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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-023-00:on 910906,HPCS sys pump suction switchover from condensate storage tanks to suppression pool occurred during maint testing.Caused by incomplete planning & scheduling.Operators realigned HPCS suction.W/911007 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

October 7, 1991

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 91-023

Dear Sir:

Transmitted herewith is Licensee Event Report No. 91-023 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. 91-023

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 5

TITLE (4): High Pressure Core Spray (HPCS) System Pump Suction Valve Switchover Actuation During Maintenance Testing Due to Less Than Adequate Planning and Scheduling

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	0 6	9 1	9 1	— 0 2 3	— 0 0	1 0	0 7	9 1		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)			
4	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 0 0	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 1 — 4 1 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	

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)

Abstract

On September 6, 1991 at 1218 hours while the Plant was shutdown for an outage, a High Pressure Core Spray (HPCS) System pump suction switchover from the Condensate Storage Tanks to the Suppression Pool occurred during maintenance testing.

Plant configuration at the time was such that HPCS suction was lined up to the Condensate Storage Tanks (CSTs) with CST Suction Valve HPCS-V-1 open and Suppression Pool Suction Valve HPCS-V-15 closed, the normal system lineup. The switchover, an Engineered Safety Feature (ESF) actuation, involved the automatic closure of HPCS-V-1 and the opening of HPCS-V-15.

At the time of the event Plant Instrument and Control (I&C) Technicians were in the process of obtaining reference voltage readings on Condensate Storage Tank Level Switches HPCS-LS-3A and HPCS-LS-3B. However, when the Plant I&C Technician connected the first lead of a voltmeter to HPCS-LS-3A the HPCS suction valves

transferred, apparently due to the shorting of adjacent pins on a 14-pin DIP Test Socket that was used to take the voltage readings. The cause of this event was incomplete planning and scheduling in that the job scoping did not identify special circumstances and conditions unique to the situation. As an immediate corrective action Plant Control Room Operators realigned the HPCS suction from the Suppression Pool to the Condensate Storage Tanks (HPCS-V-15 was closed and HPCS-V-1 was re-opened).

Further corrective action consists of 1) revising the calibration procedure for HPCS-LS-3A and HPCS-LS-3B to require the use of scaffolding, additional lighting and an appropriate test connector during performance of the calibration, and 2) discussing this LER in industry events training to emphasize the benefit and importance of performing a task hazard analysis prior to originating work instructions.

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 6, 1991 at 1218 hours a High Pressure Core Spray (HPCS) System pump suction switchover from the Condensate Storage Tanks to the Suppression Pool occurred during maintenance testing efforts. At the time, the Plant was shutdown for an outage.

Plant configuration at the time was such that HPCS suction was lined up to the Condensate Storage Tanks (CSTs) with CST Suction Valve HPCS-V-1 open and Suppression Pool Suction Valve HPCS-V-15 closed, the normal system lineup. The switchover, an Engineered Safety Feature (ESF) actuation, was the automatic closure of HPCS-V-1 and the opening of HPCS-V-15.

During the event period, Plant Instrument and Control (I&C) Technicians were in the process of obtaining reference voltage readings on Condensate Storage Tank Level Switches HPCS-LS-3A and HPCS-LS-3B. The voltage readings were being taken as part of an effort to verify a wet-to-dry switch response time of one second. When the Plant I&C Technician connected the first lead of the voltmeter to HPCS-LS-3A the HPCS suction valves transferred, apparently due to the shorting of adjacent pins on a 14-pin DIP Test Socket that was used to take the voltage readings.

The closure of HPCS-V-1 and the opening of HPCS-V-15 was by Plant design and Plant Control Room Operators took appropriate action to realign the system to pre-event status.

Immediate Corrective Action

Plant Control Room Operators responded by taking action to realign the HPCS Suction from the Suppression Pool to the Condensate Storage Tanks (HPCS-V-15 was closed and HPCS-V-1 was re-opened).

Further Evaluation and Corrective Action

A. Further Evaluation

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

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

3. The circuit operation is such that the HPCS switchover logic is designed to actuate based on either low Condensate Storage Tank or high Suppression Pool levels. Level switches HPCS-LS-3A and HPCS-LS-3B are redundant, self-heated Resistance Thermal Detectors (RTDs) that sense the level of water in the Condensate Storage Tank (CST). They are installed at the top of a chamber in the HPCS suction line from the CSTs. When water in the sensing chamber falls below a specified level, indicating a low water level in the CSTs, the level switches will actuate to cause a suction valve transfer from the CSTs to the Suppression Pool.

4. The cause of this event is Less than Adequate Planning and Scheduling in that the job scoping did not identify special circumstances and conditions unique to the situation, or that an HPCS suction valve transfer may occur.

   As a result of an Engineering review, it was determined that test documentation was not on file to verify a wet-to-dry switch response time of one second for HPCS-LS-3A and HPCS-LS-3B. The vendor (Fluid Components, Inc.) instruction manual for the level switches described a calibration method to meet the required response time by taking wet voltage readings and adjusting the switch to actuate at 80 millivolts below the wet value. However, the Plant Procedure for calibrating the level switches (PPM 10.27.23) did not account for the response time or include specified parameters for that setpoint. In order to revise PPM 10.27.23 to describe the correct response time calibration method, it was necessary to obtain wet voltage readings to establish setpoint criteria. Accordingly, a Mundane Task Request (MTR) was prepared to measure and record the level switch wet voltage readings on pins 6 (+) and 7 (-) of the 14-pin DIP Test Socket in HPCS-LS-3A and HPCS-LS-3B.

   Level switches HPCS-LS-3A and HPCS-LS-3B are located in a corridor, approximately 12 feet above the floor, in the Reactor Building. Lighting in the area is not optimum and the Plant I&C Technician reached the switches by means of a ladder.

   The Plant I&C Technician taking the readings was to measure the voltages by clipping mini-grabber test clips to adjacent pins (6 and 7) on the 14-pin DIP Test Socket. The DIP Test Socket is a small rectangular unit that is held above the circuit board by 14 bare pins (approximately 1/16 inch apart). When the first mini-grabber was attached to pin seven, the suction valve transfer occurred. It is most likely that while attaching the mini-grabber pins 6 and 7 were shorted together, which would cause a transfer of the HPCS suction valves.

B. Further Corrective Action

1. On September 7, 1991 the voltage readings were successfully obtained. During this process, scaffolding and temporary lighting was used. In addition, Plant I&C Technicians had fabricated a special test plug, with meter leads soldered onto pins 6 and 7, that could be inserted into the test socket.

2. Plant Procedure 10.27.23 will be revised to require the use of scaffolding, additional lighting and an appropriate test connector during performance of this calibration.

3. This LER will be discussed in Industry Events Training to emphasize the benefit and importance of performance of a task hazard analysis prior to originating work instructions.

Safety Significance

There is no safety significance associated with this event. There was no actual Condensate Storage Tank level change, and the event was limited to a shorting of the level trip logic during testing. Furthermore, all systems operated as designed to cause the HPCS System pump suction valve switchover and Plant Control Room Operators responded by realigning the system to pre-event status. Although the HPCS System had been lined up and designated as part of the shutdown ECCS function when the event occurred, the Suppression Pool was available if needed. Accordingly, this event posed no threat to the health and safety of either the public or Plant personnel.

Similar Events

There have been LERs pertaining to HPCS suction valve transfers; however, none with a similar root cause.

EIIS Information

	EIIS Reference	
	System	Component
High Pressure Core Spray(HPCS) System	BG	---
HPCS-V-1	BG	V
HPCS-V-15	BG	V
Suppression Pool	NH	---
Condensate Storage Tank	KA	TK
HPCS-P-1	BG	P
HPCS-LS-3A	BG	LIS
HPCS-LS-3B	BG	LIS