

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9110160248 DOC.DATE: 91/10/08 NOTARIZED: NO DOCKET #  
 FACIL:50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261  
 AUTH.NAME AUTHOR AFFILIATION  
 CROOK,D. Carolina Power & Light Co.  
 CHAMBERS,R.H. Carolina Power & Light Co.  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-012-00:on 910914,TS 3.0 entered due to inadequate surveillance procedure for testing of 480V Emergency Bus Undervoltage circuitry.Plant currently operating,per Amend 136 to license.W/911009 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 2  
 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 LA	1 1	PD2-1 PD	1 1
LO,R	1 1		

INTERNAL: ACNW	2 2	AEOD/DOA	1 1
AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
NRR/DET/ECMB 9H	1 1	NRR/DET/EMEB 7E	1 1
NRR/DLPQ/LHFB10	1 1	NRR/DLPQ/LPEB10	1 1
NRR/DOEA/OEAB	1 1	NRR/DREP/PRPB11	2 2
NRR/DST/SELB 8D	1 1	NRR/DST/SICB8H3	1 1
NRR/DST/SPLB8D1	1 1	NRR/DST/SRXB 8E	1 1
REG FILE 02	1 1	RES/DSIR/EIB	1 1
RGN2 FILE 01	1 1		
EXTERNAL: EG&G BRYCE,J.H	3 3	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 31 ENCL 31

A04



Carolina Power & Light Company

ROBINSON NUCLEAR PROJECT DEPARTMENT  
POST OFFICE BOX 790  
HARTSVILLE, SOUTH CAROLINA 29550

OCT 09 1991

Robinson File No: 13510C

RNPD/91-2653  
(10CFR50.73)

United States Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261  
LICENSE NO. DPR-23  
LICENSEE EVENT REPORT NO. 91-012-00

Gentlemen:

The enclosed Licensee Event Report (LER), is submitted in accordance with  
10 CFR 50.73 and NUREG 1022, Supplements No. 1 and 2.

Very truly yours,

*Ray H. Chambers*

R. H. Chambers  
General Manager  
H. B. Robinson S. E. Plant

RDC:sgk

Enclosure

cc: Mr. S. D. Ebnetter  
Mr. L. W. Garner  
INPO

9110160248 911008  
PDR ADOCK 05000241  
S PDR

*FE22 11*



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-3104

EXPIRES: 8/31/85

FACILITY NAME (1)  H. B. ROBINSON, UNIT NO. 2	DOCKET NUMBER (2)  0 5 0 0 0 2 6 1 9 1 - 0 1 2 - 0 0 0 2 OF 0 6	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

I. DESCRIPTION OF EVENT

On September 13, 1991, with H. B. Robinson Unit No. 2<sup>1</sup> operating at one hundred percent power, an engineering review conducted by CP&L questioned current surveillance procedures that address Technical Specification required testing for the 480V Emergency Bus Undervoltage (Loss of Voltage) circuitry. The requirement to perform this surveillance is contained in Technical Specification Table 4.1-1 Item 32a which requires the performance of a CHANNEL FUNCTIONAL TEST on a refueling basis. Technical Specification Table 3.5-1 Item 6a specifies that the CHANNEL ACTION of this circuit is to "Trip Normal Supply Breaker". An additional surveillance is found in Technical Specification 4.6.1.2 which requires a test on a refueling basis which verifies "Automatic start of each diesel generator, load shedding and restoration to operation of particular vital equipment..." The engineering review called into question the operability of this circuit; therefore, in accordance with plant procedures an "operability determination" process was initiated at 1130 hours on September 13, 1991.

CP&L technical support personnel reported the results of the operability determination investigation to plant management on September 14, 1991. Review of the most recent surveillance procedures and records determined that the undervoltage relays had been calibrated at the last refueling as required by Technical Specification. However, because the station blackout test was initiated by manually tripping the normal supply breaker to the emergency bus, the test did not verify the undervoltage shedding of the normal supply breaker, as would be required to meet the Technical Specification listed Channel Action of Table 3.5-1.

This circuit is also relied upon to concurrently shed specific emergency bus loads and start the emergency diesel generator (EDG) in preparation for the loading sequence. Existing surveillance procedures did not verify that the undervoltage load shedding feature for each breaker designed to load shed was operable.

The Technical Specification definition of Channel Functional Test includes "alarm and/or trip initiation action". However, the surveillance procedures did not verify from which of the two channels the load shedding initiating action occurred, and only those loads which were powered from the bus at the time of the test were actually shed.

<sup>1</sup> H. B. Robinson Steam Electric Plant, Unit No. 2, is a Westinghouse Pressurized Water Reactor in commercial operation since March, 1971.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/86

FACILITY NAME (1)  H. B. ROBINSON, UNIT NO. 2	DOCKET NUMBER (2)  0   5   0   0   0   2   6   1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9   1	—   0   1   2	—   0   0	0   3	OF	0   6

TEXT (If more space is required, use additional NRC Form 364A's) (17)

As a result of these determinations, all four channels (two per bus) of the 480V Emergency Bus Undervoltage (Loss of Voltage) circuit were declared inoperable at 1650 hours on September 14, 1991.

Technical Specification Table 3.5-3 Item 3a requires that a minimum of two channels per bus be maintained operable or the plant must maintain hot shutdown conditions. In that this requirement could not be complied with, the plant entered Technical Specification 3.0 at that time. The NRC was notified at 1750 hours of this condition via the Emergency Notification System (ENS). Specification 3.0 requires that the plant be placed in hot shutdown within 8 hours, at which time the plant is again in compliance with Technical Specification Table 3.5-3 Item 3a. In order to preclude the plant transient associated with placing the plant in hot shutdown conditions, CP&L requested a Regional Waiver of Compliance from the requirement of Technical Specification Table 3.5-3 Item 3a to allow continued plant operation with all four channels technically inoperable only on the basis of not performing the required surveillance.

The duration of the waiver would be until one of the following three actions could be completed: 1) a valid surveillance test is written and implemented with the plant at power, or 2) a decision is made that testing cannot be done at power and the plant is shut down to perform the required testing, or 3) an emergency Technical Specification change is issued which resolves this issue. This request for a waiver was discussed between CP&L, NRC-Region II and NRC-NRR personnel via conference call beginning at approximately 1800 hours on September 14, 1991. At the conclusion of that call, NRC-Region II verbally granted the requested waiver effective until 2400 hours Wednesday, September 18, 1991. The duration of the waiver was consistent with the estimate to complete one of the three actions indicated above.

During the time that the waiver was in effect, the following compensatory action were taken. A "Manager-Operations Directive" was written to shift supervisors in the control room which provided a summary of this issue and guidance for each operating crew including requiring them to review existing procedures that would be used in the event of failure of this circuitry. The Directive also identified caution tags that had been placed on the RTGB, 480V Buses E-1 and E-2 and the EDG Control Panel alerting operators to this issue.

On September 18, 1991, CP&L requested an emergency Technical Specification Amendment related to Table 3.5-3, Item 3a. This amendment was requested to add a one-time only exception for the remainder of cycle 14 that would allow power operation to continue until an outage of sufficient duration that the surveillance test of Technical Specification Table 4.1-1, Item 32a and 4.6.1.2 could be performed.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-3104

EXPIRES: 8/31/86

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
H. B. ROBINSON, UNIT NO. 2	0 5 0 0 0 2 6 1	9 1	0 1 2	0 0	0 4	OF 0 6

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

The Office of Nuclear Reactor Regulation reviewed this request, and on September 18, 1991, a Temporary Waiver of Compliance was granted. This waiver was effective immediately and was to remain in effect until the NRC staff completed processing CP&L's request for an emergency Technical Specification amendment.

On September 27, 1991, Amendment 136 to the Technical Specifications was issued that added footnote (d) to TS Table 3.5.3, Item 3a, allowing power operation to continue until an outage of sufficient duration that the surveillance test of TS Table 4.1-1, Item 32.a and TS 4.6.1.2 to verify circuit adequacy may be performed, but no later than Refueling Outage No. 14.

## II. CAUSE OF EVENT

The cause of this condition is attributed to procedural deficiencies, inadequate testing methodologies, and interpretation of Technical Specification requirements for Channel Functional Testing.

## III. ANALYSIS OF EVENT

Entry into TS 3.0 represents a "condition prohibited by the plant's Technical Specifications." Therefore, this LER is submitted pursuant to the requirements of 10 CFR 50.73 (a)(2)(i)(B).

The safety significance of this condition was considered to be minimal. The Technical Specification safety function of the loss of voltage circuits is to isolate the emergency bus from its normal (off site) power supply in the event that the supply is lost, and to shed any loads that are on the bus at that time. This is necessary so that when the Emergency Diesel Generator for the bus starts and loads onto the bus, it does so independent of potentially damaging conditions at the normal power supply and prevents an immediate overcurrent situation. This assures that required safety related equipment will be provided with a reliable power supply. The circuit is designed such that there are two redundant channels on each of the two emergency buses with each channel capable of isolating the normal supply and shedding loads on the bus. (Note that the diesel start signal is only generated by one relay per train.) In addition, only the safety related equipment from one of the two buses is required to achieve a safe plant shutdown under UFSAR Chapter 15 design basis accident conditions.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/86

FACILITY NAME (1)  H. B. ROBINSON, UNIT NO. 2	DOCKET NUMBER (2)  0 5 0 0 0 2 6 1	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 1	0 1 2	0 0	0 5	OF 0 6

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

While the circuit in question had been technically declared inoperable, there was a high degree of confidence that the four channels were in fact capable of performing their intended function based on the following:

1. During Refueling Outage No. 13, all of the station blackout test loads on the emergency buses that were connected at the time were shed, and the EDGs were started by their respective undervoltage relay.
2. During Refueling Outage 12, the incoming 4 kv line breaker was tripped which resulted in the emergency buses normal supply breakers tripping on undervoltage.
3. During the January 26, 1986, actual loss of offsite power event, the operating emergency bus did trip.
4. The trip coils of the load shed breakers were tested during normal surveillance testing and tested satisfactorily.
5. There have been no reported failures at Robinson of these type relays at the Robinson plant for the last 10 years, and only 35 reported failures in the NPRDS files.

In addition to the loss of voltage relay, the EDG is also protected by a degraded voltage relay. This relay is addressed by Technical Specification Table 3.5-3 Item 3b and was fully operable at the time. The function of this relay is to open the normal supply breaker to its associated emergency bus following a ten second time delay. In this respect, it is redundant to the loss of voltage relay, although it does not perform the load shed or diesel start functions. In the event that the diesel were to start and attempt to load without either the isolation from normal supply or load shedding functions, the diesel would still be protected by over-current devices.

#### IV. CORRECTIVE ACTIONS

The Plant is currently operating in accordance with Amendment 136 to the Facility Operating License which added footnote (d) to TS Table 3.5.3, Item 3a. This footnote allows power operation to continue until an outage of sufficient duration that the surveillance test of TS Table 4.1-1, Item 32.a and TS 4.6.1.2 to verify circuit adequacy can be performed, but no later than Refueling Outage No. 14. This surveillance test is currently under development.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-3104

EXPIRES: 8/31/86

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

YEAR SEQUENTIAL  
NUMBER REVISION  
NUMBER

H. B. ROBINSON, UNIT NO. 2

0 5 0 0 0 2 6 1 9 1 - 0 1 2 - 0 0 0 6 OF 0 6

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

The failure to properly incorporate testing of the channels into surveillance test procedures is being reviewed under the Corrective Action Program. Adverse Condition Report 91-326 has been initiated to evaluate this condition and to determine root cause. This review will help to ensure that each causal factor which contributed to this occurrence has been identified and addressed.

V. ADDITIONAL INFORMATION

A. Failed Component information.

None

B. Previous Similar Events

LER-90-005

LER-88-011