

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8808160276 DOC. DATE: 88/08/09 NOTARIZED: NO DOCKET #
 FACIL: 50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
 AUTH. NAME AUTHOR AFFILIATION
 LEGETTE, F.L. Carolina Power & Light Co.
 MORGAN, R.E. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-028-01: on 871105, diesel generator B air start failure
 while diesel generator A inoperable.

W/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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ARM/DCTS/DAB	1 1	DEDRO	1 1
NRR/DEST/ADS 7E	1 0	NRR/DEST/CEB 8H	1 1
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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	NUDOCS-ABSTRACT	1 1
<u>REG FILE</u> 02	1 1	RES TELFORD, J	1 1
RES/DSIR DEPY	1 1	RES/DSIR/EIB	1 1
RES/DSR DEPY	1 1	RGN2 FILE 01	1 1
EXTERNAL: EG&G WILLIAMS, S	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		

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2										DOCKET NUMBER (2) 0 5 0 0 0 0				PAGE (3) 1 OF 0 3								
TITLE (4) DIESEL GENERATOR "B" AIR START FAILURE WHILE DIESEL GENERATOR "A" INOPERABLE																						
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)									
1	1	0	5	8	7	8	7	0	2	8	0	1	0	8	0	9	8	8	0 5 0 0 0 0			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																				
N		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)								
POWER LEVEL (10)		1 0 0				20.405(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 366A)								
		20.405(a)(1)(iii)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(A)												
		20.405(a)(1)(iv)				50.73(a)(2)(iii)				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 Freddie L. Legette, Senior Reactor Operator										TELEPHONE NUMBER AREA CODE 8 0 3 3 8 3 - 1 2 5 3												
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																						
CAUSE	SYSTEM	COMPONENT	MANUFAC. TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC. TURER	REPORTABLE TO NPRDS												
X	L C	S O L W	1 2 0	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)

On November 5, 1987, with Unit No. 2 at 100 percent power and Diesel Generator "A" out of service for maintenance, Diesel Generator "B" failed to start at 0250 hours. Operability testing was underway and required a local start of the diesel with one of two parallel air start solenoid valves isolated. At the time, there was indication the air was venting to atmosphere, and the start sequence was stopped. A second start attempt at 0256 hours was successful as was a third soon after. The Plant Nuclear Safety Committee determined Diesel Generator "B" was inoperable for the six minutes, and the licensee notified the NRC of a four-hour non-emergency event pursuant to 10CFR50.72(b)(2)(iii) at 1847 hours. Preliminary inspection of the air start system components could not determine root cause. The failure, however, has not recurred, and the diesel has started successfully during each weekly operability test since the event. The licensee has replaced the two air start solenoid valve bodies and has installed two new check valves downstream. Inspection had found internal wear of the solenoid valve bodies, sufficient to indicate intermittent valve sticking and loss of air. This report was originally submitted pursuant to 10CFR50.73(a)(2)(v).

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PDR ADOCK 05000261
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NRC Form 366A
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
H. B. ROBINSON S. E. PLANT, UNIT #2	0 5 0 0 0	8 7	— 0 2 8	— 0 1 0	2	OF	0 3

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

I. DESCRIPTION OF EVENT

On Thursday, November 5, 1987, at 0250 hours, Operations surveillance testing of Diesel Generator "B" (DG-B) was underway.^{1,2} The testing is required by Plant Technical Specifications to ensure operability of DG-B when the other diesel, Diesel Generator "A" (DG-A), is out of service for maintenance.² The test requires starting DG-B locally. However, the diesel failed to start.³ At the time, there was indication that the starting air was venting to atmosphere. The diesel start sequence was then stopped immediately.

A second local start was attempted six minutes later after being unable to find the source of the apparent air leakage and DG-B started successfully. A third attempt soon after was also successful and DG-B was declared operable. Licensee Operations and Maintenance personnel were unable to repeat the initial local start failure.

The Unit was operating at 100 percent power throughout the event.⁴

The licensee notified the NRC at 1847 hours of a four-hour non-emergency event pursuant to 10CFR50.72(b)(2)(iii). This notification was made after the licensee Plant Nuclear Safety Committee reviewed the incident and determined that DG-B should be considered inoperable for the six minutes prior to the first successful start.

This report is submitted in accordance with 10CFR50.73(a)(2)(v).

II. CAUSE OF EVENT

The cause of the local start failure of DG-B has been determined to be the two solenoid valves. An inspection of the replaced components revealed that the solenoid valve bodies had some internal wear.⁵ This wear appeared sufficient to indicate intermittent sticking of the valves, which could have resulted in the "B" Diesel air start failure. No other anomalies were found. Maintenance was completed on April 7, 1988, and there have been no further diesel starting problems.

1/The Operations surveillance test was conducted using Plant Operating Manual Procedure OST-401, Revision 13.

2/Diesel Generator EIIS Codes: system - EK; Component - DG; Manufacturer - F018.

3/Cause Code: X.

4/H. B. Robinson Steam Electric Plant, Unit No. 2 is a Westinghouse 700 megawatt Pressurized Water Reactor power plant in commercial operation since March 1971

5/EIIS Codes: System - LC; Component - SOL; Manufacturer - W120.

NRC Form 366A
(9-83)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1) H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2	DOCKET NUMBER (2) 0 5 0 0 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 7	— 02 8	— 0 1	0 3	OF 0 3	

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

III. ANALYSIS OF EVENT

At no time was there an actual threat to the safety of the Plant or the health and safety of the public. Normal power supplies were available throughout the six minutes that both diesel generators were inoperable. Had DG-B not started successfully following the initial failure to start, the Plant would have been required by Plant Technical Specifications to proceed to Hot Shutdown within eight hours unless the condition could be corrected. With both diesel generators inoperable, the Plant is without emergency onsite power supplies for either Emergency Bus should offsite power become unavailable. This condition is prohibited by Plant Technical Specifications.

The operability of DG-B has been tested at regular intervals since the event and the diesel has started successfully each time with the air start system aligned identically.

IV. CORRECTIVE ACTION

DG-B was returned to service following the successful air starts immediately following the initial failure.

The air start system has been thoroughly examined by licensee Maintenance personnel. Two new air start valve bodies and two new check valves downstream of the solenoid valves have been installed on "B" Diesel Generator. The air start valves are included in the regularly scheduled preventative maintenance program. This program, which includes a thorough inspection, will place particular emphasis on internal wear of the valve bodies.

V. ADDITIONAL INFORMATION

A. Failed Component Identification

The failure of the DG-B air start system has been attributed to internal wear of the air start solenoid valves. Air start is an auxiliary subsystem of the diesel engine. Its major components include an air supply from a compressor, an air dryer, an air receiver, two air start solenoids in parallel with isolation valves on either side, two downstream check valves in parallel, distributors, and starting air headers. The system provides sufficient starting air for about eight cold starts of the diesel engine. Engine starting is accomplished by the action of compressed air on the pistons in their firing order.

Both diesel generator units are Fairbanks-Morse Model 38TD8 1/8, 12-cylinder, opposed piston, fuel injected, turbo charged, air start, 12442 cubic inch displacement engines rated at 3600 horsepower, with 2500 kilowatt 480 Volt AC generators.

B. Previous Similar Events

None.

ROBINSON NUCLEAR PROJECT DEPARTMENT
POST OFFICE BOX 790
HARTSVILLE, SOUTH CAROLINA 29550
AUG 09 1988

Robinson File No: 13510C

Serial: RNP/88-2876
(10 CFR 50.73)

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 87-028-01

Gentlemen:

The enclosed supplemental Licensee Event Report (LER) is submitted in accordance with 10 CFR 50.73 and NUREG-1022 including Supplements No. 1 and 2. The supplemental information is indicated by a right-hand margin bar. This submittal should replace existing copies of the original report of December 4, 1987.

Very truly yours,

R. E. Morgan

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

FLL:jch

Enclosure

cc: Dr. J. N. Grace
Mr. L. W. Garner
INPO

IE22
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