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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-007-00:on 910415,reactor scram & shutdown cooling insulation occurred causing automatic actuation.Caused by inadequate work instruments.Plant control room operators reset scram signal.W/910515 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

May 15, 1991

G02-91-0100

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 91-007

Dear Sir:

Transmitted herewith is Licensee Event Report No. 91-007 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,

LT Harold for
J. W. Baker (M/D 927M)
WNP-2 Plant Manager

JWB:ac

Enclosure:
Licensee Event Report No. 91-007

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 WTH 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 SCRAM AND SHUTDOWN COOLING INSULATION DUE TO INADEQUATE WORK INSTRUMENTS

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 4	1 5	9 1	9 1	— 0 0 7	— 0 0	0 5	1 5	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
R. Latorre, Manager, Corporate Licensing	5 0 1 9 3 7 2 - 5 1 4 2

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 April 15, 1991 at 2347 hours while the Plant was in Operational Mode 4 (Cold Shutdown) with Shutdown Cooling in operation, Control Room Operators received a full reactor scram signal and inboard Residual Heat Removal (RHR) Shutdown Cooling Valve isolation. These events occurred when a low reactor water level signal was generated during an instrument recalibration process. The actual reactor water level was at a normal +37 inches. The full reactor scram signal and the Shutdown Cooling Isolation were both automatic actuations of the Engineered Safety Feature (ESF) system.

As immediate corrective actions, Plant Control Room Operators reset the scram signal by 2352 hours and reestablished shutdown cooling by 2356 hours. The root cause of this event was inadequate work instructions. Further action will be to proceduralize this instrument recalibration process under the Plant Procedures (PPMs).

There was no safety significance associated with the event. At the time of the event the reactor water level was sufficient to provide core cooling. RHR Shutdown Cooling was fully restored in less than 9 minutes.

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 April 15, 1991 at 2347 hours, Control Room Operators received a full reactor scram signal and inboard Residual Heat Removal (RHR) Shutdown Cooling Supply Valve (RHR-V-9) isolation. These events occurred when a low reactor water level signal was generated during an instrument recalibration process. The full reactor scram signal and the Shutdown Cooling Isolation were both automatic actuations of the Engineered Safety Feature (ESF) system.

Plant configuration at the time of the event was such that RHR Shutdown Cooling was in operation with RHR-P-2B pump in service and RHR-V-8 and RHR-V-9 valves open, a normal Loop B system lineup. Transmitter RFW-DPT-17 was being worked on by Plant I&C technicians in accordance with Maintenance Work Request instructions in preparation for reactor cavity flood-up indication recalibration. When one of the RFW-DPT-17 test isolation valves was opened, the variable leg of RFW-DPT-17, which shares a common variable leg with the reactor water level indicating switches, was depressurized. The low level signals occurred because the reactor water level indicating switches MS-LIS-24C and MS-LIS-24D actuated at setpoints representative of a low reactor water level designated as Level 3 (+13 inches). The actual reactor water level was at a normal +37 inches. The reactor was already in a cold shutdown condition with control rods fully inserted, and therefore no control rod movement occurred. Closing valve RHR-V-9 removes the suction path to the RHR Shutdown Cooling Loops. Valve RHR-V-9 is also interlocked to the Shutdown Cooling RHR pumps to trip the pumps when the valve closes. This event caused RHR Shutdown Cooling to be interrupted for less than 9 minutes.

Although the scram signal and the shutdown cooling isolation were unexpected, the scram signal and closure of valve RHR-V-9 due to a water Level 3 signal was by Plant design. The Nuclear Steam Supply System Shutoff logic is designed such that the Inboard (not outboard) Residual Heat Removal Shutdown Cooling Supply Valve (RHR-V-9) closes on a Level 3 signal when initiated by switches MS-LIS-24C and MS-LIS-24D (C and D Logic).

Immediate Corrective Action

Plant Control Room Operators responded in an appropriate and timely manner by taking action to reset the scram signal by 2352 hours, and by re-establishing shutdown cooling by reopening valve RHR-V-9, restarting pump RHR-P-2B and restoring RHR Shutdown Cooling Loop B to its normal operating mode by 2356 hours, 9 minutes after the event.

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is reportable under 10CFR50.72(b)(2)(ii) and 10CFR50.73(a)(2)(iv) as an event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature. Reportability of the event within four hours is required under Part 50.72, and this was met by telephone notification to the NRC at 0116 hours on April 16, 1991 (NRC Event No. 20830).

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

3. The Reactor Protection System correctly initiated a scram signal to prevent power operation when vessel level indication is below the predetermined setpoint of +13 inches.

4. The Nuclear Boiler Instrumentation correctly isolated RHR Shutdown Cooling to prevent a loss of reactor coolant from an assumed leakage path in the RHR system.

5. The root cause of the event was inadequate work instructions for performing the recalibration on RFW-DPT-17 to provide reactor vessel water level indication during flood-up conditions. The work instructions were contained in a Maintenance Work Request and incorrectly directed the technician to open the variable (low) leg isolation valve on RFW-DPT-17. Subsequently, when the technician opened the associated test valve, the common variable (low) leg for several level instruments was depressurized. This depressurization activated the reactor low level signal. Plant procedures were not the cause of this event.

B. Further Corrective Action

1. Specific instructions for respanning this instrument to provide flood-up level indication are being developed and will be proceduralized. This will eliminate the need for repeated preparation and issuance of work instructions to accomplish this sensitive recalibration process.

2. This LER will be included in the Supply System's Industry Event Training program.

Safety Significance

There is no safety significance associated with this event. At the time of the event the reactor water level was +37 inches with one reactor recirculation pump in operation. These conditions provided sufficient core cooling with adequate time to restore RHR shutdown cooling or initiate an alternate method for decay heat removal. With one reactor recirculation pump in operation, Technical Specifications allow the removal from operation a shutdown cooling pump for up to 2 hours per 8 hour period. Plant Control Room Operators responded by resetting the scram at 2352 hours and by re-establishing RHR Shutdown Cooling at 2356 hours. RHR Shutdown cooling was restored in less than 10 minutes, well within the 2 hour time limit, and an alternate decay heat removal system was available if needed. All systems operated as designed. Reactor water temperature increased from 112 to 114 degrees Fahrenheit. This event posed no threat to the health and safety of either the public or Plant personnel.

Similar Events

There have been several events associated with the loss of Shutdown Cooling, one related to work instructions. LER 87-008, "Residual Heat Removal System Shutdown Cooling Containment Isolation Valve Closure Due to Personnel Error", described an event involving incomplete guidance in the work instructions that led to the misalignment of an instrument equalizing valve and subsequent System isolation. The error was associated with a corrective maintenance task. Work instruction preparers reviewed the event and were given general instructions to provide necessary precautions in work instructions. The current respan task is expected to be repeated annually. Hence a specific procedure for the task is appropriate.

EIIS Information

Text Reference	EIIS Reference System	EIIS Reference Component
MS-LIS-24C	SB	LIS
MS-LIS-24D	SB	LIS
Nuclear Steam Supply Shutoff System	BD	---
Pump RHR-P-2B	BO	P
Reactor Protection System (RPS)	JC	---
Residual Heat Removal Shutdown Cooling Supply Valve (RHR-V-8,RHR-V-9)	BO	ISV
Residual Heat Removal (RHR) System	BO	---
RFW-DPT-17	JB	PDT