

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8803150338 DOC.DATE: 88/03/09 NOTARIZED: NO DOCKET #  
 .FACIL:50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
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 .POWERS,C.M. Washington Public Power Supply System  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-005-00:on 880208,control room emergency filtration  
 sys,Train B,bypass flow not in compliance w/Tech Specs.  
 W/8 ltr.

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

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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Washington Nuclear Plant - Unit 2DOCKET NUMBER (2)  
0 5 0 0 0 3 9 7 1 OF 0 5TITLE (4)  
Control Room Emergency Filtration System, Train "B," Bypass Flow Not In Compliance With Technical Specifications - Cause Unknown

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	2	0	8	8	8	8	8	8		0 5 0 0 0
0	2	0	8	8	8	8	8	8		0 5 0 0 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)		20.402(b)		20.405(c)		60.73(a)(2)(iv)		73.71(b)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)
0 17 2		20.405(a)(1)(i)		60.36(c)(1)		60.73(a)(2)(v)		73.71(c)		
		20.405(a)(1)(ii)		60.36(c)(2)		60.73(a)(2)(vii)				
		20.405(a)(1)(iii)		60.73(a)(2)(i)		60.73(a)(2)(viii)(A)				
		20.405(a)(1)(iv)		60.73(a)(2)(ii)		60.73(a)(2)(viii)(B)				
		20.405(a)(1)(v)		60.73(a)(2)(iii)		60.73(a)(2)(x)				

## LICENSEE CONTACT FOR THIS LER (12)

NAME  
J.D. Arbuckle, Compliance EngineerTELEPHONE NUMBER  
AREA CODE  
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	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

## SUPPLEMENTAL REPORT EXPECTED (14)

☒ YES (If yes, complete EXPECTED SUBMISSION DATE)  
☐ NOEXPECTED SUBMISSION DATE (15)  
MONTH DAY YEAR  
0 4 2 9 8 8

## ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On February 8, 1988 it was determined that Control Room Emergency Filtration System, Train "B," bypass flow was greater than the 0.05 percent allowed by the Plant Technical Specifications, presumably from September 23, 1987 until January 20, 1988.

During September 23-25, 1987 an HVAC contractor (Able Balance Co.) was brought on site to collect air balance data for the Control Room Emergency Filtration System. On November 9, 1987 the Supply System received a report from Able Balance that indicated that air may have been bypassing the Control Room Emergency Filtration System, Train "B." However, no action was taken because a Plant System Engineer, who assisted Able Balance in recording the data, did not note any abnormalities during data collection in September. The System Engineer made the assumption that an error was made when recording the data.

During January, 1988 Able Balance returned to perform Plant Service Building HVAC air balancing work and was requested to recheck Control Room Emergency Filtration System flow measurements. On January 20, 1988 a pressure differential was noted across outside air intake (bypass) damper WMA-AD-51B-1. As a result of further investigation, a flow restrictor was installed (on January 20, 1988) in the Emergency Filter Unit (WMA-FU-54B) air intake in an attempt to restore a proper balanced condition to the system.

On February 8, 1988 a test was performed with and without the flow restrictor in place to reconfirm flow balance/pressure drop data. It was determined that, without the restrictor in place, a small quantity of air (approximately 15-24 cfm of a total flow of 1000 cfm) was bypassing the filtration system through WMA-AD-51B-1. With the flow restrictor in place, test results were satisfactory.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

Abstract (Continued)

The cause of the event is unknown. An investigation was performed which did not reveal why there was an increase in bypass leakage. Further corrective actions include 1) counseling the System Engineer involved on the importance of documenting potential nonconforming conditions at the time of discovery, and 2) performing further engineering evaluation to determine the potential effects of minor system changes on system bypass flow.

Although this event posed no threat to the health and safety of the public, during the event period there could have been an emergency condition (DBA-LOCA) when 1.5-2.4 percent of unfiltered air would have entered the Control Room. Accordingly, an engineering evaluation is currently being performed to determine the effects on Control Room dose calculations during such a condition. At the completion of the evaluation, a supplemental report will be submitted.

Plant Conditions

- a) Power Level - 72%
- b) Plant Mode - 1 (Power Operation)

Event Description

On February 8, 1988 it was determined that Control Room Emergency Filtration System, Train "B," bypass flow was greater than the 0.05 percent allowed by the Plant Technical Specifications, presumably from September 23, 1987 until January 20, 1988.

During September 23-25, 1987 an HVAC contractor (Able Balance Co.) was brought on site to collect air balance data for the Control Room Emergency Filtration System. The contractor was brought on site in an attempt to verify several Supply System concerns relating to the accuracy of HVAC flow data obtained by Argonne National Laboratory (ANL) personnel during the last refueling outage (Spring, 1987). Results of the ANL flow measurements are to be included in a NUREG on the Control Room Habitability Survey.

On November 9, 1987 the Supply System received a written report from Able Balance, and a review of the air balance data indicated that there may be air bypassing the Control Room Emergency Filtration System, Train "B," through a motor-operated outside-air-intake (bypass) damper (WMA-AD-51B-1). However, no action was taken at that time because a Plant System Engineer, who assisted Able Balance in the recording of data in September, did not note any abnormalities when measuring the  $\Delta P$  across the damper. As a result, the System Engineer made the assumption that a transposition error (the positive and negative pressure data were assumed to be reversed) had been made when the data was recorded and, therefore, did not believe that an actual abnormal condition existed. Another factor which led the System Engineer to believe that no abnormal condition existed was that Plant Procedure (PPM) 7.4.7.2.2, "Control Room Emergency Filtration System - HEPA DOP Test," had been successfully performed in August, 1987 and no work had since been performed on the system which would account for any change.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/83

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

The purpose of PPM 7.4.7.2.2 is to verify that the HEPA section of the Control Room Emergency Filtration System 1) satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05 percent in accordance with Regulatory Guide 1.52 (Revision 2-1978), when tested to ANSI 510-1975/1980 requirements, and 2) does not exceed the flow and pressure drop requirements of the Plant Technical Specifications.

However, the System Engineer should have either 1) documented the potential condition on a Plant Nonconformance Report (NCR), or 2) immediately verified the results of the Able Balance data at the time the report was received.

During January, 1988 Able Balance was brought back on site to perform Plant Service Building HVAC air balancing work and the decision was made at that time to recheck the Control Room Emergency Filtration System flow measurements.

On January 20, 1988 it was documented that a pressure differential was noted across bypass damper WMA-AD-51B-1. Accordingly, Plant personnel began an investigation to determine the cause and how the pressure differential related to potential bypass leakage. As a result of the investigation, Plant personnel installed a flow restrictor (on January 20, 1988) in the Emergency Filter Unit (WMA-FU-54B) air intake in an attempt to restore a proper balanced condition to the system.

On February 8, 1988, PPM 7.4.7.2.2 was performed with and without the flow restrictor in place as a further attempt to reconfirm flow balance/pressure drop data. It was determined that, without the flow restrictor, a small quantity of air (approximately 15-24 cfm of a total flow of 1000 cfm) was bypassing the filtration system through WMA-AD-51B-1 when in the pressurization mode. As a result, this would have allowed a small amount (1.5-2.4 percent) of unfiltered air to enter the Control Room during accident conditions. With the flow restrictor in place, procedure results were satisfactory.

The cause of this event is unknown. An investigation did not reveal why there was an increase in bypass leakage. The results of the investigation are discussed in the Further Corrective Action section of this report.

Immediate Corrective Action

A flow restrictor was installed which restored a proper balanced condition to the system and, thereby, force any leakage through damper WMA-AD-51B-1 to return to filter unit WMA-FU-54B.

Further Corrective Action

1. An investigation was performed to determine the cause for the change in the system air balance:
  - o Filter  $\Delta P$ s were checked and were within limits.
  - o Fan performance was unchanged.
  - o System flow had not degraded.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 308A's) (17)

- o Discharge, suction and bypass ducting was inspected and no problems were identified.
  - o It was verified that Control Room Emergency Filtration System, Train "A" leakage was recirculating and not bypassing.
  - o System dampers were inspected and found to be satisfactory.
  - o It was determined that no flow balancing had been performed during the event period which would account for a change in bypass flow.
2. A review was performed to determine if additional HVAC changes would be required. The review concluded that no other HVAC changes would be required because the use of a flow restrictor instead of a balancing damper is unique to Control Room Emergency Filtration System, Train "B." Train "A" is configured (the intake is closer to the fan suction) such that a flow restrictor is not required to prevent bypass flow.
3. The Plant System Engineer involved in this event will be counseled on the importance of documenting potential nonconforming conditions at the time of discovery.
4. Further engineering evaluation will be performed to determine the potential effects of minor system changes on system bypass flow. In the interim, additional testing will be performed every six months to ensure that no system changes are taking place which could cause a bypass flow across WMA-AD-51B-1.

Safety Significance

The reliability of the HVAC systems servicing the Main Control Room is achieved by two redundant systems (Trains "A" and "B"). The two trains are physically separated to preclude simultaneous failure from any one incident. Each train contains separate 1000 cfm capacity emergency filter systems which are normally in the standby mode and operate only in the event of an emergency signal resulting from a Design Basis Accident (DBA-LOCA). The emergency signals which activate the emergency filtration systems are 1) high drywell pressure - "F" signal, 2) reactor vessel low water level - "A" signal, and 3) high radiation level in Reactor Building exhaust ventilation system - "Z" signal.

Each of the emergency filter systems consists of an emergency filter unit, an electric heater, bypass and recirculation control dampers and associated ductwork. Each emergency filter unit consists of a medium-efficiency prefilter, high-efficiency particulate air (HEPA) filter, activated charcoal filters, and a direct-drive centrifugal fan (all enclosed in a welded sheet metal housing). A deluge water spray system is provided to soak the charcoal filters in the event of high temperatures in the charcoal beds.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/83

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Although this event posed no threat to the health and safety of the public, during the event period there could have been an emergency condition (DBA-LOCA) when 1.5-2.4 percent of unfiltered air would have entered the Control Room. Accordingly, an engineering evaluation is currently being performed to determine the effects of this small amount of unfiltered air on Control Room radiation dose calculations. At the completion of the evaluation, a supplemental report to this LER will be submitted.

Similar Events

None.

EIIS InformationText ReferenceEIIS Reference

	System	Component
Control Room Emergency Filtration System	VH	---
Plant Service Building HVAC System	VH	---
WMA-AD-51B-1	VH	CDMP
WMA-FU-54B	VH	FLT



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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

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Docket No. 50-397

March 9, 1988

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

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 88-05

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-05 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

CMP:sm

Enclosure:  
Licensee Event Report No. 88-05

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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