ACCELERATED DOCUMENT DISTRIBUTION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9302220096 DOC.DATE: 93/02/12 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 88-031-01:on 880902,determined that due to single failure CR HVAC sys could operate in recirculation mode. Caused by lack of communication between AE design groups.CR HVAC recirculation mode of operation analyzed.W/930212 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 8
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD5 LA	1	1	PD5 PD	1	1
	CLIFFORD,J	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
	REG FILE 02	1	1	RES/DSIR/EIB	1	1
	RGN5 FILE 01	1	1			
EXTERNAL:	EG&G BRYCE,J.H	2	2	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

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 504-2065) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED
TOTAL NUMBER OF COPIES REQUIRED: LTTR 31 ENCL 31

A04

R I D S / A D D S

R I D S / A D D S

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

February 12, 1993
G02-93-032

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. 88-031-01

Transmitted herewith is Licensee Event Report No. 88-031-01 for the WNP-2 Plant. This revised report is submitted in response to the requirements of 10CFR50.73. It provides an update of the corrective actions and an evaluation of the safety significance that was not available for the original report.

Sincerely,

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

JWB/CLF/my
Enclosure

190124

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

IE22 1/1

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 7

TITLE (4)
SINGLE FAILURE COULD CAUSE CONTROL ROOM HVAC TO OPERATE IN AN UNANALYZED OPERATION MODE DUE TO DESIGN

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 9	0 2	8 8	8 8	-- 0 3 1	-- 0 1	0 2	1 2	9 3		0 5 0 0 0
										0 5 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)	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)	X 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
C. L. Fies, Licensing Engineer	AREA CODE 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)

	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)				
X NO				

ABSTRACT (16)

On September 2, 1988, a Design Engineer determined that due to a single failure the Control Room Heating and Ventilation (HVAC) System could operate in the recirculation mode during emergency conditions. This unanalyzed condition was found while performing an engineering evaluation of the safety significance of the event reported in LER 88-005-00.

During a Loss of Coolant Accident (LOCA) the normal fresh air intake for the Control Room HVAC is isolated and two remote air intake lines are opened. Each remote air intake line has two isolation valves and one valve is powered from Division 1 and the other from Division 2. A single failure (not a loss of power failure) in a power division could cause a valve in each remote air intake line to isolate. With the loss of all fresh air input the Control Room HVAC would continue to operate but in the recirculation mode. In the recirculation mode the Control Room would not remain pressurized with respect to surrounding areas, and operating post LOCA in this mode was not an analyzed condition.

Immediate corrective actions were: The motor operators for the four (two per line) remote air intake isolation valves were replaced with manual operators. Two of the four radiation purge line isolation valves motor operators were electrically disconnected. Both isolation valves in the remote intake lines were locked open to assure that a single failure could not result in recirculation mode operation. The Control Room Emergency Filtration System was started and the Control Room HVAC System is operating in the pressurization mode.

Abstract (Cont'd)

The cause of this event was the Plant Architect/Engineer (AE) did not provide a Control Room HVAC System design which protected the system against all possible single failures. The root cause of this event is a lack of communication between AE design groups.

Further corrective actions were taken: The Control Room HVAC recirculation mode of operation was analyzed. Technical Specification Amendment No. 74 was received allowing Control Room HVAC operation with the revised configuration. A letter was sent to Burns & Roe Inc. providing notification of a potential 10CFR Part 21 condition.

Plant Conditions

Power Level - 0%
Plant Mode - 4 (Cold Shutdown)

Event Description

On September 2, 1988, a Design Engineer determined that, due to single failures, the Control Room Heating and Ventilation (HVAC) System could operate during emergency conditions in the recirculation mode, which is an unanalyzed condition. This unanalyzed condition was discovered while performing an engineering evaluation committed to in LER 88-005-00 to evaluate the potential effects of minor Control Room HVAC system changes on system bypass flow.

The following brief description of the Control Room HVAC System (before modification) for normal operation and emergency operation during a Loss of Coolant Accident (LOCA) is presented to aid in understanding the event and the changes made to the system. Figure 1 is a partial diagram of the Control Room HVAC System prior to the event. The Control Room HVAC System consists of two redundant systems for both normal and emergency operation. During normal operation, 1000 cfm of fresh air from the normal roof intake Radwaste Building is mixed with 20,000 cfm of recirculated air (through fan 51A or 51B). Seven hundred and fifty (750) cfm is exhausted from the control room through fan 51 and the remaining 250 cfm pressurizes the control room and is exfiltrated. Also during normal operation, the remote air intake isolation valves (51A and B and 52A and B) are closed and the radiation monitor purge line valves (51D and E and 52D and E) are open with radiation monitor purge line fans 53A and B operating. During a LOCA when any of the following trip levels are reached 1) High drywell pressure ("F" signal), 2) Low low reactor water level ("A" signal) or 3) Reactor building ventilation exhaust high radiation ("Z" signal) the following actions occur:

a) The normal roof intake Radwaste Building is isolated by closing valves 51C and 52C.

b) The 750 cfm control room exhaust fan (51) deenergizes.

c) The remote air intake isolation valves (51A, 51B, 52A, and 52B) open and the radiation monitor purge line isolation valves (51D, 51E, 52D and 52E) close. The remote air intake isolation valves and the radiation monitor purge line isolation valves are interlocked so when an intake line is opened the associated purge line is isolated.

d) The control room emergency filtration system is automatically started and draws 1000 cfm of fresh air through the remote air intakes. This additional air, when added to the recirculated air, pressurizes the control room.

The event described in LER 88-005 was for leakage around the emergency filters in excess of the technical specification allowable limit. During the engineering evaluation committed to in LER 88-005 to determine the effect of the excess leakage on control room habitability, a design engineer determined that postulated single failures could cause some combination of remote air intake line isolation valves to fail to open or to reisolate and; thus, isolate both remote air intake lines. If this condition existed during LOCA conditions, the Control Room HVAC would be running in a recirculation mode only since the normal roof intake is also isolated. In the recirculation mode the 20,000 cfm would continue to be drawn from the control room and recirculated back to the control room; however, without the fresh air input the control room would not be pressurized. In a neutral pressure condition the inleakage to the control room would increase and this condition is not analyzed.

Immediate Actions

The planned Plant Startup was delayed until the following actions were completed. 1) The motor operators were removed and manual operators were installed on the remote air intake isolation valves (51A and B and 52A and B). The valve operators were changed to manual so the isolation valves on the remote intake lines could be opened without an FAZ signal present; thereby, assuring that a single failure could not cause operation in the recirculation mode. With the remote air intake lines open, the control room emergency filtration system is started, fan 51 is deenergized, and the associated damper is closed. This put the Control Room HVAC system in the pressurization mode of operation which satisfied the action statement of Technical Specification 3.3.7.1. The current Plant configuration has both remote intakes open during normal operation. Figure 2 shows the post event Control Room HVAC configuration. 2) Two of the radiation purge line isolation valve electro-pneumatic operator motors (52D and 51E) were electrically disconnected which causes the valves to open. This was done so that only one manual action is required to isolate a remote path and cause the associated purge path to open or vice versa. 3) The 750 cfm control room exhaust fan (51) was deenergized. 4) Specific directions for Plant Operators to execute to maintain design bases in the event of a LOCA were provided in (approved) deviated Plant procedures. Each new operations crew was provided training by Operation Managers.

Further Evaluation and Corrective Action

A. Further Evaluation

This event was reported per 10CFR50.72(b)(2)(i) on September 2, 1988 at 1702 hours. The event is also reported per 10CFR50.73(a)(2)(ii)(A).

There were no structures, systems, or components inoperable prior to this event which contributed to the event.

The cause of this event was the failure of the Plant Architect/Engineer (Burns & Roe Inc.) to provide a system design for which a single failure could not isolate both remote air intakes and cause the Control Room HVAC System to operate in the recirculation mode, or to analyze the recirculation mode of operation. The root cause of this event is a lack of communication between the Architect/Engineer design groups.

B. Further Corrective Action

1) The Control Room HVAC recirculation mode of operation was analyzed. The results are summarized under safety significance below.

2) Technical Specification Amendment 74 was received allowing operation of the Control Room HVAC system in the revised configuration.

3) A letter was sent to Burns & Roe Inc., providing notification of a potential 10CFR Part 21 condition.

Safety Significance

The safety significance of operation in the recirculation mode has been evaluated. The results are documented in Technical Memorandum TM-1158, Revision 4. The calculation assumed Control Room inleakage in the range of 350 to 450 cubic feet per minute. The calculated whole body gamma dose and skin beta dose were within limits. However, the calculated thyroid dose was approximately 100 Rem which exceeds the Standard Review Plan 6.4 limit of 30 Rem. It is therefore concluded that this event has safety significance as a single failure during LOCA conditions could have resulted in Licensing Basis Document (LBD) limits being exceeded.

Similar Events

None

EIIS Information

Text Reference	EIIS Reference System	EIIS Reference Component
Control Room Heating and Ventilation (HVAC) System	VH	- - - - -
Normal Fresh Air Intake (Normal Roof Intake Radwaste Building)	VH	- - - - -
Remote Air Intake Line, (East or West)	VH	- - - - -
Remote Air Intake Isolation Valves (51A and B and 52A and B)	VH	ISV
Remote Air Intake Isolation Valve Motor Operator (Electro-Pneumatic Motor Operator)	VH	84
Radiation Purge Line Isolation Valves (51D and E and 52D and E)	VH	ISV
Radiation Purge Line Isolation Valve Motor Operator (Electro-Pneumatic Motor Operators)	VH	84
Control Room Emergency Filtration System Fan 51A or 51B	VH	FAN
750 cfm Control Room Exhaust Fan (51)	VH	FAN
Radiation Purge Live Exhaust Fans (53A and B)	VH	FAN

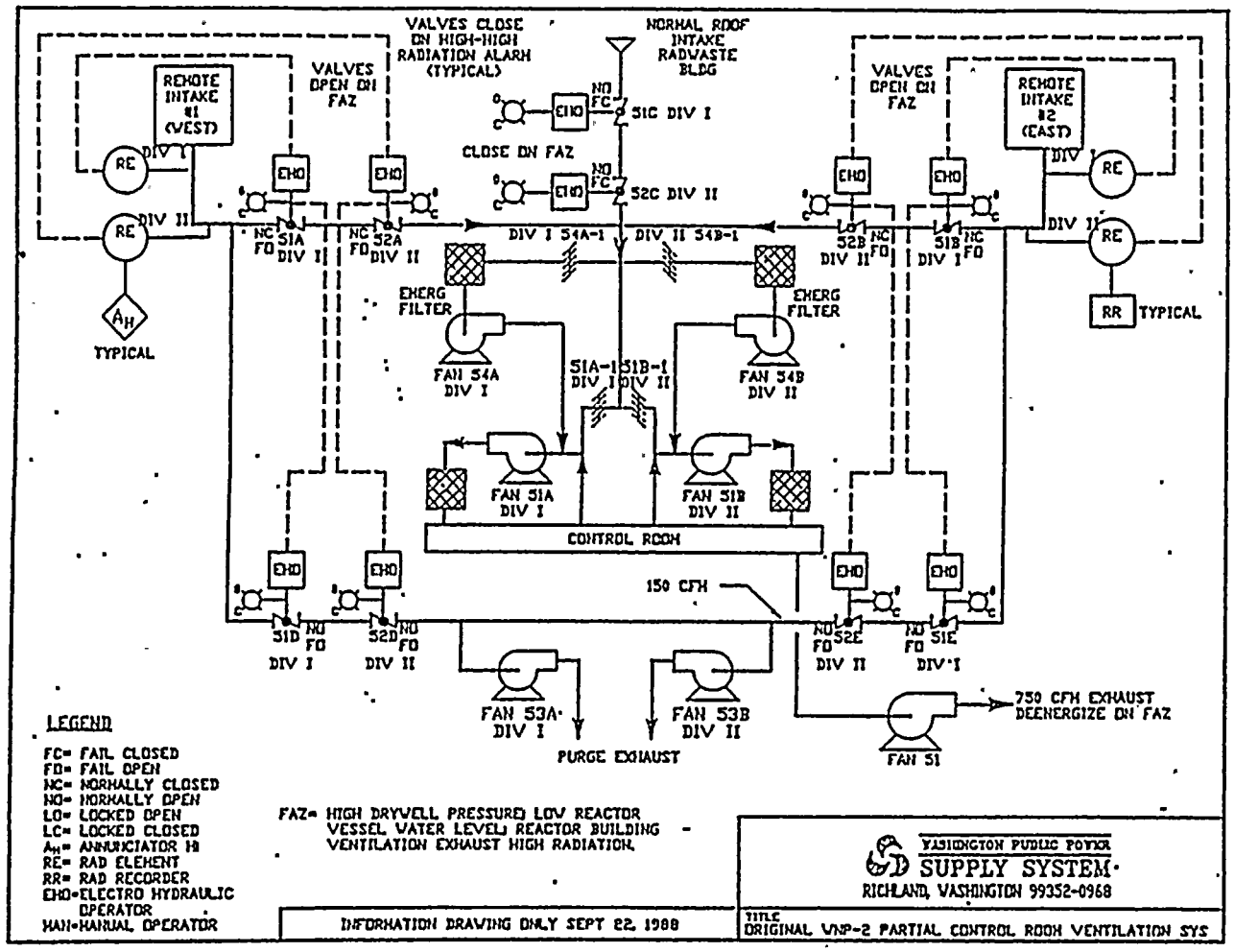

Figure 1 Pre-Event Control Room HVAC

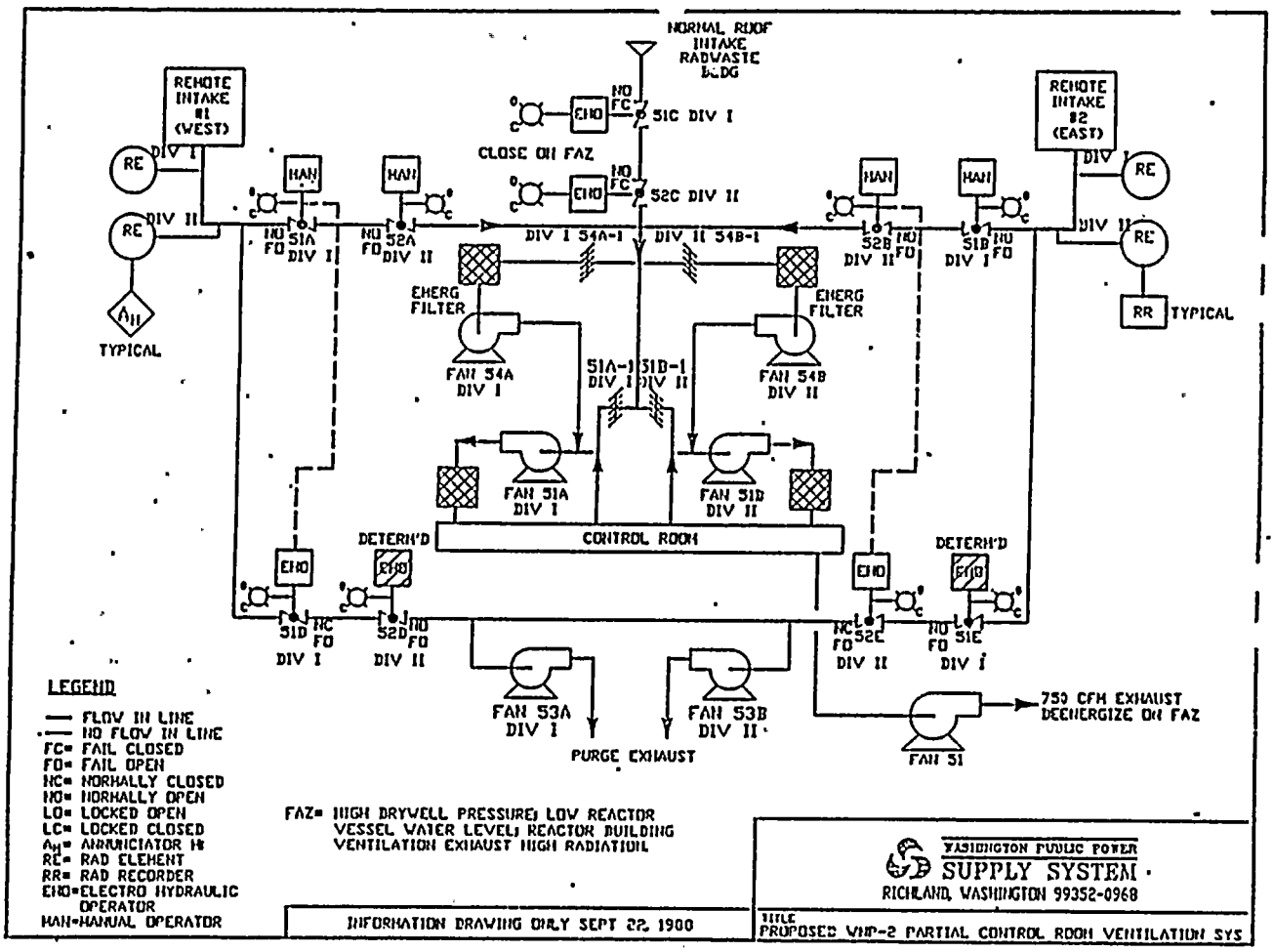

Figure 2 Post-Event Control Room HVAC