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 KING,D.L. Washington Public Power Supply System
 BAKER,J.W. Washington Public Power Supply System
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-015-00:on 920413,unexplained pressure drop in ADS "B"
 section of containment instrument air (CIA) sys header..
 Caused by inadequate written procedures.Inspect valve
 CIA-V-41B,PPM 8.3.130 replaced by PPM 10.27.48.W/920506 ltr.

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AD4

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

May 6, 1992
G02-92-116

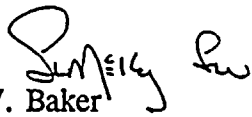
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Washington, D. C. 20555

**SUBJECT: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 92-015**

Transmitted herewith is Licensee Event Report No. 92-015 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.

Sincerely,


J. W. Baker
WNP-2 Plant Manager (Mail Drop 927M)

Enclosure

cc: Mr. John B. Martin, NRC - Region V
Mr. C. Sorensen, NRC Resident Inspector (Mail Drop 901A, 2 Copies)
INPO Records Center - Atlanta, GA
Mr. D. L. Williams, BPA (Mail Drop 399)

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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 6

TITLE (4)

CONTAINMENT INSTRUMENT AIR (CIA) ENGINEERED SAFETY FEATURE (ESF) ACTUATION

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	4	1	3	9	2	9	2	--	0	1	5	--	0	0	
													0	5	0
													0	5	0

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

POWER LEVEL (10)	1	0	0	20.402(b)	20.405(c)	X	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)	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
Daniel L. King, Senior Training Specialist	AREA CODE 5 0 9 3 7 7 - 8 2 7 4

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) ☒ NO

ABSTRACT (16)

On April 13, 1992, the control room operators noted an unexplained pressure drop in the Automatic Depressurization system (ADS) "B" section of the Containment Instrument Air (CIA) system header. This pressure decrease caused the actuation of the backup bottled nitrogen source.

This event is an Engineered Safety Feature (ESF) actuation. A verbal notification was made to the NRC at 1016 hours on April 14, 1992, pursuant to the requirements of 10CFR50.72(b)(2)(ii). The delay in notification was due to inadequate procedural guidance.

The root cause of this event was procedures were less than adequate since they did not address the hazards associated with the CIA sampling process.

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

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								Year	Number		Rev. No.			
								92	915	00	2	OF	6	
TITLE (4) Containment Instrument Air (CIA) Engineered Safety Feature (ESF) Actuation														

Plant Conditions

Power Level - 1 (RUN)
Plant Mode - 100%

Event Description

On April 13, 1992, the control room operators noted an unexplained pressure drop in the ADS-B section of the CIA system. At 1155 hours the CIA "B" header pressure dropped to 130 psig for a duration of less than two minutes. Normal header pressure is approximately 185 psig. This pressure drop caused the B CIA nitrogen bottle programmer to start and to cycle open four of the nineteen nitrogen bottles in the "B" CIA system. This is within acceptable norms of system performance; when actuated on low header pressure, the programmer cycles the first bottle open immediately and opens an additional bottle every thirty seconds until header pressure is restored. The nonsafety header isolation valve CIA-V-39B did not isolate because the event lasted less than the three minute time delay associated with this valve.

The CIA system is normally pressurized with nitrogen from the nitrogen storage tank. In the event of a loss of pressure in the system, the system will automatically switch to a series of compressed gas bottles provided for that purpose.

Immediate Corrective Action

A walkdown of the system disclosed no discernable problems.

The four used nitrogen bottles were replaced.

Further Evaluation and Corrective Action

A. Further Evaluation

The actuation of the Safety Related portion of CIA is being reported per the requirements of 10CFR50.73(a) (2) (iv) as an "event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature ...".

The root cause of this event was:

Written procedures less than adequate (LTA)

PPM 8.3.130 implied that there was no possibility of creating a system upset during system sampling.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION														
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TITLE (4) Containment Instrument Air (CIA) Engineered Safety Feature (ESF) Actuation														

A contributing cause is the possible partial blockage of the CIA-V-41B check valve.

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

At 1155 hours the CIA nitrogen safety header "B" pressure dropped from 182.7 psig to 130 psig. By 1156 hours the nitrogen pressure had recovered to 162 psig. Nitrogen pressure in safety header "B" increased to 182 psig over the next eight minutes.

Review of the Scheduled Maintenance System (SMS) tasks in progress disclosed that the Instrumentation and Control (I&C) technicians were performing work on the CIA system utilizing PPM 8.3.130. This PPM performs a quarterly sampling of the CIA system at three randomly selected points to check for entrained particulate matter. The procedure calls for any three out of six random-sample points to be utilized. This was the first time in the procedure that the sample valve, CIA-V-737B, just downstream of check valve CIA-V-41B was utilized.

It is evident that some blowdown or purging well in excess of the 0.1 scfm sampling flow was experienced on both headers. The "A" header had a small pressure drop, but not large enough to initiate any automatic actions from the "A" logic. Based on the results of the root cause investigation, it was concluded that check valve CIA-V-41B appeared to perform as an orifice as opposed to a check valve during the entire sample period. The observed large drop in pressure on ADS-B header may have been the result of CIA-V-41B not being able to open fully or the result of an obstruction in the valve or adjacent line.

The CIA system returned to normal operating conditions after the event and the pressure drop was short enough (approximately 90 to 120 seconds) to prevent isolation of the nonsafety header. The Automatic Depressurization System (ADS) was not adversely affected because its accumulators and check valves ensured ADS operability.

There are a total of 18 Reactor Pressure Vessel (RPV) Safety/Relief Valves (SRVs). Each valve is supplied by a nonsafety-related nitrogen supply through a safety-related accumulator. The accumulator will support at least one valve actuation. The CIA system is the safety-related Quality Class I nitrogen supply for the seven SRVs that serve an ADS function. The CIA system is a two train system with a 15 nitrogen bottle bank serving three ADS SRVs and a separate 19 nitrogen bottle bank serving the other four ADS SRVs. These two bottle banks provide sufficient nitrogen to support ADS SRV operation for a 30 day period. There is also one remote bottle connected to each bank, accessible post-accident, that provides the capability to supply the ADS SRVs for an indefinite period of time through bottle change-out. The 18 SRVs will also open mechanically, in the safety valve mode, on a high reactor pressure condition.

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The normal nitrogen supply to the 18 SRVs is from the nonsafety-related nitrogen storage tank. On a low nitrogen header pressure, the nonsafety-related portion of the nitrogen system is automatically isolated and the safety-related portion of the system is automatically placed in service. This automatic system initiation is accomplished through a two out of three logic. The safety to nonsafety-related CIA system interface also includes check valves, CIA-V-41A and 41B, which provides isolation.

These are all features which maintain the pressure in the safety portion of CIA if the system integrity is intact. If the safety header develops a leak, then the ADS accumulators and associated individual check valves will maintain the ADS design basis requirements long enough for corrective action to be taken or for plant shutdown per the requirements of Technical Specification 3.5.1.

B. Further Corrective Action

Inspect valve CIA-V-41B to determine its material condition by July 1, 1992.

PPM 8.3.130 is being replaced by PPM 10.27.48. Incorporate into PPM 10.27.48, Instrument Air Sample, requirements for technicians to inform operations prior to starting the sampling process and add applicable precautions, regarding the potential system impact due to testing, to the procedure. Completion date is June 17, 1992.

Revise PPM 1.3.5, Reactor Trip and Recovery, to include CIA initiation logic actuation as an ESF actuation by June 17, 1992. This procedure will ensure the appropriate NRC notification is made.

Safety Significance

The SRVs are used, through manual operator action, to: 1) limit reactor pressure to less than the SRV mechanical lift setpoints, and 2) to dump steam to the suppression pool in the event the main condenser or the bypass valves are unavailable. The SRVs are also used, as initiated by ADS, to reduce reactor pressure to the point where the Low Pressure Core Spray or Low Pressure Core Injection systems can inject water into the reactor in the unlikely event the High Pressure Core Spray (HPCS) system is not available to supply high pressure water to the reactor during a transient involving a loss of Reactor Feedwater.

CIA header "B" minimum pressure during the event was 130 psig. The minimum CIA pressure for operating ADS valves is 133.5 psig; however, the check valves for the "B" ADS SRV accumulators will maintain pressure for the "B" ADS valves \geq 133.5 psig, and the "A" ADS SRV valves were operable during this event.

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There was minimal safety significance associated with this event. The accumulators for the ADS SRV valves each have a check valve between the accumulator and the CIA header. The operation of the accumulators and associated check valves is verified by Surveillance Test PPM 7.4.0.5.53, CIA-V-40 Operability Test. Thus sufficient nitrogen pressure was available for initial automatic operation of the ADS valves as required to support reactor depressurization.

In addition, the HPCS system remained operable throughout this event.

Similar Events

There were five LERs associated with loss of normal CIA pressure and ESF actuation of the safety related portion of CIA within the last two years:

LER 90-005 Loss of power caused isolation of the nonsafety CIA header.

LER 90-018 Manual opening of CIA safety header relief valve.

LER 90-022 Nitrogen tank depletion caused CIA nonsafety header isolation.

LER 90-023 System overpressurization caused a CIA relief valve to lift.

LER 91-016 Blown nitrogen tank rupture disk caused isolation of CIA nonsafety header.

This LER, and each of the above LERs, are unique events with no common cause. Each event resulted in an ESF actuation of the CIA system.

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EIIS Information

Text Reference

EIIS Reference

System Component

Containment Instrument Air	LD	---
CIA-V-737B	LD	V
CIA-V-41A and B, 40A and B	LD	CV
CIA Programmer	LD	STC
Automatic Depressurization System	BG	---
Safety/Relief Valves	SB	RV
SRV Accumulator	SB	ACC
Nitrogen Storage Tank	LK	TK
CIA-V-39A and 39B	LD	IHV
CIA Relief Valves	LD	RV
CIA Nitrogen Bottles	LD	TK
Suppression Pool	C	TK
Main Condenser	SD	COND
Bypass Valves	MS	SHV
Low Pressure Core Spray	BM	---
Low Pressure Core Injection	BO	---
High Pressure Core Spray	BG	---
Reactor Feedwater	SJ	---
Plant Nitrogen	LK	---
Vacuum Breakers	C	PDCV

