFRV to fail shut cutting off the feedwater supply to 'B' SG.

The failed REN fuse has been replaced with a Nonrenewable (NON) type. In addition, all MFIV and Flow Control Valves (FCV) (EIIS:BA) for all 3 SG were checked and all REN type fuses were replaced with NON type fuses. The plant was then restarted and put back on line at 1917 hours on March 10, 1988.

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

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

ANALYSIS:

There were no safety consequences as a result of this event and plant response to the trip was normal. The MSIVs were shut at 1657 hours to limit plant cooldown, SG water levels were restored with the AFW System and the plant was stabilized in Mode 3, Hot Standby.

The safety consequences are bound by this event as it occurred while the plant was operating at full power.

This event is being reported in accordance with 10CFR50.73(a)(2)(iv) as an Engineered Safety System Feature actuation.

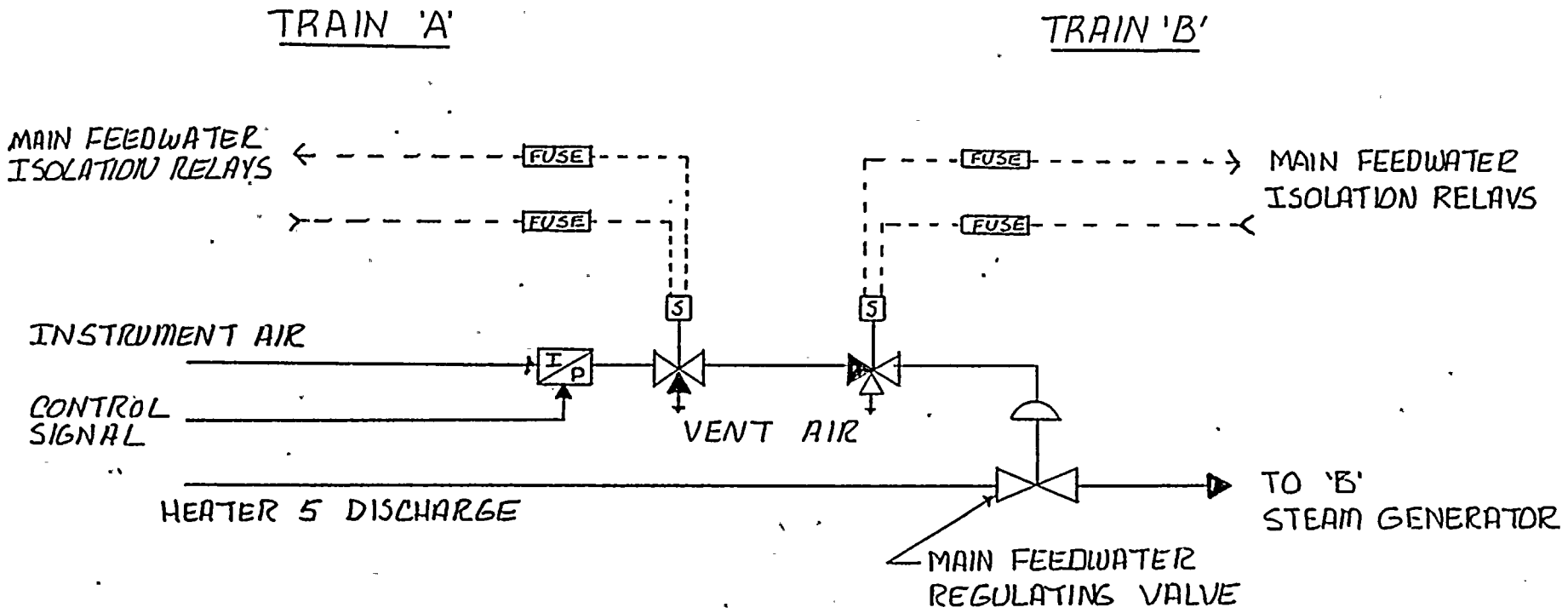
Previous events reported involving fuses include: LER-87-037-00 where a failed fuse caused a Main Feedwater Pump to trip resulting in a plant trip, and LER-87-056-00 where a wrong fuse was pulled resulting in a plant trip.

CORRECTIVE ACTIONS/ACTIONS TO PREVENT RECURRENCE:

1. The failed REN type fuse was replaced with an NON type fuse and similar fuses for the other MFRV's were replaced.

2. A hold was put on REN type fuses in stock.

3. Upon identifying further uses of REN type fuses they will be replaced as plant conditions permit.



NOTE: TRAIN A SOLENOID SHOWN IN ENERGIZED POSITION.
TRAIN B SOLENOID SHOWN IN DE-ENERGIZED POSITION.
MAIN FEEDWATER REGULATING VALVE FAILS CLOSED ON LOSS OF AIR.

(NTS)

CP&L
Carolina Power & Light Company

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

APR 0 8 1988

File Number: SHF/10-13510C
Letter Number: HO-88-007-00 (O)

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 88-007-00

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

R. A. Watson
Vice President
Harris Nuclear Project

RJS:ddl

Enclosure

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

IE22
1/1

MEM/LER-88-007/1/OS1