

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8708110309 DOC. DATE: 87/08/07 NOTARIZED: NO DOCKET #
 FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
 AUTH. NAME AUTHOR AFFILIATION
 SAYRE, D. Carolina Power & Light Co.
 MORGAN, R. E. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-020-00: on 870710, reactor trip occurred from 100% power & on 8770716 reactor trip occurred from 72% power. Trips caused by same valve & unrelated reasons. Discrepant conditions corrected. W/870807 ltr.

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

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

H. B. Robinson Steam Electric Plant, Unit No. 2

DOCKET NUMBER (2)

0 5 0 0 0 2 6 1 1 OF 0 3

TITLE (4)

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	7	1	5	8	7	8	7	0	2	0	0
											0 5 0 0 0
											0 5 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											
POWER LEVEL (10)			20.402(b)								
1			20.406(a)(1)(i)								
0			20.406(a)(1)(ii)								
0			20.406(a)(1)(iii)								
			20.406(a)(1)(iv)								
			20.406(a)(1)(v)								
			20.406(c)								
			50.38(a)(1)								
			50.38(a)(2)								
			50.73(a)(2)(i)								
			50.73(a)(2)(ii)								
			50.73(a)(2)(iii)								
			50.73(a)(2)(iv)								
			50.73(a)(2)(v)								
			50.73(a)(2)(vi)								
			50.73(a)(2)(vii)(A)								
			50.73(a)(2)(viii)(B)								
			50.73(a)(2)(ix)								
			73.71(b)								
			73.71(c)								
			OTHER (Specify in Abstract below and in Text, NRC Form 366A)								

LICENSEE CONTACT FOR THIS LER (12)

NAME

Don Sayre, Senior Specialist - Regulatory Compliance

TELEPHONE NUMBER

AREA CODE

8 1 0 3 3 8 3 1 1 2 4 2

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X	S	I	J	F	I	C	V	C	16/3/5
				Y					

SUPPLEMENTAL REPORT EXPECTED (14)

☐ YES (If yes, complete EXPECTED SUBMISSION DATE)☒ NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On July 10, 1987, Unit 2 experienced a reactor trip from 100% power on Steam Generator "A" low level coincident with steam/feed flow mismatch due to Main Feedwater Regulating Valve "A" failing closed. On July 16, 1987, Unit 2 experienced a reactor trip from 72% power on Steam Generator "A" low level coincident with steam/feed flow mismatch due to Main Feedwater Regulating Valve "A" not controlling properly. Each trip was caused by the same valve but for two separate and apparently unrelated reasons. The July 10 valve failure was due to an electrical short in a 125 volt DC wire to one of two safeguards solenoids for the valve operator caused by water of undetermined origin entrapped in the solenoid's conduit since some prior time. The July 16 valve problem was caused by impaired operation of the valve positioner.

The discrepant conditions were corrected and the other two Main Feedwater Regulating Valves were also examined, with no discrepant conditions noted. In addition, the I/P converter and the positioner for the "A" Main Feedwater Regulating Valve were replaced.

Following each event, the reactor was returned to critical and the Unit returned to power operation. Since the last event, the valve has been closely observed and has performed satisfactorily. Maintenance engineering has initiated a review to determine whether additional preventive measures should be established.

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NRC Form 366A
(9-83)

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 S. E. Plant, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 1 8 7 - 0 2 0 - 0 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
					0 2	OF	0 3

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

EVENT DESCRIPTION

On July 10, 1987, at 0723 hours, Unit 2 experienced a reactor trip from 100% power. The trip was initiated by Steam Generator "A" low level coincident with steam/feed flow mismatch created by Main Feedwater Regulating Valve "A", FCV-478, failing closed. The Unit was placed in a stable hot shutdown condition.

The NRC was notified of the reactor trip in accordance with 10 CFR 50.72.

Prior to the trip, at 0053 hours that day, FCV-478 had closed and then re-opened. The valve was immediately placed in manual control to stabilize steam generator level. The valve was inspected and appeared normal. A Work Request was initiated to investigate the cause.

The investigation discovered the two-conductor 125 volt DC wire to one of the two safeguards solenoids for the valve operator to be wet and the conductors shorted together. Apparently, water of an undetermined origin entrapped in the solenoid's conduit from some time prior had caused the electrical short. The short resulted in the solenoid failing to the vent position (fail safe) and in turn, caused the valve to fail closed.

The 125 volt DC solenoid wire was repaired and the water removed from the conduit. Similar conduits and wires for the other two Main Feedwater Regulating Valve safeguards solenoids were also examined, with no discrepant conditions noted. At 1355 hours, the reactor was taken critical and the Unit was returned to power operation.

On July 16, 1987, at 0437 hours, Unit 2 experienced a reactor trip from 72% power. This trip was initiated by Steam Generator "A" low level coincident with steam/feed flow mismatch created by FCV-478 not controlling properly.

The NRC was notified of the reactor trip in accordance with 10 CFR 50.72.

FCV-478 was under manual control at the time of the event. Since the July 10 trip the valve had been exhibiting minor oscillation and had been placed in manual control to allow for troubleshooting of the positioner and replacement of the I/P converter providing signals to the positioner. When the troubleshooting was complete and the I/P converter replaced, the valve still appeared to be functioning improperly and the valve was returned to automatic control to increase flow and test valve response. The response was unsatisfactory and the valve was returned to manual control to decrease flow. When the Operator attempted to open the valve there was no response and the reactor trip occurred.

Further investigation revealed foreign material in the discharge line from the valve positioner to the valve operator. This material may have clogged a bleed orifice or otherwise impacted operation of the positioner such that the air signal to the valve operator may have been affected.

NRC Form 365A
(9-83)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES 8/31 85

FACILITY NAME (1) H. B. Robinson S. E. Plant, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 1 8 7 - 0 2 0 - 0 0 0 3 OF 0 3	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 365A's) (17)

The foreign material was removed from the air line with a sample to be sent to the Harris Energy and Environmental Center for analysis in an attempt to determine its origin. The air line was cleaned, the in-line filters replaced, and the positioner replaced. In addition, the air lines for the other two Main Feedwater Regulating Valve positioners were inspected for similar discrepant conditions, with none found.

The reactor was taken to critical at 1630 hours and the unit returned to power operation while observing operation of FCV-478. In spite of the work performed, flow oscillations continued and the Unit was returned to a hot shutdown condition for a thorough mechanical examination of the valve and its position control system. This examination revealed a loose clamp on the valve stem which was allowing the stem to become mispositioned, directly affecting the flow characteristics of the valve and also the feedback linkage from the valve to the positioner, resulting in flow oscillations.

After correcting the loose clamp and recalibrating the valve position system, the reactor was taken critical at 1814 hours on July 17, and the Unit placed on-line at 2148 hours. FCV-478 operation continued to be watched to assure it was functioning properly. The Unit reached 100% power at 0844 hours, July 18.

CAUSE

The reactor trip of July 10 and the trip of July 16 were due to apparently unrelated causes, both involving FCV-478. The July 10 trip was due to an electrical short in the control wiring to one of the valve's two safeguards solenoids because of water in the conduit. The July 16 trip was due to improper operation of the positioner for FCV-478.

CORRECTIVE ACTION

The solenoid wire was repaired after removing the water from the conduit, with the solenoid wires and conduits for the other two Main Feedwater Regulating Valves also examined for similar discrepant conditions and none found. The loose clamp on the valve stem was tightened and the position control system recalibrated. Other corrective action included replacement of the I/P converter and positioner for FCV-478, cleaning of the air lines from the converter to the positioner to the valve's operator, and replacement of the in-line air filters. The position control systems for the other two Main Feedwater Regulating Valves were examined for similar discrepant conditions, with none found.

Review of the valve failures by Maintenance engineering is continuing, to determine whether additional preventive measures should be developed.



Carolina Power & Light Company

Company Correspondence

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

AUG 7 1987

Robinson File No: 13510C

Serial: RNP/87-3382
(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 87-020

Dear Sir:

The enclosed Licensee Event Report (LER) is submitted in accordance with the Licensee Event Report System of 10 CFR 50.73. The format of the LER follows the recommendations of NUREG-1022, September 1983.

Very truly yours,

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

DAS:lko

Enclosure

cc: J. N. Grace
H. E. P. Krug
INPO

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