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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-026-00:on 910918,main control room received alarms, indicating RWCU HX room high temp & RWCU outboard isolation valve automatically closed.Caused by failed electric component.Circuit input card replaced.W/911016 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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Docket No. 50-397

October 16, 1991
GO2-91-189

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 91-026

Dear Sir:

Transmitted herewith is Licensee Event Report No. 91-026 for the WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Very truly yours,

J. W. Baker
WNP-2 Plant Manager

Enclosure:
Licensee Event Report No. 91-026

cc: Mr. John B. Martin, NRC - Region V
Mr. C. Sorensen, NRC Resident Inspector (M/D 901A)
INPO Records Center - Atlanta, GA
Ms. Dottie Sherman, ANI
Mr. D. L. Williams, BPA (M/D 399)
NRC Resident Inspector - walk over copy

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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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 4

TITLE (4) Reactor Water Cleanup System Isolation Due To Failed Component In The Leak Detection System

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 9	1 8	9 1	9 1	- 0 2 6	- 0 0	1 0	1 6	9 1		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
	AREA CODE
J. D. Arbuckle, Compliance Engineer	5 0 9 3 7 7 - 4 1 4 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
X	I J	M O N	G 0 8 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 September 18, 1991 at 2351 hours, with the Plant shutdown for an outage, the Main Control Room received alarms indicating Reactor Water Cleanup (RWCU) System heat exchanger room high temperature, Leak Detection (LD) System high differential flow rate and LD System Division I trouble. At the same time, RWCU Outboard Isolation Valve RWCU-V-4 automatically closed, an Engineered Safety Feature (ESF) actuation, and pump RWCU-P-1B tripped. The reason for RWCU-V-4 closure was due to a failed electronic component in a Leak Detection (LD) System monitor, which provides input into the RWCU isolation logic.

Following the RWCU System isolation, Plant personnel performed a system walkdown and an investigation. After verifying that no actual leakage existed, Plant Control Room Operators bypassed the high temperature trip for RWCU-V-4 and restored the RWCU System to service.

Further corrective actions consisted of replacing a printed circuit input card in Leak Detection Monitor LD-MON-1A and sending the defective input card to the manufacturer (General Electric) for further analysis.

This event posed no threat to the health and safety of either the public or Plant personnel.

Plant Conditions

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

Event Description

On September 18, 1991 at 2351 hours, with the Plant shut down for an outage, alarms were received in the Main Control Room indicating Reactor Water Cleanup (RWCU) System heat exchanger room high temperature, Leak Detection (LD) System high differential flow rate and LD System Division I trouble. The room high temperature and system high flow alarms cleared after annunciation, and the LD trouble alarm remained sealed-in. Immediately following the alarms, RWCU Outboard Isolation Valve RWCU-V-4 automatically closed and pump RWCU-P-1B tripped. The closure of RWCU-V-4 is an Engineered Safety Feature (ESF) actuation.

Following the isolation, a walkdown and investigation were performed to verify system integrity. No leakage was observed during the system walkdown. However, upon further investigation, Plant Instrument and Control (I&C) Technicians discovered that Leak Detection Temperature Element LD-TE-3E display was reading upscale. Temperature Element LD-TE-3E is the RWCU Heat Exchanger Room sensor and that is designed to isolate RWCU-V-4 on a room high ambient temperature signal. During troubleshooting efforts, Plant I&C Technicians determined that the reason for the upscale reading of LD-TE-3E was due to a failed thermocouple input module (one of six identical printed circuit cards) in Leak Detection Monitor LD-MON-1A. The failure of the card caused LD-MON-1A to incorrectly detect a high temperature condition in the RWCU Heat Exchanger Room and, by design, RWCU-V-4 automatically closed.

Following the system walkdown and subsequent investigation, Plant Control Room Operators bypassed the high temperature trip for RWCU-V-4, issued a Maintenance Work Request (MWR) to repair LD-MON-1A, and returned the RWCU System to service.

Immediate Corrective Action

After a thorough investigation, Plant Control Room Operators restored the RWCU System to service at 0105 hours on September 19, 1991.

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is reportable under 10CFR50.73(a)(2)(iv) as an event that resulted in the automatic actuation of an Engineered Safety Feature.

2. There were no structures, systems or components that were inoperable prior to the event that contributed to the event.

3. The cause of this event is equipment failure pertaining to thermocouple input module "A3" in LD-MON-1A. The function of this module (a printed circuit card) is to receive signals from thermocouple output, and provide input to the alarm and isolation logic within the monitor panel. There are six identical thermocouple input modules within LD-MON-1A ("A1" through"A6"). The manufacturer of LD-MON-1A (Model No. 304A3714) is General Electric. The purchase part drawing for the input card is GE 213A9364G001. Due to a previous event, it is suspected that the input module failure is due to the failure of an electronic component (isolation amplifier) on the printed circuit board. However, the specific cause of the failure is unknown at this time and the failed input module has been sent to General Electric for further analysis.

   This is the second failure of this nature at WNP-2. Licensee Event Report 91-001 described an event where Reactor Core Isolation Cooling Valve RCIC-V-8 isolated due to a failed electronic component on thermocouple input card "A1" in LD-MON-1A. As a further corrective action for that LER, the failed card was sent to General Electric for further analysis. The General Electric failure report noted that the reason for the isolation was a failure of an electronic component (isolation amplifier "AR-3") on the input card. However, the reason for the specific failure mode of the isolation amplifier (e.g., defective chip, high temperature, etc.) was indeterminate.

4. Both this event and the situation described in LER 91-001 were reviewed against the requirements of 10CFR, Part 21, and were determined to be not reportable under that regulation because neither event represented a substantial safety hazard. In both cases, the failure of the input cards resulted in the actuation of Engineered Safety Features, which conservatively isolated the components/systems involved. In addition, the actuations were in accordance with Plant design.

B. Further Corrective Action

1. On September 19, 1991 Plant I&C Technicians replaced the defective input card in LD-MON-1A.

2. As with LER 91-001, discussions with General Electric are ongoing and the vendor's analysis of this new failure will be evaluated for any necessary additional actions. If any significant changes to the root cause are made, or additional corrective actions are warranted, a supplemental LER will be submitted.

Safety Significance

There is no safety significance with this event in that there was no actual RWCU System leak and the event was limited to the failure of a temperature monitoring component within the Leak Detection System. Furthermore, the RWCU System isolated as designed on the instrument-sensed high ambient temperature in the heat exchanger room area. Accordingly, this event posed no threat to the health and safety of either the Public or Plant personnel.

Similar Events

LER 91-001, "RCIC-V-8 Automatic Closure ESF Actuation Due To Failed Electronic Component In Leak Detection System."

EIIS Information

Text Reference	EIIS Reference System	EIIS Reference Component
Reactor Water Cleanup (RWCU) System	CE	---
Leak Detection (LD) System	IJ	---
RWCU-V-4	CE	ISV
RWCU-P-1B	CE	P
LD-TE-3E	IJ	TE
LD-MON-1A	IJ	MON
RCIC-V-8	BN	ISV