

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8912150076 DOC. DATE: 89/12/05 NOTARIZED: NO DOCKET #  
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
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 DAVIDSON, W.S. Washington Public Power Supply System  
 POWERS, C.M. Washington Public Power Supply System  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-010-01: on 890501, partial NSSSS actuation due to loss  
 of power to RPS Bus A caused by equipment design deficiency.  
 W/8 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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	ACRS WYLIE	1 1	AEOD/DOA	1 1
	AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
	DEDRO	1 1	NRR/DET/ECMB 9H	1 1
	NRR/DET/EMEB9H3	1 1	NRR/DET/ESGB 8D	1 1
	NRR/DLPQ/LHFB11	1 1	NRR/DLPQ/LPEB10	1 1
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	RES/DSIR/EIB	1 1	RGN5 FILE 01	1 1
EXTERNAL:	EG&G WILLIAMS, S	4 4	L ST LOBBY WARD	1 1
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AD-4

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

December 5, 1989

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

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 89-010, Rev. 1

Dear Sir:

Transmitted herewith is Licensee Event Report No. 89-010-01 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:lg

Enclosure:  
Licensee Event Report No. 89-010, Rev. 1

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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LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Washington Nuclear Plant - Unit 2	0   5   0   0   0   3   9   7	8   9	-   0   1   0	-   0   1	0   2 OF 0   5	

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

Since all ESF systems responded as designed, these two events had no safety significance. This event presented no safety hazard to the public or Plant personnel.

Plant Conditions

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

Event Description

During the annual refueling outage, on May 1, 1989, at 2146 hours, while performing the Reactor Protective System (RPS) Logic System Functional Test, the "A" RPS 120 volt AC power supply bus experienced an unexplained momentary loss of electrical power. As a result of this electrical transient which lasted less than 100 milli-seconds, Primary Containment Isolation groups 2,5,6, and 7 received a spurious ESF actuation signal causing the closure of the following valves: RHR-V-53A (Shutdown Cooling Loop "A" Return Valve), RHR-V-53B (Shutdown Cooling Loop "B" Return Valve), RHR-V-8 (Shutdown Cooling Loop "A" Suction Containment Isolation Valve), RHR-V-23 (Shutdown Cooling Head Spray Valve), RHR-V-40 (Loop "B" Outboard Isolation to Radwaste), RHR-V-75A (Loop "A" Outboard Sample Isolation Valve), RHR-V-75B (Loop "B" Outboard Sample Isolation Valve), MS-V-67D (Main Steam Isolation Valve MS-V-28D body drain isolation to the Main Condenser) [All other body drain isolation valves were closed as a result of the shutdown.], EDR-V-20 (Drywell Equipment Drains Containment Isolation Outboard Valve), FDR-V-4 (Drywell Floor Drain Containment Isolation Outboard Valve), and RWCU-V-4 (Reactor Water Cleanup System Outboard Suction Isolation Valve).

Also, one half of the RPS trip logic was actuated, causing operation of half of the scram pilot solenoid valves (a half scram on the "A" side), and one half of the Main Steam Isolation Valve (MSIV) isolation logic (a half MSIV isolation) was actuated. Neither the half scram nor the half MSIV isolation resulted in actual equipment operation as these are circuit logic conditions only.

On May 3, 1989, at 1528 hours, a second similar loss of power to the "A" RPS bus occurred. The difference between this event and the previous occurrence on May 1, 1989, was the fact that the Electrical Protection Assemblies (EPAs), located on the output side of the "A" RPS Motor Generator Set, did actuate to deenergize the 120 volt "A" RPS bus. This resulted in a sustained loss of power to the bus causing spurious initiation of a Reactor Building Exhaust Plenum High Radiation signal ("Z" signal) and the subsequent initiation of a Secondary Containment Isolation signal in addition to the ESF actuations caused by the previous event.

As a result of the spurious "Z" signal the following actions occurred:

- o Auto start of both Standby Gas Treatment trains.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)  Washington Nuclear Plant - Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   3   9   7	LER NUMBER (6)			PAGE (3)	
		YEAR 8   9	SEQUENTIAL NUMBER -   0   1   0	REVISION NUMBER -   0   1	0   4 OF 0   5	

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

4. The cause of the event was discovered to be Equipment Failure - Design Deficiency - Problem Not Anticipated:

As a result of troubleshooting efforts, a metal nameplate was found in the bottom of the RPS "A" power panel. The nameplate showed signs of arc damage. Investigation indicates that the nameplate had been lodged between the upper pole piece of the RPS "A" logic feeder circuit breaker and the power panel inner metal cover causing the RPS power supply to short circuit to ground. It was concluded that the direct short to ground caused bus voltage to drop enough to result in the observed power supply transients.

It was further concluded that the glue which attached the nameplate to the upper section of the power panel was degraded by heat in a manner unanticipated by the designer. The degradation of the glue allowed the nameplate to fall off into the circuit breaker area and cause the short to ground.

#### B. Corrective Action

1. A troubleshooting plan was written and implemented to discover the cause of the unexplained losses of the "A" RPS bus power supply.
2. The nameplates were removed from the "A" RPS power supply panel.
3. The nameplates on the "B" side RPS power supply panel will be removed during the 1990 Refueling Outage.

#### Safety Significance

Since all of the ESF systems responded as designed to the spurious actuation signals, these two events had no safety significance. The loss of RHR Shutdown Cooling was responded to in a correct and timely fashion to return cooling and circulation to the reactor core within the Technical Specification time limits. Had these events occurred with the plant operating at power, some of the systems would have been subjected to thermal, flow and pressure transients of greater magnitude. This type of local system transient is within the scope of the design of the various systems and would have presented no safety concern. This event presented no safety hazard to the public or Plant personnel.

#### Similar Events

Two previous similar events have occurred at WNP-2. LER 85-025-01 "Engineered Safety Feature Isolations and Actuations Caused by Reactor Protection System Equipment Failure" documented a loss of the "A" RPS bus which was attributed to failure of the EPA circuit breaker RPS-EPA-3A undervoltage relay coil. LER 86-011-00 "Nuclear Steam Supply Shutoff System Actuation due to Momentary Loss of Instrument Power" documented a momentary loss of power to the "B" RPS bus. The cause of this event was not able to be determined.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATIONESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS  
INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD  
COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS  
AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR  
REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO  
THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE  
OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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Washington Nuclear Plant - Unit 2

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8 9 - 0 1 0 - 0 1 0 5 OF 0 5

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

EIIS InformationText ReferenceEIIS Reference

System Component

RPS	JC	---
EPA	JC	---
"A" RPS Motor Generator Set	JC	88
RHR-V-53A	BO	V
RHR-V-53B	BO	V
RHR-V-40	BO	V
RHR-V-75A	BO	V
RHR-V-75B	BO	V
MS-V-67D	SB	V
MS-V-28B	SB	V
EDR-V-20	WH	V
FDR-V-4	WH	V
MSIV	SB	V
Standby Gas Treatment	BH	---
Technical Support Center HVAC	VK	---
Reactor Building Emergency Room Coolers	VA	HX
Reactor Building Equipment and Floor Drain Sump Pump Header	WH	PSF
Secondary Containment Ventilation System	VA	---
Reactor Building Supply and Exhaust Fans	VA	P
RHR Shutdown Cooling	BO	---
RWCU-V-4	CE	V
"A" RPS Power Supply Panel	JC	RJX
"B" RPS Power Supply Panel	JC	RJX