

## ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9106070134      DOC. DATE: 91/05/29      NOTARIZED: NO      DOCKET #  
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe      05000397  
 AUTH. NAME      AUTHOR AFFILIATION  
 SORESENSEN, G.C.      Washington Public Power Supply System  
 BAKER, J.W.      Washington Public Power Supply System  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 91-011-00: on 910429, ESF actuation occurred as wire in control room panel inadvertently cut. Caused by equipment/design deficiency. Operators replaced blown fuse & reset isolation logic signal. W/910529 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

## NOTES:

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	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/ECMB 9H	1 1
	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	<del>REG-FILE-02</del>	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
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## LICENSEE EVENT REPORT (LER)

ESTIMATED 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.

FACILITY NAME (1) Washington Nuclear Plant - Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 3 9 1 7 1										PAGE (3) 1 OF 0 4			
TITLE (4) ESF ACTUATION DUE TO INADVERTENT WIRE CUTTING DURING PLANT MODIFICATION WORK																							
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	4	2	9	9	1	0	1	1	0	0	0	5	2	9	9	1	0	5	0	0	0		
OPERATING MODE (9) 5		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																					
POWER LEVEL (10) 0 1 0 0		20.402(b)				20.405(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)									
		20.405(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(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 356A)									
		20.405(a)(1)(iii)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(A)													
		20.405(a)(1)(iv)				50.73(a)(2)(iii)				50.73(a)(2)(vii)(B)													
		20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)													
LICENSEE CONTACT FOR THIS LER (12)																							
NAME G. C. Sorensen, Manager, Regulatory Programs												TELEPHONE NUMBER 510 1 9 3 1 7 1 2 1 - 1 5 1 2 1 3 8											
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)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR									
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO													

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

On April 29, 1991, at 1249 hours, while in operational condition 5 (refueling) with the reactor head removed, the reactor cavity flooded up and the fuel pool gates removed, the Outboard Residual Heat Removal (RHR) Shutdown Cooling Valve (RHR-V-8) automatically isolated, causing a loss of shutdown cooling, an ESF actuation. The event occurred when a contractor maintenance electrician, working under an approved Maintenance Work Request (MWR), accidentally cut through the insulation of a wire in the RHR Isolation Control Logic circuit while cutting tie wraps around a wire bundle. Contact of the cutting tool with the bare wire resulted in a blown fuse in the RHR control logic circuit. This loss of power caused RHR-V-8 to close, tripping the RHR shutdown cooling pump (RHR-P-2B). At the time of the event, the reactor vessel temperature was 94.20F and reactor pressure was atmospheric. Temperature increase during the time shutdown cooling was lost (24 minutes) was negligible. Plant operators restored shutdown cooling at 1313 hours.

The root cause of the event was equipment/design deficiency in that there was inadequate accessibility to the wire bundle for the contractor maintenance electrician to get to the tie wrap to be cut and orient the side cutters parallel to the tie wrap. A contributing factor may have been insufficient attention applied to the task by the electrician.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 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)  Washington Nuclear Plant - Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   3   9   7   9   1   —   0   1   1   —   0   0   0   2   OF 0   4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

Abstract (continued)

No corrective action is being proposed for the design deficiency aspect of the event because it is not feasible to redesign this area in the control room. Corrective actions taken consisted of (1) counseling the individual involved, (2) discussing the event with the work crew working on control room upgrades, and (3) issuance of a memorandum to the contractor's electrical personnel cautioning about the care that needs to be exercised when working with control room instrumentation.

There was no safety significance associated with this event. At the time of the isolation, reactor water level was greater than 22 feet above the reactor vessel flange. This provides a large heat sink for core cooling and adequate time to restore RHR shutdown cooling or initiate an alternate decay heat removal method. This event did not pose a threat to the health and safety of Plant personnel or the public.

Plant Conditions

Power Level - 0%  
Plant Mode - 5 (Refueling)

Event Description

On April 29, 1991, at 1249 hours, an ESF actuation occurred when a wire in a control room panel was inadvertently cut. A contract electrician was working under an approved Maintenance Work Request to replace recorders in the control room. In the process of cutting a tie wrap in Control Room Panel H13-P601, the side cutter tool being used inadvertently cut through the insulation of a wire in the RHR isolation control logic circuit. When the cutter blade came in contact with the wire, the head of the cutter must have been in contact with the metal frame of the cabinet, causing an electrical short. The short circuit caused a fuse in the isolation logic for RHR-V-8 to blow. The RHR valve is a Nuclear Steam Supply Shutoff System (NS<sup>4</sup>) valve. The valve is interlocked to the shutdown cooling RHR pumps (RHR-P-2A and RHR-P-2B) such that the pumps trip when the valve closes. At the time of the event, the Plant was in a shutdown condition for the annual maintenance and refueling outage. RHR loop B was operating in the shutdown cooling mode. Loss of power due to the blown fuse resulted in closure of RHR-V-8, RHR-V-53B (shutdown cooling return) and tripped the RHR pump (RHR-P-2B), stopping shutdown cooling flow. The electrician discontinued further work on the panel until the problem was investigated.

The work space in Panel H13-P601 was very cramped. In order to get to the tie wrap to be cut, the electrician had to go between numerous plugs and wires. This made it difficult for the electrician to clearly see the orientation of the side cutters being used with respect to the tie wrap and other wires in the bundle and contributed to the event.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)			
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TEXT (If more space is required, use additional NRC Form 368A's) (17)

Control room personnel immediately recovered from the event. The wire bundle that was being worked on was examined and temporary repair was made to the cut insulation. The control room personnel then replaced the blown fuse, reset the isolation logic, opened RHR-V-8, RHR-V-53B and started RHR-P-2B, thus restoring shutdown cooling flow. Shutdown cooling was restored at 1313 hours.

Immediate Corrective Actions

The electrician immediately stopped any further work in the panel. A check of the wire bundle was made and the wire with the cut insulation was inspected, tagged and temporarily reinsulated. An MWR was prepared to inspect and repair the wire.

Plant operators took immediate corrective action to determine the source of the event, replace the blown fuse, reset the isolation logic signal, open the valves (RHR-V-8 and RHR-V-53B) and restart the RHR pump (RHR-P-2B), thus restoring shutdown cooling flow. Shutdown cooling was re-established at 1313 hours, twenty-four (24) minutes after the event.

Further Evaluation and Corrective ActionA. Further Evaluation

1. This event is being reported under 10 CFR 50.73(a)(2)(iv) as "an event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF)."
2. There were no structures, systems or components that were inoperable at the start of this event that contributed to the event.
3. The root cause of the event was equipment/design deficiency in that there was inadequate accessibility to the wire bundles for the contractor maintenance electrician to get to the tie wrap to be cut and orient the site cutters parallel to the tie wrap. Because of the cramped space, it was difficult for the electrician to see that the end of the cutting tool had partially surrounded the wire.
4. A contributing factor was insufficient attention applied to the task by the electrician. With a greater degree of care, it may have been possible to prevent this event, in spite of the cramped working environment.

B. Further Corrective Actions

1. No corrective action is being proposed for the design deficiency aspect of the event because it is not feasible to redesign this area in the control room.
2. Contractor management discussed the event with the work crew performing the control room upgrades. Management's message was that added precautions must be exercised when working in panels with restricted work space to prevent a recurrence of this event.

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 REVISION  
NUMBER NUMBER NUMBER

Washington Nuclear Plant - Unit 2

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

3. Contractor management issued an interoffice memorandum to all electrical personnel to address the need for increased sensitivity to the "hair-trigger" response times of the systems. Electricians were working on upgrading the control room recorders. The purpose of this memo was to remind craft personnel that even a slight error can cause an event with potential cost and regulatory impacts.
4. A Maintenance Work Request was prepared to inspect and repair the wire that had been nicked.
5. Experiences, including this event, from the current outage will be factored into a "lessons learned" training session for contractor personnel prior to the start of next year's outage. This is standard practice for the contractor.

Safety Significance

There is no safety significance associated with this event. With the Plant in refueling mode and the volume of water available, there was adequate time to restore shutdown cooling or make an alternate cooling path available.

Similar Events

Similar events include LERs 89-017, 89-019, 89-025, 90-009, 90-013, and 91-007. All of these events included loss of shutdown cooling. However, they were initiated by events other than the inadvertent cutting of wire insulation.

EIIS InformationText ReferenceEIIS Reference

	<u>System</u>	<u>Component</u>
Residual Heat Removal (RHR) Shutdown Cooling Supply Valve (RHR-V-8)	BO	ISV
Pump RHR-P-2B	BO	P
Nuclear Steam Supply Shutoff System	BD	---
Pump RHR-P-2A	BO	P
RHR Shutdown Cooling Return Valve RHR-V-53B	BO	V



WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

May 29, 1991

G02-91-109

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

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 91-011

Dear Sir:

Transmitted herewith is Licensee Event Report No. 91-011 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,

*J. W. Baker for.*  
J. W. Baker (M/D 927M)  
WNP-2 Plant Manager

JWB:ac

Enclosure:  
Licensee Event Report No. 91-011

cc: Mr. John B. Martin, NRC - Region V  
Mr. C. Sorensen, NRC Resident Inspector (M/D 901A)  
INPO Records Center - Atlanta, GA  
Ms. Dottie Sherman, ANI  
Mr. D. L. Williams, BPA (M/D 399)  
NRC Resident Inspector - walk over copy

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