REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8806020139 DOC. DATE: 88/05/25 NOTARIZED: NO DOCKET #
FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
AUTH. NAME AUTHOR AFFILIATION
LEGETT, F. L. Carolina Power & Light Co.
MORGAN, R. E. Carolina Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-010-00: on 880502, reactor tripped from reactor/turbine trip logic resulting from turbine trip from main generator lockout. Caused by electrohydraulic (E-H) controls sys malfunction. Defects in E-H sys repaired. W/880526 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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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
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	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
	REG FILE 02	1	1	RES TELFORD, J	1	1
	RES/DE/EIB	1	1	RES/DRPS 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
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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)
H. B. Robinson Steam Electric Plant, Unit No. 2	0 5 0 0 0 2 6 1	1 OF 0 3

TITLE (4)
Automatic Reactor Trip due to Turbine Trip on Governor Valves Closure

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 2	8 8	8 8	— 0 1 0	— 0 0	0 5	2 5	8 8		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)					
POWER LEVEL (10)	0 6 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
F. L. Legett, Senior Control Operator	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	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	T A	S C O	W 1 2 0	Y							

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)

On Monday, May 2, 1988, the Plant was placed on line at 0852 hours following a forced outage for repair of a RTD bypass valve packing gland leak. At 1756 hours, with the reactor at 60% power the licensed Control Operator attempted to adjust load swings on the turbine using the Electro-Hydraulic (E-H) control panel. The E-H Controls System malfunctioned causing the four turbine governor valves to shut. At 1758 hours, the turbine tripped from a main generator lockout which resulted in a reactor trip from the reactor/turbine trip logic (i.e., turbine trip with reactor power greater than 10%). All systems responded normally and the reactor was brought to hot shutdown. The E-H malfunction was caused by an intermittent failure of a clock circuit and a loose connection in the governor valve position limiter circuitry. The defects in the E-H system have been repaired and the system has been fully tested by the manufacturer's technical representative using a simulator to ensure the repairs were effective. The licensee notified the NRC Emergency Operations Center via the Emergency Notification System pursuant to 10CFR50.72(b)(2)(ii) for a four-hour non-emergency event. This report is submitted pursuant to 10CFR50.73 (a)(2)(iv).

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NRC Form 366 (9-83)

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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
H. B. Robinson Steam Electric Plant, Unit No. 2	0 5 0 0 0 2 6 1	8 8	— 0 1 0	— 0 0	0 2 OF 0 3

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

I. Description of Event

On Monday, May 2, 1988, the Plant was placed on line at 0852 hours following a forced outage for repair of a RTD bypass valve packing gland leak.[1] At 1756 hours, with the reactor at 60% power, the licensed Control Operator attempted to adjust load swings on the turbine using the Governor Valve Position Limiter (VPL) which is located on the Electro-Hydraulic (E-H) control panel. The VPL failed to the zero position which signals the four governor valves to shut. At 1758 hours, the turbine tripped from a main generator lockout which resulted in a reactor trip from the turbine trip/reactor trip logic (i,e., turbine trip with reactor power greater than 10%).[2,3]

II. Cause of the Event

The closure of the four governor valves was attributed to two defects 1) A clock circuit in the Governor Valve position limiter circuitry had failed such that the governor valve position limiter performed all control changes at the maximum rate.[4] 2) A loose connection which intermittently interrupted all control signals to the governor valve position limiter; in effect setting the limiter to zero which is the closed position for the governor valves.[5] The governor valves being in the closed position resulted in a main generator lockout, resulting in a turbine trip and subsequent reactor trip.

III. Analysis of Event

The engineered safety features and reactor protection system performed as designed, and at no time did the plant operate in an unsafe condition. This event is being reported as a condition that resulted in an automatic actuation of an engineered safety feature.

The governor valve position limiter (VPL) provides an electronic stop on the governor valves (GV) upward movement. When the VPL failed to zero the GVs closed which generated a motoring trip after one minute. This caused a main generator lockout which actuated a turbine trip/reactor trip.

[1]H. B. Robinson Steam Electric Plant, Unit No. 2 is a Westinghouse 700 MW Pressurized Water Reactor Plant, in commercial operation since March 1971.
[2]Reactor Trip EIIS Codes: System - JC; Component - Not available Manufacturer - W120
[3]Turbine Trip EIIS Codes: System - JJ; Component - Not available Manufacturer - W120
[4]Clock Circuit EIIS Codes: System - TG; Component - TMR Manufacturer - W120
[5]Governor Valve Position Limiter EIIS Codes: System - TG; Component - FCV Manufacturer - W120

★U.S.GPO:1986-0-624-538/455

NRC Form 366A
(9-83)

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

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
H. B. Robinson Steam Electric Plant, Unit No. 2	0 5 0 0 0 2 6 1	8 8	— 0 1 0	— 0 0	0 3 OF 0 3

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

IV. Corrective Actions

The defective Governor Valve position clock circuit and the loose connection in the E-H System circuitry have been repaired and the system has been fully tested by the manufacturer's technical representative using a simulator to ensure the repairs were effective.

V. Additional Information

A. Failed Components

1. Type PCB, D/A Converter - Westinghouse No. 398409
2. Type PCB, Clock #4 - Westinghouse No. 398972

B. Previous Similar Events

On April 22, 1988, Unit 2 was operating at 60% reactor power when the governor valve position limiter malfunctioned causing reactor power to exceed 60% power (Technical Specification limit, LER-88-009-00). The cause was attributed to a faulted E-H relay card in the VPL circuitry. No other problems were noted during retesting of the system at that time. The E-H circuit problems which caused the May 2, 1988 event were intermittent and although separate from the E-H relay card, may have been a factor in the April 22 transient.

★U.S.GPO:1986-0-624-538/455

ROBINSON NUCLEAR PROJECT DEPARTMENT
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MAY 26 1988

Robinson File No: 13510C

Serial: RNPD/88-2482
(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 88-010-00

Gentlemen:

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

Very truly yours,

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

Enclosure

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

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