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SUBJECT: LER 90-003-00:on 900126,HPCS sys pump suction valve switchover during surveillance testing.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

February 23, 1990

Docket No. 50-397

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 90-003

Dear Sir:

Transmitted herewith is Licensee Event Report No. 90-003 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,

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

JDA:lr

Enclosure:
Licensee Event Report No. 90-003

cc: Mr. John B. Martin, NRC - Region V
Mr. C. J. Bosted, 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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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 6

TITLE (4) High Pressure Core Spray System Pump Suction Valve Switchover During Surveillance Testing Due to Instrument Indicated Level Excursion

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 1	2 6	9 0	9 0	0 0 3	0 0	0 2	2 3	9 0		0 5 0 0 0

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1	1 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 - 2 1 1 5

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	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 January 26, 1990 at 0100 hours a High Pressure Core Spray (HPCS) System pump suction valve switchover occurred during the performance of a procedure for draining the reference leg of Suppression Pool Narrow Range Level Transmitter CMS-LT-1.

Plant Equipment Operators (non-licensed) were draining the reference leg in accordance with the procedure, when level indication increased from +1" to +8". Plant configuration at the time was such that HPCS suction was lined up to the Condensate Storage Tanks (the normal lineup, with HPCS-V-1 open) and Suppression Pool Suction Valve HPCS-V-15 was closed (reference Figure 1). When the instrument level excursion occurred, it caused an Engineered Safety Feature suction valve transfer (due to a sensed high Suppression Pool level) and, by design, HPCS-V-1 automatically closed and HPCS-V-15 automatically opened.

Following the suction transfer, Plant Operators reviewed the procedure and repeated the activity. This time a level excursion of +20 inches was noted. The valve lineup was then verified and, because drywell pressure was +0.5 psig, the procedure was repeated with a positive pressure capture device over the vent to evaluate reference leg blockage. Crew Equipment Operators were also consulted for the

Abstract (Continued)

"normal" performance of this evolution because the procedure and valve lineup were correct, all local conditions appeared normal, and the procedure had successfully been performed on a weekly basis. The concensus was that the normal range observed is approximately 1 to 2 inches and this has not previously caused a suction transfer to occur. Plant Equipment Operators then proceeded to the second level transmitter (CMS-LT-2), performed the test, and observed a similar magnitude shift and suction transfer.

As an immediate corrective action, because no moisture was observed, Plant Operators restored the system to pre-event lineup status. Further corrective action consists of changing the procedure to transfer HPCS suction from the Condensate Storage Tanks to the Suppression Pool prior to draining the reference legs.

The preliminary cause of this event appears to be a pressure differential between Primary Containment and the Reactor Building, which caused pressure in the reference leg to decrease during the draining process. However, the root cause analysis for this event has not yet been completed. If any new substantive information develops as a result of completion of the root cause effort, it will be reported in a supplemental LER.

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

Plant Conditions

Power Level - 100%
Plant Mode - 1

Event Description

On January 26, 1990 at 0100 hours a High Pressure Core Spray (HPCS) System pump suction valve switchover occurred during the performance of Plant Procedure, PPM 2.4.2, "Residual Heat Removal System." The section of the procedure being performed at the time of the event was, "Suppression Pool Level Transmitter Reference Leg Draining." This procedure section provides guidance for draining the reference legs when directed by the Scheduled Maintenance System (SMS). This activity has been performed routinely on a weekly basis.

Plant Equipment Operators (non-licensed) were draining the reference leg for Suppression Pool Narrow Range Level Transmitter CMS-LT-1 in accordance with the procedure, when level indication increased from +1" to +8". Plant configuration at the time was such that HPCS suction was lined up to the Condensate Storage Tanks (the normal line up, with HPCS-V-1 open) and Suppression Pool Suction Valve HPCS-V-15 was closed (reference Figure 1).

When the instrument level excursion occurred, it caused an Engineered Safety Feature suction valve transfer (due to a sensed high Suppression Pool level) and by design, HPCS-V-1 automatically closed and HPCS-V-15 automatically opened.

Following the suction transfer, Plant Operators reviewed the procedure and repeated the activity. This time a level excursion of +20 inches was noted. The valve lineup was then verified and, because drywell pressure was +0.5 psig, the procedure was repeated with a positive pressure capture device over the vent to evaluate reference leg blockage. Crew Equipment Operators were also consulted for the "normal" performance of this evolution because the procedure and valve lineup were correct, all local conditions appeared normal, and the task had been performed successfully on a weekly basis. The concensus was that the normal range observed is approximately 1 to 2 inches, and this has not previously caused a suction transfer to occur. Plant Equipment Operators then proceeded to the second level transmitter (CMS-LT-2), performed the test, and observed a similar magnitude shift and suction transfer.

Since no moisture was observed, the system was restored to the pre-event lineup.

Immediate Corrective Action

Plant Operators (Licensed) restored the system to pre-event lineup status (HPCS-V-1 was opened and HPCS-V-15 was closed).

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 (ESF).

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

3. This particular level instrument is unique in that it has an air reference leg that is drained periodically because a moisture buildup could cause an incorrect level indication. Most level instruments in the Plant have reference legs that are filled with water.

4. A troubleshooting plan was prepared and implemented as an attempt to determine if the method of valve operation, when draining the reference leg, would affect indicated level. The plan was written to open Test Valve PI-V-905 slightly, then close the valve immediately when air flow was noticed. Directions were then given to fully open the test valve and then close it. When the valve was opened slightly, the narrow range suppression pool level instrument indicated an increase in level of 1 - 2 inches. However, when the valve was fully opened the instrument indicated approximately +6.5 inches, which would have been sufficient to cause a suction valve switchover. During the troubleshooting efforts, HPCS suction was aligned to the Suppression Pool.

   As a result of the troubleshooting activity, it was determined that two options were available to resolve the problem, at least until such time that the root cause analysis has been completed. These options were 1) providing guidance in the procedure to open the test valve slightly when draining the reference leg, or 2) changing the procedure to transfer HPCS suction from the Condensate Storage Tanks to the Suppression Pool prior to performing the activity.

5. The preliminary cause of this event appears to be a pressure differential between Primary Containment and the Reactor Building, which caused pressure in the reference leg to decrease during the draining process. However, the root cause analysis for this event has not yet been completed. If any new substantive information develops as a result of completion of the root cause effort, it will be reported in a supplemental LER.

B. Further Corrective Action

Plant Procedure (PPM) 2.4.2 has been changed to transfer HPCS suction from the Condensate Storage Tanks (normal lineup) to the Suppression Pool prior to draining Suppression Pool level transmitter reference legs.

Safety Significance

There is no safety significance associated with this event. There was no actual Suppression Pool level change and the event was limited to an instrument transient. Furthermore, all systems operated as designed to cause the HPCS System pump suction valve switchover.

Accordingly, this event posed no threat to the health and safety of either the public or plant personnel.

Similar Events

None

EIIS Information

Text Reference	EIIS Reference System	EIIS Reference Component
High Pressure Core Spray (HPCS) System	BG	---
Residual Heat Removal (RHR) System	BO	---
CMS-LT-1	IK	LT
Condensate Storage Tanks (CSTs)	KA	TK
HPCS-V-1	BO	V
HPCS-V-15	BO	V
CMS-LT-2	IK	LT
Suppression Pool	NH	---
Primary Containment	NH	---
Reactor Building	R	---
PI-V-905	IK	TV

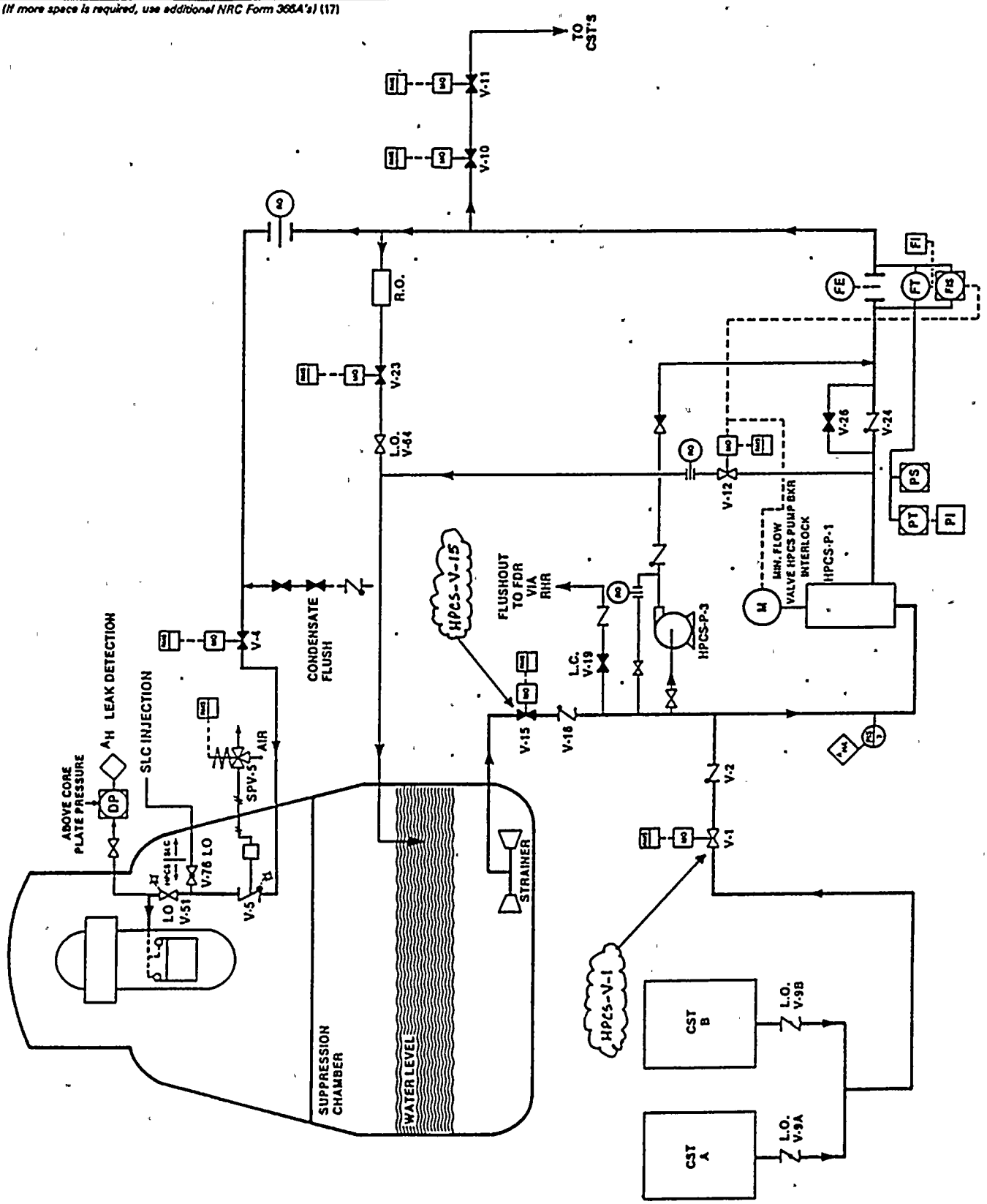

FIGURE 1. HPCS