REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8707080074 DOC. DATE: 87/06/30 NOTARIZED: NO DOCKET #
FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
AUTH. NAME AUTHOR AFFILIATION
ARBUCKLE, J. D. Washington Public Power Supply System
POWERS, C. M. Washington Public Power Supply System
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-013-00: on 870531, inoperable RHR sys min flow valve due to mislocated wire on relay. Caused by personnel error & procedural inadequacy. RHR secured & wire moved to correct location. W/870630 ltr.

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

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD5 LA	1	1	PD5 PD	1	1
	SAMWORTH, R	1	1			
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	AEOD/DOA	1	1	AEOD/DSP/ROAB	2	2
	AEOD/DSP/TPAB	1	1	DEDRO	1	1
	NRR/DEST/ADE	1	0	NRR/DEST/ADS	1	0
	NRR/DEST/CEB	1	1	NRR/DEST/ELB	1	1
	NRR/DEST/ICSB	1	1	NRR/DEST/MEB	1	1
	NRR/DEST/MTB	1	1	NRR/DEST/PSB	1	1
	NRR/DEST/RSB	1	1	NRR/DEST/SGB	1	1
	NRR/DLPQ/HFB	1	1	NRR/DLPQ/QAB	1	1
	NRR/DOEA/EAB	1	1	NRR/DREP/RAB	1	1
	NRR/DREP/RPB	2	2	NRR/PMAS/ILRB	1	1
	NRR/PMAS/PTSB	1	1	REG FILE 02	1	1
	RES DEPY GI	1	1	RES TELFORD, J	1	1
	RES/DE/EIB	1	1	RGN5 FILE 01	1	1
EXTERNAL:	EG&G GROH, M	5	5	H ST LOBBY WARD	1	1
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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	1 OF 0 3

TITLE (4) Inoperable Residual Heat Removal System Minimum Flow Valve due to Mislocated Wire in the Valve Control Logic

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 0 0
0 5	3 1	8 7	8 7	0 1 3	0 0	0 6	3 0	8 7		0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 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
J.D. Arbuckle, Compliance Engineer	AREA CODE 5 0 9 3 7 7 - 2 1 1 5

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	

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 May 31, 1987 at 1145 hours, during the performance of Plant Procedure (PPM) 7.4.5.1.9, "Residual Heat Removal (RHR) System, Loop B, Operability Test," it was discovered that Minimum Flow Valve RHR-FCV-64B did not operate properly. Given an open signal, the valve would repeatedly cycle open and closed, providing limited minimum flow protection for the "B" RHR pump.

The problem was traced to a mislocated wire on a relay (RHR-RLY-K123B) in the Minimum Flow Valve Control Logic. The wire for the Relay Coil Terminal (T-5) was located on the Normally Open Terminal (T-1). As a result, this arrangement provided a permanent auto-close signal to RHR-FCV-64B, which could only be bypassed by using a keylock switch.

The cause of the event has been determined to be both personnel error and procedural inadequacy in that 1) the wire to the Relay Coil Terminal was mislocated (presumably since May, 1986) and 2) the post-modification test procedure used to test RHR System, Loop B, operability failed to effectively test Minimum Flow Valve Control Logic.

There is no safety significance associated with this event in that it has been determined by analysis that the pump was adequately protected and would have performed as designed if needed.

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1/1

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	8 7	— 0 1 3	— 0 0	0 2 OF 0 3

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

Plant Conditions

a) Power Level - 0%
b) Plant Mode - 4 (Cold Shutdown)

Event Description

On May 31, 1987 at 1145 hours, during the performance of Plant Procedure (PPM) 7.4.5.1.9, "Residual Heat Removal (RHR) System, Loop B, Operability Test," it was discovered that Minimum Flow Valve RHR-FCV-64B did not operate properly. Given an open signal, the valve would repeatedly cycle open and closed, providing limited minimum flow protection for the "B" RHR pump. The purpose of the valve is to protect the pump against damage from a closed discharge valve by opening when the main line flow is low, and closing when the main line flow is greater than or equal to 800 gpm.

The problem was traced to a mislocated wire on a relay (RHR-RLY-K123B) in the Minimum Flow Valve Control Logic. The relay is designed to deenergize upon the opening of the RHR pump breaker to provide a close signal to RHR-FCV-64B. However, it was discovered that the wire for the Relay Coil Terminal (T-5) was located on the Normally Open Terminal (T-1). As a result, this arrangement provided a permanent auto-close signal to RHR-FCV-64B, which could only be bypassed by using Keylock Test Switch RHR-RMS-S103B, causing the valve to be technically inoperable (an "open" signal would cause the valve to open, but it would close immediately upon reaching its open limit).

The mislocated wire was moved to the correct location and, at 1402 hours, the retest of RHR-FCV-64B was successfully completed. At 1422 hours, PPM 7.4.5.1.9 was completed and RHR, Loop B, Shutdown Cooling was placed into service.

The cause of the event has been determined to be both personnel error and procedural inadequacy in that 1) the wire to the Relay Coil Terminal was mislocated (presumably since May, 1986), and 2) the post-modification test procedure used to test RHR System, Loop B, operability failed to effectively test Minimum Flow Valve Control Logic.

Immediate Corrective Action

As required by the Plant Technical Specifications, Plant Operators acted to secure RHR, Loop B, and the mislocated wire was moved to the correct location.

Further Evaluation and Corrective Action

A. Further Evaluation

- An investigation was performed to determine why the wire for the Relay Coil Terminal was mislocated. Although the results are inconclusive, it is presumed that the mislocation occurred during a Plant Modification (PMR 02-84-0589-0) which was implemented during May, 1986. The modification provided auto-close signals to all three RHR Minimum Flow Valves upon the stopping of their respective pumps.

- A review of PPM 7.4.5.1.9 results, since the modification was made, has concluded that they were satisfactory and consistent with procedural requirements. However, at the time of the event, Plant Operators were performing the procedure with the "two-year valve position verification" requirements in effect. During this two-year test, Plant Operators are required to record valve position from two separate places, which means the process is slower. As a result, the Operators noted that RHR-FCV-64B would open upon pump start, then close when full open was reached. Plant Operators recognized there was a problem and disconnected the Auto-Close Relay (RHR-RLY-K123B) from the circuit with Keylock Test Switch RHR-RMS-S103B. It has been concluded that, as the procedure is currently written, the sequence of steps that checks the operation of RHR-FCV-64B was being performed too quickly to adequately test the valve control logic. The valve would open on starting the pump, Plant Operators would open Test Return Valve RHR-V-24B to establish flow, and RHR-FCV-64B would close. (It should be noted that this process was performed in accordance with the procedure.) It has also been concluded that the procedure is adequate for its intended purpose and, accordingly, the Logic System Functional Test procedures need to be revised to effectively test the logic.

B. Further Corrective Action

- The control logic wiring for the other two RHR Minimum Flow Control Valves was verified to be correct.

- The Logic System Functional Test procedures will be modified to ensure that RHR Minimum Flow Valve controls are properly verified.

Safety Significance

There is no safety significance associated with this event in that it has been determined by analysis that the pump was adequately protected and would have performed as designed if needed.

Similar Events

None

EIIS Information

Text Reference	EIIS Reference	
	System	Component
RHR-FCV-64B	BO	Control Valve
RHR-RLY-K123B	BO	Relay
RHR-RMS-S103B	BO	Switch
RHR-V-24B	BO	Valve
Residual Heat Removal System	BO	---

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

Docket No. 50-397

June 30, 1987

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 87-013

Dear Sir:

Transmitted herewith is Licensee Event Report No. 87-013 for WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the item of reportability, corrective action taken, and action taken to preclude recurrence.

Very truly yours,

J W Baker

C.M. Powers (M/D 927M)
WNP-2 Plant Manager

CMP:lc

Enclosure:
Licensee Event Report No. 87-013

cc: Mr. John B. Martin, NRC - Region V
Mr. R. T. Dodds, NRC Site (M/D 901A)
INPO Records Center - Atlanta, GA
Ms. Dottie Sherman, ANI
Mr. D. L. Williams, BPA (M/D 399)

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