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 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 94-015-00: on 940704, actuation of HPCS sys diesel engine
 & half-scrum condition occurred due to tubing valve
 manipulation. Procedure entitled, "Startup Instrument Rack
 Valve Line-up" changed on 940706.W/940922 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

September 22, 1994
GO2-94-218

Docket No. 50-397

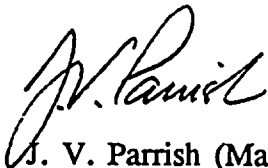
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Subject: **NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 94-015-00**

Transmitted herewith is Licensee Event Report No. 94-015 for the WNP-2 Plant. This report is submitted on a voluntary basis.

Should you have any questions or desire additional information, please call me or D.A. Swank at (509) 377-4563.

Sincerely,



J. V. Parrish (Mail Drop 1023)
Assistant Managing Director, Operations

JVP/CJF/my
Enclosure

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

Washington Nuclear Plant - Unit 2

DOCKET NUMBER (2)

0 5 0 0 0 3 9 7

PAGE (3)

1 OF 4

TITLE (4)

VOLUNTARY REPORT OF A SPURIOUS ESF COMPONENT ACTUATION CAUSE BY TUBING VALVE MANIPULATION

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 NUMBERS(S)											
0	7	0	4	9	4	9	4	0	1	5	0	0	0	0	0	0	0	0	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)	50.73(a)(2)(iv)	77.71(b)
			20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.73(c)
			20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X 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)	
						Voluntary

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
CJ Foley, Licensing Engineer	AREA CODE 5 0 9 3 7 7 - 4 3 2 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
NA									
NA									

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (16)

This LER is being submitted as a voluntary report.

On July 4, 1994, the plant was in an annual refueling/maintenance outage. An actuation of the High Pressure Core Spray System (HPCS) diesel engine and half-scam condition occurred at 2029 hours due to manipulation of instrument tubing valves in the reactor pressure vessel (RPV) level sensing instrumentation in preparation for reactor startup. No water was injected into the reactor pressure vessel (RPV) by the system because the HPCS pump had been properly removed from service. The actual water level in the RPV was normal. No plant condition existed that warranted actuation of the HPCS, and the actuation occurred as designed to the extent the existing system line-up permitted. The half-scam was reset and the diesel engine was shut down from the control room. The cause was inadequate identification of the status of equipment undergoing a modification and testing process.

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TITLE (4) SPURIOUS ESF COMPONENT ACTUATION CAUSED BY TUBING VALVE MANIPULATION							

Event Description

On July 4, 1994, the plant was in an annual refueling/maintenance outage at 0% reactor power, operational mode 4 (cold shutdown). At 2029 hours, invalid low reactor water level signals caused a half-scam condition and a start of the HPCS Diesel Engine. No water was injected into the reactor because control power fuses for the HPCS pump had been properly removed two days earlier in support of maintenance activities, preventing pump actuation. Control room operators verified that the reactor water level was normal and stable. At 2054 hours, the half-scam was reset. At 2102 hours the HPCS diesel engine was shut down.

The NRC was notified of this event at 2240 hours pursuant to 10CFR50.72(b)(2). It was later determined that the notification had been unnecessary because 10CFR50.72(b)(2)(ii)(B)(1) exempts immediate reporting when the actuation is invalid and the system is properly removed from service. Subsequently, the event was determined to be non-reportable pursuant to guidance available in NUREG-1022 because the actuation was limited to elements of a train of ESF components and not an entire train. Additionally, the HPCS Diesel Engine is not classified as an ESF at WNP-2.

Further Evaluation

An immediate investigation revealed that two manual isolation valves in an instrument rack were opened by a technician under a procedure entitled "Startup Instrument Rack Valve Line-up." The purpose of this procedure is to align instrument systems at the end of an outage preparatory to plant startup. Due to the presence of a differential pressure across the valves resulting from existing plant conditions, opening the valves caused a fluid surge in the instrument tubing which includes the RPV level measuring instrumentation; this resulted in the invalid RPV low level signals. The valves were boundary valves for new features added by a plant modification to provide a continuous flow of water from the Control Rod Drive system to the reactor pressure vessel (RPV) water level sensing system to prevent saturation of the water in the instrumentation level reference "leg" by noncondensable gases. The two valves were not tagged or uniquely marked, but as boundary valves, had a different function than similar appearing valves in the instrument rack.

This modification was made in response to NRC Bulletin 93-03 to address potential erroneous RPV level indications due to the release of noncondensable gases in the reference "legs" as saturation levels change during reactor depressurization. The two boundary valves had been temporarily included in a procedure entitled "Startup Instrument Rack Valve Line-up" in June of 1993 to reflect physical completion of the initial part of the modification in March of 1994. However, the required pre-operational testing had not been completed as of the date of the event. Upon completion of pre-operational testing, these two valves were to be deleted from the "Startup . . ." procedure and inserted into a new procedure entitled "RPV Level Instrumentation Reference Leg Purge System Operation" to provide detailed operating instructions for the modified equipment. The new procedure was required to provide more comprehensive control of the very sensitive new equipment than could be effected by use of the former procedure. The "Startup . . ."

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procedure used by the technician had been changed on July 2, 1994 pursuant to the normal change process to reposition the boundary valves from "closed" to "open" to support reactor startup. However, the changed procedure pertained to equipment not under test, and the boundary valves were part of the equipment still in test status. Since the valves were not marked to differentiate them from valves in operational status, the cause of the event was inadequate identification of the status of equipment undergoing a modification and testing process.

Corrective Action

The procedure entitled "Startup Instrument Rack Valve Line-up" was changed on July 6, 1994 to remove the isolation valves from its scope. Preoperational testing was completed and the new system put in service on July 23, 1994 under the test procedure "Continuous Backfill from CRD-Preoperational and Startup." A new procedure entitled "RPV Level Instrumentation Reference Leg Purge System Operation" was issued on July 14, 1994 to cover operation of the instrument line purge system. This procedure alerts the user about the potential of perturbations in the system as may result from pressurized water trapped behind closed valves. Additionally, boundary valves associated with the purge system have been marked to differentiate them from similar appearing valves in instrument racks. A change will be made by October 31, 1994 to a procedure entitled "Plant Modifications" to provide enhanced guidance for release of equipment modifications to normal operation status.

Safety Significance

The event occurred when the reactor was shut down, and did not and could not have resulted in an increase in reactivity because the control rods remained inserted and the actual water level in the reactor was unchanged by the event. No radioactive releases or exposures to on-site or off-site personnel resulted or could have resulted from the event because the shutdown cooling systems remained in service. Technical Specification limits were not violated. No plant condition warranting actuation of the HPCS actually existed, and the actuation occurred as designed to the extent the existing system line-up permitted. Consequently, this event is not safety significant.

Similar Events

LER 89-025, "Engineered Safety Feature (ESF) Actuations During Excess Flow Check Valve Testing Due to Procedural Inadequacies" describes a similar actuation of the HPCS as caused by manipulations of valves in instrument tubing systems. However, in the LER 89-025 event instrument valves were opened in an incorrect sequence because of inadequate valve labeling, whereas in this event the valves opened were labeled adequately but had a different function than similar appearing valves in the instrument rack.

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EIIS Information

Text Reference

EIIS Reference

<u>System</u>	<u>Component</u>
---------------	------------------

High Pressure Core Spray System
 Diesel Engine
 Fuse
 HPCS Pump
 Manual isolation valves
 Tubing

BG	--
EK	ENG
--	FU
BG	P
--	ISV
--	TBG