

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9406280096 DOC.DATE: 94/06/22 NOTARIZED: NO DOCKET #
 FACIL:50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
 AUTH.NAME AUTHOR AFFILIATION
 JURY,K.R. Carolina Power & Light Co.
 PEARSON,M.P. Carolina Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 94-012-00:on 940523,CVCS heat trace channel declared inoperable requiring TS 3.0 entry.Caused by failure of heat trace circuit 25P due to breakdown of cable insulation. Repairs expedited.W/940622 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:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD2-1 PD	1 1	MOZAFARI,B	1 1
INTERNAL:	AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
	NRR/DE/EELB	1 1	NRR/DE/EMEB	1 1
	NRR/DORS/OEAB	1 1	NRR/DRCH/HHFB	1 1
	NRR/DRCH/HICB	1 1	NRR/DRCH/HOLB	1 1
	NRR/DRSS/PRPB	2 2	NRR/DSSA/SPLB	1 1
	NRR/DSSA/SRXB	1 1	NRR/PMAS/IRCB-E	1 1
	<u>REG FILE</u> 02	1 1	RES/DSIR/EIB	1 1
	RGN2 FILE 01	1 1		
EXTERNAL:	EG&G BRYCE,J.H	2 2	L ST LOBBY WARD	1 1
	NRC PDR	1 1	NSIC MURPHY,G.A	1 1
	NSIC POORE,W.	1 1	NUDOCS FULL TXT	1 1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
 TOTAL NUMBER OF COPIES REQUIRED: LTTR 26 ENCL 26

ADP



10 CFR 50.73

Carolina Power & Light Company
Robinson Nuclear Plant
PO Box 790
Hartsville SC 29551

Robinson File No.: 13510C
Serial: RNP/94-1262

JUN 22 1994

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
LICENSEE EVENT REPORT NO. 94-012-00

Gentlemen:

The enclosed Licensee Event Report (LER), is submitted in accordance with
10 CFR 50.73.

Very truly yours,

Marc P. Pearson
Plant General Manager
H. B. Robinson S. E. Plant

RDC:sgk
Enclosure

c: Mr. S. D. Ebnetter, Regional Administrator, USNRC, Region II
Ms. B. L. Mozafari, USNRC Project Manager, HBRSEP
Mr. W. T. Orders, USNRC Senior Resident Inspector, HBRSEP

9406280096 940622
PDR ADDCK 05000261
S PDR

Highway 151 and SC 23 Hartsville SC

JEJ

NRC FORM 366
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2

DOCKET NUMBER (2)

050-261

PAGE (3)

1 OF 4

TITLE (4)

CVCS HEAT TRACE CHANNEL INOPERABILITY REQUIRES TS 3.0 ENTRY

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
05	23	94	94	012	00	06	22	94	FACILITY NAME	DOCKET NUMBER
										05000
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
N			20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
POWER LEVEL (10)			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
100			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
			20.405(a)(1)(iii)		X 50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)	
			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

K. R. Jury: Manager-Licensing/Regulatory Programs

TELEPHONE NUMBER (Include Area Code)

(803) 383-1363

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
X	FE	EHTR	T185	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On May 23, 1994, H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 was operating at 100 percent power. With the "A" Emergency Diesel Generator (EDG) removed for service to perform scheduled surveillance testing, Maintenance personnel notified Control Room operators that heat trace primary circuit 25P was inoperable. Because the remaining operable channel of heat tracing was powered from the inoperable "A" EDG, both channels of heat tracing were declared inoperable, and the action statement of TS 3.0 was entered. Repairs were expedited, and heat trace circuit 25P was declared operable at 1530 hours on May 23, 1994. The "A" EDG was tested satisfactorily and declared operable on May 24, 1994 at 0010 hours.

Heat tracing Circuit 25P failed due to breakdown of its cable insulation. Because the specific piping configuration does not allow installation under optimum conditions, sufficient heat transfer from the cable to the piping did not occur, resulting in insulation degradation and subsequent cable failure.

The actual ability to provide negative reactivity insertion by boric acid addition was not affected. Therefore, this event had minimal effect on plant safety. This event is reported pursuant to 10 CFR 50.73(a)(2)(i)(B).

NRC FORM 366A
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
H. B. ROBINSON, UNIT 2	050-261	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		94	012	00	

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

I. DESCRIPTION OF EVENT

On May 23, 1994, H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 was operating at steady-state conditions with reactor power at 100 percent. At 0907 hours, the "A" Emergency Diesel Generator (EDG) (EIIS Code: EK) was removed from service and declared inoperable to perform scheduled surveillance testing. Concurrent with this activity, periodic Maintenance Surveillance Test MST-101, "Boric Acid Heat Tracing Operability (Daily, 5 Days per Week)," was being conducted to test the operability of the boric acid heat tracing channels. At 1036 hours, Maintenance personnel notified Control Room operators that heat trace (EIIS Code: System-FE; Component-EHTR) primary circuit 25P was open and inoperable. This circuit is associated with the Chemical and Volume Control system (CVCS) (EIIS Code: CB) piping from the outlet of the boric acid filter (EIIS Code: FLT) to the suction of the charging pumps (EIIS Code: P). There is no redundant flow path around this piping to allow flow from the boric acid storage tanks (EIIS Code: TK) to the Reactor Coolant system (RCS) (EIIS Code: AB).

Technical Specifications (TS) 3.2.2.d and 3.2.2.e respectively require one flow path from the boric acid storage tanks to the RCS, and two channels of heat tracing be operable. TS 3.2.3.d only allows one channel of heat tracing to be inoperable and for an allowed outage time of twenty four (24) hours. The power supply to circuit 25P is from emergency bus E-2, powered by the "B" EDG, and the remaining (i.e., operable) secondary circuit 25S, is powered from emergency bus E-1, which is powered from the "A" EDG. In accordance with the TS 1.3 definition of "Operable," a component cannot be considered operable if its emergency power source is not operable, and its redundant component is not operable. Therefore, since the remaining operable channel of heat tracing was powered from the inoperable "A" EDG, both channels of heat tracing were declared inoperable, and an eight hour action statement to place the reactor in hot shutdown condition was entered in accordance with TS 3.0.

Efforts were immediately initiated to return the "A" EDG to service. However, due to indications of high engine cylinder exhaust temperature, the "A" EDG was shutdown and declared inoperable, and heat trace circuit 25P repairs were expedited. Heat trace circuit 25P was subsequently repaired and tested satisfactorily in accordance with procedure MST-101. Following verification that the piping temperature was above the minimum TS requirements to maintain the lower solubility limit for boric acid solution, the heat tracing circuit was declared operable at 1530 hours on May 23, 1994. The "A" EDG was tested satisfactorily and declared operable on May 24, 1994 at 0010 hours.

NRC FORM 366A
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
H. B. ROBINSON, UNIT 2	050-261	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		94	012	00	

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

II. CAUSE OF EVENT

Heat tracing Circuit 25P failed as a result of non-optimal application of the particular heat tracing. The cable insulation is designed for a maximum maintenance temperature of 250 degrees F, when special installation techniques (i.e., heat transfer cement and tracking) are utilized under optimum conditions. The normal temperature of the boric acid piping is between 150 and 210 degrees F. Because the specific piping configuration does not allow installation under optimum conditions, good heat transfer from the heat tracing cable to the piping could not occur. The lack of heat sink at this point caused the temperature rating of the cable to be exceeded, leading to insulation failure.

III. ANALYSIS OF EVENT

As described in the Updated Final Safety Analysis Report (UFSAR), section 9.3.4.2.4(mm), "Electrical Heat Tracing," boric acid heat tracing is installed under the insulation on piping, valves, line-mounted instrumentation, and components normally containing concentrated boric acid solution. The heat tracing is designed to prevent boric acid precipitation by compensating for heat loss. Duplicate channels of heat tracing on sections of boric acid piping and components provide standby capacity if the operating or primary heat tracing channel malfunctions.

The performance of daily maintenance surveillance testing identified the failed primary channel of heat tracing, while the corresponding secondary channel was verified to be operable. However, with the emergency power source (i.e., the "A" EDG) inoperable for the secondary circuit, operability of the secondary circuit could not be supported. Therefore, TS 3.0 was entered. The piping temperature was maintained by circuit 25S, and did not decrease below the solubility limit of 145 degrees F during the evolution. In addition, boric acid injection into the RCS was available via the Safety Injection system accumulators and injection could have also been accomplished via the charging pumps taking a suction from the Refueling Water Storage Tank. Because the ability to provide negative reactivity insertion by boric acid addition was not degraded during this time, the plant could have been safely shutdown had an accident occurred while operating in this condition. In addition, because offsite power was available during the time that the heat tracing was inoperable, this condition had minimal effect on plant safety.

This report is submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) as operation in a condition prohibited by TS.

NRC FORM 366A
(5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
H. B. ROBINSON, UNIT 2	050-261	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4
		94	012	00	

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

IV. CORRECTIVE ACTIONS

Heat trace circuit 25P was repaired and tested satisfactorily in accordance with Procedure MST-101.

The use of a heat tracing cable that does not require special installation techniques and that will provide a higher maintenance temperature rating, is being evaluated and will be used if found to be acceptable. Corrective steps are currently being taken to address the high EDG exhaust temperatures. A summary of these actions was discussed with representatives of the NRC during a meeting held on June 16, 1994 at the NRC One White Flint North office.

V. ADDITIONAL INFORMATION

A. Failed Component Information

This occurrence involved failure of the boric acid heat tracing (Cause Code: X, System: FE, Component ETHR, Manufacturer T185).

B. Previous Similar Events

LER 93-003 documents a TS violation for heat trace circuit 25. The corrective actions from that event focused on precautionary measures to be taken during heat trace testing relative to maintenance of the minimum temperature requirements. As a result, the corrective actions for that event would not have precluded recurrence of the event reported by this LER.