

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 AUTH.NAME AUTHOR AFFILIATION  
 ARBUCKLE,J.D. Washington Public Power Supply System  
 POWERS,C.M. Washington Public Power Supply System  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-037-00:on 881130,plant Tech Specs initiated shutdown  
 because of containment supply purge valve air leak.

W/8 ltr.

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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 1										PAGE (3) 1 OF 0 6	
TITLE (4) Plant Technical Specification-Initiated Shutdown Because of Containment Supply Purge Valve Air Leak Due to Seal Failure - 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)						
11	30	88	88	037	00	12	3	88							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) 1100		20.402(b)				20.405(c)				60.73(a)(2)(iv)				73.71(b)							
		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)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)							
		20.405(a)(1)(iii)				X 50.73(a)(2)(i)				60.73(a)(2)(vii)(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)(ix)											
LICENSEE CONTACT FOR THIS LER (12)																					
NAME J.D. Arbuckle, Compliance Engineer										TELEPHONE NUMBER AREA CODE 509 37171-121 5011 EXT. 2115											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs											
B	VR	PLDLCIV	B121510	N																	
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR					
X YES (If yes, complete EXPECTED SUBMISSION DATE)												NO		11	3	11	89				

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

On November 30, 1988 at 2335 hours, Reactor Operators initiated a Plant shutdown due to a Containment Supply Purge Valve (CSP-V-9) air volume leak which exceeded Plant Technical Specification limits. The leakage was discovered during trouble shooting efforts associated with Containment Supply Purge Valve CSP-V-10. Both CSP-V-9 and 10 are Reactor Building-to-Wetwell vacuum breakers. The purpose of these valves (one of three pairs) is to prevent a vacuum from developing in the primary containment due to condensing steam.

The shutdown was initiated because it was determined that repairs to CSP-V-9 could not be made under current plant conditions (Mode 1-100% Power). As a result of the shutdown decision, the Shift Manager declared an "Unusual Event". On December 1, 1988 at 0352 hours, Plant Operators manually scrammed the Plant from approximately 23% power to complete the shutdown, entered Mode 3 (Hot Shutdown) and commenced cooldown. At 1130 hours, reactor coolant temperature was less than 200°F and, as a result, Plant Operators entered Mode 4 (Cold Shutdown). At 1144 hours, the Unusual Event classification was terminated.

The immediate cause of this event was a damaged CSP-V-9 rubber seat. Although the root cause of the seat failure is unknown at this time, preliminary indications are that the failure mode is material related. A formal root cause analysis and Engineering evaluation are currently being performed to determine the failure mode of the seal. At the completion of the analysis and evaluation, the results will be submitted in a supplemental report.

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

8901050269 881230  
PDR ADOCK 05000397

JED 11

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
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Washington Nuclear Plant - Unit 2

0 5 0 0 0 3 9 7 8 8 — 0 3 7 — 0 0 0 2 OF 0 6

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

Plant Conditions

- a) Power Level - 100%
- b) Plant Mode - 1 (Power Operation)

Event Description

On November 30, 1988 at 2335 hours, Reactor Operators initiated a Plant shutdown due to a Containment Supply Purge Valve (CSP-V-9) air volume leak which exceeded Plant Technical Specification limits. The leakage was discovered during trouble shooting efforts associated with Containment Supply Purge Valve CSP-V-10. Both CSP-V-9 and 10 are Reactor Building-to-Wetwell vacuum breakers. The purpose of these valves (one of three pairs) is to prevent a vacuum from developing in the primary containment due to condensing steam.

On November 26, 1988 problems were noted with CSP-V-10 in that it would not indicate full open when cycled. Accordingly, a Maintenance Work Request (MWR) was prepared to trouble shoot and repair the valve. In addition, the appropriate Plant Technical Specification Limiting Condition for operation (14-day LCO) was entered.

On November 29, 1988 Plant Electricians were working the MWR on CSP-V-10 to trouble shoot the indication problem, and noted water in the piping between CSP-V-10 and CSP-V-9. The pipe is a 24-inch Reactor Building-to-Wetwell vacuum breaker relief line that provides air for containment pressure stabilization. Although the line does not carry water, the source was condensation due to temperature differences between the Wetwell (approximately 135°) and the exposed portion of the line in the Reactor Building (approximately 80°) upstream of CSP-V-9. Accordingly, Plant Technical Engineers performed a visual inspection and noted surface disturbance in the water at the base of CSP-V-9. Also at this time a small pressure differential (approximately 2" water gauge) existed between the Wetwell and the Reactor Building. As a result, the engineers suspected that the seal may have not been seating properly to prevent air leakage. They did establish that CSP-V-10 was seating properly and could act as a containment boundary for the line.

The following is a chronology for those actions taken on November 30, 1988:

- 0100 hours: Repairs were completed on CSP-V-10. Plant electricians replaced a proximity switch (Supplier: R. B. Denison Co. Model No. WE74/Ex2).
- 0730 hours: CSP-V-9 was visually inspected and a small amount of air leakage was observed. The leakage appeared to be minimal and not an indication of gross seal failure.
- 1029 hours: Plant Management determined that a Local Leak Rate Test (LLRT) was needed to ascertain the potential leak rate from CSP-V-9.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

- 2245 hours: After several attempts to perform the LLRT on CSP-V-9, Plant personnel were unable to establish the required pressure between CSP-V-9 and CSP-V-10. As a result, CSP-V-9 was declared inoperable and the appropriate Technical Specification LCO was entered.
- 2330 hours: It was determined that repairs to CSP-V-9 could not be made under current Plant Conditions (Mode 1 - 100% Power) and, as a result, Plant shutdown was required in accordance with Plant Technical Specification Action Statement (TSAS) 3.6.1.1, "Primary Containment Integrity."

As a result of the shutdown decision, the Shift Manager declared an "Unusual Event" over the Plant PA system.

- 2333 hours: The Shift Manager, utilizing the CRASH Network, notified the Emergency Operations Facility Communications Center (EOFCC) of the Unusual Event.
- 2335 hours: Plant Operators commenced Plant shutdown to bring the Plant into the Cold Shutdown (Mode 4) condition.
- 2347 hours: The NRC was notified of the Unusual Event declaration and Plant Shutdown.

On December 1, 1988 at 0352 hours, Plant Operators manually scrammed the Plant from approximately 23% power to complete the shutdown, entered Mode 3 (Hot Shutdown) and commenced cooldown. At 1130 hours, reactor coolant temperature was less than 200°F and, as a result, Plant Operators entered Mode 4 (Cold Shutdown). At 1144 hours, the Unusual Event classification was terminated.

#### Immediate Corrective Action

As required by the Plant Technical Specifications, Plant Operators successfully maneuvered the Plant to the Cold Shutdown condition.

#### Further Evaluation and Corrective Action

##### A. Further Evaluation

The immediate cause of this event was a damaged CSP-V-9 rubber seat. The Viton seal was supplied by I. B. Moore Co. and manufactured in accordance with ASTM D20002HK715A1-10Z1 (Shore A 75 Hardness). The seal was procured by the Supply System to fit into the butterfly valve which was manufactured by BIF, Co. Although the root cause of the seat failure is unknown at this time, preliminary indications are that the failure mode is material related.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

B. Further Corrective Action

1. The damaged CSP-V-9 seat was replaced with new seat material and a post-maintenance LLRT was successfully performed in accordance with Plant Procedure (PPM) 7.4.6.1.2.4, "Containment Isolation Valve and Penetration Leak Test program".
2. A visual inspection was performed on CSP-V-5 and CSP-V-6. Although CSP-V-6 showed no signs of deterioration, the CSP-V-5 seal was also damaged. The CSP-V-5 seal was replaced and successfully passed a post-maintenance LLRT. In addition, CSP-V-6 was tested and successfully passed an LLRT.
3. As a precautionary measure, an entry was made into the Operations Department Night Orders such that each time one of the vacuum breaker CSP valves or Wetwell Exhaust Purge (CEP) valves are cycled, an LLRT is to be performed on the cycled valve. The valves are: CSP-V-5, CSP-V-6, CSP-V-9, CEP-V-3A and CEP-V-4A.
4. A formal root cause analysis and Engineering evaluation are currently being performed to determine the failure mode of the seals. At the completion of the analysis and evaluation, the results will be submitted in a supplemental LER.

Safety Significance

There are three Reactor Building-to-Wetwell relief lines each containing a 24-inch vacuum breaker (check) valve and an air-operated butterfly valve. The check valves are CSP-V-7,8 and 10; the butterfly valves are CSP-V-5,6 and 9 (Reference Figure 1). These valves prevent a vacuum from developing in the primary containment due to condensing steam. Actuation of the butterfly valves is controlled by the differential pressure between the suppression chamber and the Reactor Building. Both types of valves are set to open at 0.5 psid.

Because it was established that CSP-V-10 was seating properly and could act as a containment boundary for the line, and that Plant Operators successfully maneuvered the Plant to a Cold Shutdown condition, this event posed no threat to the health and safety of either the Public or Plant personnel.

Similar Events

None

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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

EIIS InformationText ReferenceEIIS Reference

System      Component

Butterfly Valves CSP-V-5, 6 and 9

VB      PDCV

Vacuum Breaker (Check) Valves CSP-V-7, 8 and 10

VB      PDCV

Wetwell Exhaust Purge Valves CEP-V-3A and 4A

VB      PDCV

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION  
APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/88

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Washington Nuclear Plant - Unit 2

EXT (If more space is required, use additional NRC Form 366A-9/117)

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YEAR  
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NUMBER  
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NUMBER

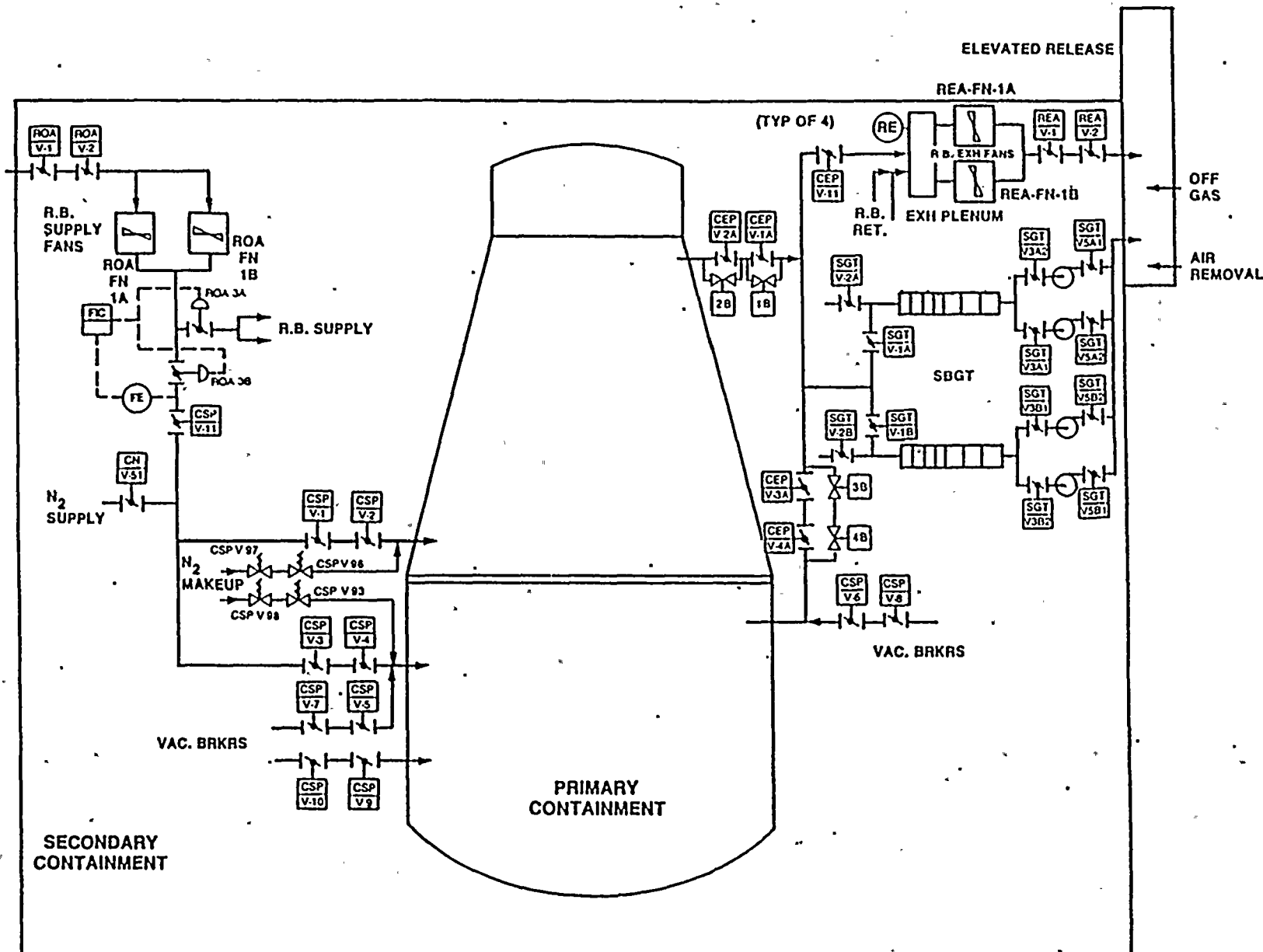


FIGURE 1



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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

December 30, 1988

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

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 88-037

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-037 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:lc

Enclosure:  
Licensee Event Report No. 88-037

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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