

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9203030088 DOC. DATE: 92/02/21 NOTARIZED: NO DOCKET #
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
 AUTH. NAME AUTHOR AFFILIATION
 FIES, C.L. Washington Public Power Supply System
 BAKER, J.W. Washington Public Power Supply System
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-003-00: on 920123, circulating fan CAC FN-1B failed to start during performance of surveillance test. Caused by tripped overloads. Thermal overloads reset & surveillance test performed. W/920220 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD5 LA	1 1	PD5 PD	1 1
	ENG, P.L.	1 1		
INTERNAL:	ACNW	2 2	ACRS	2 2
	AEOD/DOA	1 1	AEOD/DSP/TPAB	1 1
	AEOD/ROAB/DSP	2 2	NRR/DET/EMEB 7E	1 1
	NRR/DLPQ/LHFB10	1 1	NRR/DLPQ/LPEB10	1 1
	NRR/DOEA/OEAB	1 1	NRR/DREP/PRPB11	2 2
	NRR/DST/SELB 8D	1 1	NRR/DST/SICB8H3	1 1
	NRR/DST/SPLB8D1	1 1	NRR/DST/SRXB 8E	1 1
	<u>REG FILE</u> 02	1 1	RES/DSIR/EIB	1 1
	RGN5 FILE 01	1 1		
EXTERNAL:	EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
	NRC PDR	1 1	NSIC MURPHY, G.A	1 1
	NSIC POORE, W.	1 1	NUDOCS FULL TXT	1 1

P 414733 218

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 32 ENCL 32

A04



WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

February 20, 1992
G02-92-042

Docket No. 50-397

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

**SUBJECT: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 92-003**

Transmitted herewith is Licensee Event Report No. 92-003 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.

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
Ms. Dottie Sherman, ANI
Mr. D. L. Williams, BPA (Mail Drop 399)

010190

414733218

IE 22

11

9203030088 920221
PDR ADDCK 05000397
S PDR

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 5
---	--	------------------------

TITLE (4)
CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM

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

OPERATING MODE (9) **1** 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)	50.73(a)(2)(iv)	77.71(b)
	20.405(a)(1)(i)	50.36(c)(1)	X 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)	X 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 C. L. FIES, Compliance Engineer	TELEPHONE NUMBER 5 0 9 3 7 7 - 4 1 4 7
--	---

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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO
--	--

ABSTRACT (16)

On January 23, 1992 CAC Circulating Fan (CAC-FN-1B) failed to start during the performance of a routine surveillance test. Plant operators discovered the fan did not operate because of tripped overloads. It was then determined that Train B of the Containment Atmosphere Control (CAC) System had been inoperable longer than the 30 days allowed by the Technical Specifications. During the LER investigation it was determined that both CAC divisions were out of service for a 5-1/2 hour period due to testing of Train A.

Immediate corrective action was taken to reset the thermal overloads and the surveillance test was performed.

The Root Cause of this event was insufficient component monitoring. A second root cause was the fact the elementary drawing contained technical inaccuracies.

Further corrective action will be taken to correct the design and the design drawings associated with the CAC system. In addition a review will be performed of similar equipment/systems to prevent reoccurrence.

This event has minor safety significance.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION														
FACILITY NAME (1) Washington Nuclear Plant - Unit 2		DOCKET NUMBER (2) 0 5 0 0 0 3 9 7					LER NUMBER (8) Year Number Rev. No. 9 2 0 0 3 0 0			PAGE (3) 2 OF 5				
TITLE (4) CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM														

Plant Conditions

Power Level - 100%
Plant Mode - 1

Event Description

On January 23, 1992 CAC Circulating Fan (CAC-FN-1B) failed to start during the performance of routine surveillance test PPM 7.4.6.6.1.2, CAC-HR-1B Preheater Operability. Plant operators discovered the fan did not operate due to phase A and C tripped overloads. On January 26, 1992 a Plant Technical Engineer determined that Train B of the Containment Atmosphere Control (CAC) System had been inoperable longer than the 30 days allowed by the Technical Specifications making this a reportable event.

At WNP-2 the CAC System includes redundant catalytic hydrogen recombiners provided to combine the hydrogen and oxygen in the Primary Containment during degraded post LOCA conditions. The recombiner subsystems (A and B) are located adjacent to the Primary Containment in the Reactor Building (Secondary Containment). Each redundant subsystem consists of a circulating fan, wet scrubber, electric heater, catalyst vessel, gas cooler and associated instrumentation, valves and piping. A constant speed fan is used to draw the atmosphere from the Primary Containment, process it through the equipment and return it back to the Containment.

Investigation revealed that the overloads were most likely tripped on December 17, 1991 when a CAC-HR-1B Recycle Flow Verification (PPM 8.3.229TP) test was conducted. Test procedure PPM 8.3.229TP was a special one time test conducted to verify that flow control valve CAC-FCV-6B could be controlled manually from the control room. As the flow control valve (FCV) closed, the flow decreased until flow switch CAC-FS-6B opened de-energizing the fan motor contactor. An auxiliary contact on the fan motor contactor de-energizes the contactors that supply 480 volts to the valve. With a loss of power, electro-hydraulic valve CAC-FCV-6B fails open. When the FCV opened, enough flow was present from the coast down of the fan to allow the flow switch to reclose and re-energize the fan motor contactor. The fan motor restarted and power was restored to the valves. Since the flow controller (CAC-FC-67B) had not been readjusted, the FCV reclosed. This cycle repeated three times before the system was turned off.

Plant Technical engineers consulted with Plant Operations and discussed the effects of the cycling on the fan motor. The elementary drawing (E545-10VB-1) showed the overloads in series with the control circuitry. Control power was still energized, which led them to believe the overloads were closed. They decided that the motor was operational because the overloads did not trip and did not conduct any further investigation since they believed Train B was in operable status.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION														
FACILITY NAME (1) Washington Nuclear Plant - Unit 2		DOCKET NUMBER (2) 0 5 0 0 0 3 9 7					LER NUMBER (8) Year Number Rev. No. 9 2 0 0 3 0 0			PAGE (3) 3 OF 5				
TITLE (4) CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM														

Immediate Corrective Actions

Immediate corrective action was taken to reset the overloads and the surveillance test was continued on January 23, 1992.

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is reportable per 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the Plant's Technical Specifications. Train B of the CAC system was inoperable from December 17, 1990 to January 23, 1992 while the Plant was in Mode 1. The Plant exceeded the Technical Specification Action requirements to restore the inoperable train of the CAC System within 30 days. In addition, during the investigation associated with this LER it was discovered that Train A of CAC was inoperable for a 5 1/2 hour period on December 19, 1991. The "A" Recycle Flow Verification Test was run on December 19, 1991 and CAC-HR-1A was inoperable from 1230 hours to 1800 hours. Inoperability was a result of the test requirement to deactivate the containment isolation valves in a closed position as part of the test. With both trains out of service, this results in an "...event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to...mitigate the consequences of an accident..." and is a four hour reportable event under 50.72(b)(2)(iii)(D). This item was called in at 1030 hours on February 7, 1992. Further, with both trains inoperable the Technical Specifications require LCO 3.0.3 to be entered along with the declaration of an unusual event.
2. CAC was purchased as a skid mounted system with control wiring installed and tested by the vendor. The only external wiring was for indication, remote switches, controllers and power supplies. Elementary diagram E545-10VB-1 is a copy of the vendor supplied drawing which is a schematic diagram showing the complete circuit, including the external wiring. This drawing shows a typical configuration of control power that has the fan overloads in series with the output of the control transformer. Since the power supplies were external to the skid, the vendor drawing did not show actual design configuration.
3. When the overloads were found tripped on January 23, 1992, Plant Technical conducted an investigation that found a discrepancy between the elementary diagram and the Electrical Wiring Diagram, EWD 22E067. The EWD showed the overloads in series with a 49X relay that would de-energize the fan motor contactor but was not in the control circuit. A physical check of the wiring confirmed the field configuration matched the EWD and the elementary diagram was wrong.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION														
FACILITY NAME (1) Washington Nuclear Plant - Unit 2		DOCKET NUMBER (2) 0 5 0 0 0 3 9 7					LER NUMBER (8) Year Number Rev. No. 9 2 0 0 3 0 0			PAGE (3) 4 OF 5				
TITLE (4) CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM														

4. The Architect Engineer issued drawing EWD 22E067 in 1983. The EWD showed the external wiring and connections but did not show the actual CAC skid wiring. The elementary drawing, which was issued in 1982, was not referenced on the EWD nor was it updated to show the correct configuration. Subsequent revisions to both drawings failed to identify the discrepancy.
5. The design configuration of CAC system B gives no indication, through annunciation or lights, that the CAC-FN-1B overloads have tripped. BISI (Bypassed and Inoperable Status Indication) annunciator 2-1 (CAC-FN-1B Power Loss) CAC Division 2 BISI display did not alarm, nor did annunciator P811-KH2 drop 4-2 (CAC Div 2 Out of Service). A review of engineering drawings EWD 22E067 and E530 sheet 11 determined that the design did not include annunciation for an overload trip condition.
6. The Root Cause of this event was insufficient component monitoring as information on the tripped overloads should have been available to the plant operators. A second root cause was the fact that drawing E545-10VB-1 contained technical inaccuracies. This led to the decision not to investigate fan operability after the fan cycled three times on December 17, 1991.

B. Further Corrective Action

1. The CAC system will be run every 30 days until the ongoing SSFI is complete and its recommendations are evaluated.
2. The CAC system design will be changed to place the spare 49X relay contact in series with the control power and BISI circuits to provide positive indication of system power alignment.
3. An as built inspection will be performed of the field wiring on each CAC skid.
4. Applicable drawings will be updated to reflect actual field wiring configuration of the CAC system.
5. Upgrade the as built corrected elementary drawing for the CAC skid to Top Tier status.
6. Perform a review of drawings for similar safety related equipment/systems and correct any discrepancies. From criteria previously established the following systems will be considered in the review; main steam leakage control, control room chillers, acoustic monitors, process-post accident sampling, and process radiation monitors.

Safety Significance

Since both divisions of CAC were inoperable for a short period of time and there is a low probability of having an accident during this time, resulting in significant hydrogen production, this event is viewed as having minor safety significance. Plant operators were aware of the condition of Train A of CAC during this 5 1/2 hour test

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION											
FACILITY NAME (1)		DOCKET NUMBER (2)					LER NUMBER (8)			PAGE (3)	
Washington Nuclear Plant - Unit 2		0 5 0 0 0 3 9 7					Year	Number	Rev. No.		
							9 2	0 0 3	0 0	5 0 5	
TITLE (4) CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM											

period. A limited number of components were made inoperable by removing relays from the local control panel. This equipment included four containment isolation valves CAC-V-4, CAC-V-6, CAC-FCV-1A, and CAC-FCV-4A, the valve that provide water to the scrubber, CAC-FCV-5A, and the valves that provide air flow from and to the skid, CAC-V-2A and CAC-V-1A. There is a high likelihood that actions could have been taken to restore this equipment and the remainder of the CAC skid to operable status if it were needed to mitigate the consequences of an accident. There is some time available in the accident scenario since the system is not needed immediately for accident mitigation. This assumption on equipment availability is contingent on the availability of plant operators to be in the Reactor Building at the CAC local control panel to replace the relays.

Similar Events

LER 84-013 reported the event where both hydrogen recombiner fan (CAC-FN-1A/B) motors tripped on electrical overload during preoperational testing at 18 psig containment pressure. The fuses and overloads installed had not been sized for the higher pressure conditions. LER 91-025 and 91-029 were recently written on the CAC system. Corrective actions as a result of these LERs are presently underway.

EIIS Information

Text Reference

EIIS Reference

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

Containment Atmospheric Control (CAC)
System

BB

Hydrogen Recombiner Circulating Fan
(CAC-FN-1B)

BB

BLO

Hydrogen Recombiner (CAC-HR-1B)

BB

Recycle Flow Control Valve
(CAC-FCV-6B)

BB

FCV

Recycle Flow Controller (CAC-FC-67B)

BB

FC

Containment Isolation Valves (CAC-V-4,
CAC-V-6, CAC-FCV-1A, and CAC-FCV-4A)

BB

V

Scrubber Cooling Water Valve
(CAC-FCV-5A)

BB

FCV

CAC Air Flow Valves (CAC-V-21,
CAC-V-1A)

BB

V