

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8906260137 DOC.DATE: 89/06/16 NOTARIZED: NO DOCKET #  
 FACIL:50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
 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 89-017-00:on 890520,RHR sys shutdown cooling containment  
 isolation valve closure occurred due to personnel error.  
 W/8 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 3  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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NRR/DEST/ICSB 7	1 1	NRR/DEST/MEB 9H	1 1
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NRR/DLPQ/HFB 10	1 1	NRR/DLPQ/PEB 10	1 1
NRR/DOEA/EAB 11	1 1	NRR/DREP/RPB 10	2 2
NUDOCS-ABSTRACT	1 1	<del>REG-FILE</del> 02	1 1
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EXTERNAL: EG&G WILLIAMS,S	4 4	FORD BLDG HOY,A	1 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

June 16, 1989

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

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 89-017

Dear Sir:

Transmitted herewith is Licensee Event Report No. 89-017 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. 89-017

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)

FACILITY NAME (1) Washington Nuclear Plant - Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 3 1 9 7										PAGE (3) 1 OF 0 4	
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TITLE (4) Residual Heat Removal System Shutdown Cooling Containment Isolation Valve (Engineered Safety Feature) Closure Due to Personnel Error																			
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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	5	2	0	8	9	8	9	0	1	7	0	0	0	6	1	6	8	9	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)				50.38(c)(1)				50.73(a)(2)(v)				73.71(c)								
	20.405(a)(1)(ii)				50.38(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)(ii)				50.73(a)(2)(viii)(A)												
	20.405(a)(1)(iv)				50.73(a)(2)(iii)				50.73(a)(2)(viii)(B)												
20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)													

LICENSEE CONTACT FOR THIS LER (12)										TELEPHONE NUMBER									
NAME J.D. Arbuckle, Compliance Engineer										AREA CODE 510 937 171-121115									

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

On May 20, 1989 at 1336 hours, while in operational condition 5 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. The cause was the removal of a relay by a Contractor Maintenance Electrician installing a modification to the Leak Detection System. Removal of the relay removed power from the RHR-V-8 valve control relay, thereby, causing the valve to close. An interlock on the closure of RHR-V-8 tripped an RHR Shutdown Cooling Pump (RHR-P-2A). By 1430 hours Plant Operators had opened RHR-V-8, restarted RHR-P-2A and restored shutdown cooling.

The root cause of the event was personnel error in that a Contractor Maintenance Engineer authorized removal of the relay to allow access to terminals for wiring that the electrician was attempting to land. The Engineer allowed work outside the scope of the work package. The Engineer should have obtained a change to the work package which would have provided adequate review and authorization for the intended action. Corrective actions consisted of 1) counselling the individual involved, 2) training appropriate contractor personnel on applicable Plant procedures, and 3) performing an assessment of RHR Shutdown Cooling isolations which have occurred.

There is 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 which provides a large heat sink for core cooling and adequate time to restore RHR Shutdown Cooling, or initiate an alternate decay heat removal method. In addition, RHR Shutdown Cooling was restored within one hour.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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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)

Plant Conditions

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

Event Description

On May 20, 1989 at 1336 hours the Outboard RHR Shutdown Cooling Supply Valve (RHR-V-8) automatically isolated when a Contractor Maintenance Electrician pulled a relay that de-energized a valve control relay and closed RHR-V-8. The valve (RHR-V-8) is a Nuclear Steam Supply Shutoff System (Containment Isolation) Valve. The closing of RHR-V-8 resulted in the loss of the suction path to the RHR Shutdown Cooling Loops and the trip of an RHR Shutdown Cooling Pump (RHR-P-2A). 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. Also, RHR Loop A was operating in the Shutdown Cooling Mode.

At the time of the event, a Contractor Maintenance Electrician was working on a Plant Modification Record (PMR) for improving the Leak Detection System by upgrading signal processing and diagnostic capabilities. The electrician was attempting to land wires as directed by the work package, but was unable to access the terminals due to interference from several relays (LD-RLY-K01A, K02A, K03A, K03B, and K04A). To proceed further, he requested permission from the Contractor Maintenance Engineer supervising the work effort to pull the relays to allow access. The engineer reviewed drawings which identified the relays in question, but did not clearly show the consequence of de-energizing the relays. The engineer had also discussed relays in the Leak Detection System with Plant Engineers and mis-communicated the location of the relays in question. This caused him to believe the relays were annunciator relays and within the bounds of the clearance order and, therefore, had negligible impact on the plant. Accordingly, he gave permission to pull the relays. Relay LD-RLY-K04A upon de-energizing provided an isolation signal to RHR-V-8, which closed and caused the loss of shutdown cooling. Relay LD-RLY-K04A is designed to open on RHR Area High temperature which could indicate a leak of high temperature primary coolant in the RHR equipment room. Closure of RHR-V-8 isolates the potential leak path.

Immediate Corrective Action

Plant Operators recognized that the work in the Leak Detection equipment could have caused the isolation. In trouble shooting the event to restore shutdown cooling, they placed switch LD-RMS-S4A in "test." This bypassed the open circuit created by removal of the relay and restored power to the valve control relay. Valve RHR-V-8 was opened, RHR-P-2A started and RHR Shutdown Cooling Loop A was restored by 1430 hours.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Further Evaluation and Corrective ActionA. Further Evaluation

1. This event is reportable under 10CFR50.73(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 personnel error by the Contractor Maintenance Engineer in that he authorized activities outside the scope of the work package without seeking appropriate Plant staff review and approval. He had not adequately researched the purpose and impact of the relays in question. He also should have consulted Plant Staff or the Plant System Engineer that originated the Plant modification to change the work package and, thereby, obtain appropriate authorization to pull the relays. Plant procedures were not the cause of this event.

B. Further Corrective Action

1. The Contractor Maintenance Engineer supervising the work effort was counselled on the importance of remaining within the scope of plant work packages and proceeding only when the appropriate authorization has been received and the consequences are known.
2. Contractor personnel working on the Leak Detection Plant modification were retrained on the applicable Plant procedures and reminded of the proper methods for obtaining authorization prior to performing work outside the scope of that contained in the work package.
3. Tool box meeting training sessions for Contractor Maintenance Electricians were held emphasizing the necessity of remaining within the bounds of approved work packages. It was reiterated that no one had authorization to change the position or configuration of the plant electrical system without specific, written work package instructions. Where termination/determination instructions are not adequate, the assigned Field Engineer has the responsibility to initiate paperwork to obtain the appropriate level of review and authorization for changing the work package.
4. An overall assessment of the RHR Shutdown Cooling isolations which have occurred is currently being performed by the Plant Technical and Nuclear Safety Assurance Groups.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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	SEQUENTIAL NUMBER	REVISION NUMBER									
		8   9	-   0   1   7	-   0   0	0   4	OF	0   4						

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

Safety Significance

There is no safety significance associated with this event. At the time of the event, the reactor vessel head was removed and reactor water level was greater than 22 feet above the reactor vessel flange. These conditions provide a large heat sink for core cooling with adequate time to restore RHR Shutdown Cooling or initiate an alternate method of decay heat removal. RHR Shutdown Cooling was restored in less than one hour, well within the time frame allowed by Technical Specifications. Accordingly, this event caused no threat to the safety of either the public or Plant personnel.

Similar Events

LERs 87-005 and 87-008

EIIS InformationText ReferenceEIIS Reference

System Component

Residual Heat Removal Shutdown Cooling Supply Valve (RHR-V-8)  
Leak Detection System  
Pump RHR-P-2A  
Nuclear Steam Supply Shutoff System  
RHR-P-2B  
Relays LD-RLY-K01A, K02A, K03A and K03B  
Switch LD-RMS-54A  
Residual Heat Removal Shutdown Cooling Supply Valve Relay  
(LD-RLY-K04A)

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