

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8806080289 DOC. DATE: 88/05/31 NOTARIZED: NO DOCKET #  
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
 AUTH. NAME AUTHOR AFFILIATION  
 WASHINGTON, S. L. Washington Public Power Supply System  
 POWERS, C. M. Washington Public Power Supply System  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-010-00: on 880430, nuclear steam supply shutoff sys  
 Group 1 isolation occurred. Caused by low pressure in main  
 steamlines w/reactor mode switch in "run" position.  
 RFW-FCV-10B repaired. W/880531 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
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	AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
	ARM/DCTS/DAB	1 1	DEDRO	1 1
	NRR/DEST/ADS 7E	1 0	NRR/DEST/CEB 8H	1 1
	NRR/DEST/ESB 8D	1 1	NRR/DEST/ICSB 7	1 1
	NRR/DEST/MEB 9H	1 1	NRR/DEST/MTB 9H	1 1
	NRR/DEST/PSB 8D	1 1	NRR/DEST/RSB 8E	1 1
	NRR/DEST/SGB 8D	1 1	NRR/DLPQ/HFB 10	1 1
	NRR/DLPQ/QAB 10	1 1	NRR/DOEA/EAB 11	1 1
	NRR/DREP/RAB 10	1 1	NRR/DREP/RPB 10	2 2
	NRR/DRIS/GIB 9A	1 1	NUDOCS-ABSTRACT	1 1
	REC FILE 02	1 1	RES TELFORD, J	1 1
	RES/DE/EIB	1 1	RES/DRPS DEPY	1 1
	RGN5 FILE 01	1 1		
EXTERNAL:	EG&G WILLIAMS, S	4 4	FORD BLDG HOY, A	1 1
	H ST LOBBY WARD	1 1	LPDR	1 1
	NRC PDR	1 1	NSIC HARRIS, J	1 1
	NSIC MAYS, G	1 1		

## 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 4																													
TITLE (4) Nuclear Steam Supply Shutoff System Group 1 Isolation (Main Steamline) Due to Low Pressure in the Main Steamlines while the Reactor Mode Switch was in "Run" Caused by Personnel Error																																																	
EVENT DATE (5) 0 4 3 0 8 8 8 8										LER NUMBER (6) 0 1 0 0 0 0 5										REPORT DATE (7) 3 1 8 8										OTHER FACILITIES INVOLVED (8)																			
MONTH DAY YEAR										YEAR SEQUENTIAL NUMBER REVISION NUMBER										MONTH DAY YEAR										FACILITY NAMES										DOCKET NUMBER(S)									
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0 4 3 0 8 8 8 8										0 1 0 0 0 0 5										3 1 8 8																				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) 0 1 9										20.402(b)										20.405(c)										X 50.73(a)(2)(iv)										73.71(b)									
										20.405(a)(1)(i)										50.36(c)(1)																				73.71(c)									
										20.405(a)(1)(ii)										50.36(c)(2)																													
										20.405(a)(1)(iii)										50.73(a)(2)(i)																				OTHER (Specify in Abstract below and in Text, NRC Form 366A)									
										20.405(a)(1)(iv)										50.73(a)(2)(ii)																				50.73(a)(2)(viii)(A)									
										20.405(a)(1)(v)										50.73(a)(2)(iii)																				50.73(a)(2)(viii)(B)									
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LICENSEE CONTACT FOR THIS LER (12)																																																	
NAME Steven L. Washington - Compliance Engineer																				TELEPHONE NUMBER 5 0 9 3 7 7 - 2 0 8 0																													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																	
CAUSE										SYSTEM										COMPONENT										MANUFACTURER										REPORTABLE TO NPDs									
X										S J										F C V										M 1 2 0										Yes									
SUPPLEMENTAL REPORT EXPECTED (14)																																																	
YES (If yes, complete EXPECTED SUBMISSION DATE)																				X NO										EXPECTED SUBMISSION DATE (15)																			

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

On the morning of April 30, 1988, the Plant was at low power (19%) in preparation for manually scrambling the Reactor to shut down the Plant for the start of the Annual Refueling and Maintenance Outage. Just prior to manually scrambling the Reactor, the Reactor Core Isolation Cooling (RCIC) System was initiated to control Reactor water level following the scram. This was a planned step in an approved Temporary Procedure for shutting down the Reactor due to the Feedwater Startup Flow Control Valve (RFW-FCV-10B) being stuck partially open. At 0800 hours, a licensed Control Room Operator (CRO) manually scrambled the Reactor. Immediately following the manual scram the CRO tried to reset the scram logic. This was done in support of a Reactor Protection System (RPS) Logic System Functional Test (LSFT). Less than two minutes later, Main Steamline pressure decreased to the Main Steamline low pressure trip setpoint (831 psig) and, with the Reactor Mode Switch still in the "Run" position, the Main Steamline Isolation Valves (MSIVs) began to close. This is an Engineered Safety Feature actuation. Licensed Reactor Operators stabilized the Reactor, equalized the pressure around the MSIVs and, at 0834 hours, reopened the valves. The cause of this event was low pressure in the Main Steamlines with the Reactor Mode Switch in the "Run" position. A contributing cause was the stuck-open condition of RFW-FCV-10B which necessitated the use of the RCIC System to control Reactor water level. This caused a faster than expected Reactor depressurization because the RCIC System injects water into the Reactor Pressure Vessel (RPV) through a head spray which suppresses Reactor pressure. The root cause of this event is personnel error. The combination of performing an additional step, scram reset, and the off normal Plant lineup (RCIC running) created a unique situation to which the CRO did not respond correctly. Corrective actions include preparation of a Monthly Operating Bulletin (MOB) describing this event and its operational aspects, training on the MOB, and repair of RFW-FCV-10B during the current Outage. The health and safety of the public were not affected by this event.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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 8	0 1 0	0 0	0 2	OF	0 4

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

Plant Conditions

- a) Power Level - 19%
- b) Plant Mode - 1 (Power Operation)

Event Description

On the morning of April 30, 1988, the Plant was at low power in preparation for manually scrambling the Reactor to shut the Plant down for the start of the Annual Refueling and Maintenance outage. Just prior to manually scrambling the Reactor the Reactor Core Isolation Cooling System (RCIC) was initiated as a planned step in an approved Temporary Procedure TP 3.1.7, "Reactor Shutdown with RFW-FCV-10B Failed Open". At 0800 hours a licensed Control Room Operator (CRO) manually scrambled the plant. Immediately after scrambling the Reactor, the CRO tried to reset the manual scram logic. This action was taken to verify the 10 second scram reset inhibit in support of a Reactor Protection System (RPS) Logic System Functional Test. At 0802 hours, the Reactor Mode Switch was still in "Run" when pressure in the Main Steamlines reached the low Main Steamline pressure trip setpoint, 831 psig, initiating a Main Steamline Nuclear Steam Supply Shutoff System (NS<sup>4</sup>) Group 1 isolation which is an Engineered Safety Feature actuation. At 0803 hours the CRO moved the Reactor Mode Switch to the "Shutdown" position.

Immediate Corrective Action

The CRO used the RCIC System, initiated prior to the scram, to recover from the associated Reactor pressure and water level transient. Operators equalized pressure around the Main Steamline Isolation Valves (MSIVs), and the MSIVs were reopened at 0834 hours.

Further Evaluation

Prior to the event, a Startup Feedwater Control Valve (RFW-FCV-10B) was stuck in a partially open position. Normally this valve, along with a parallel flow control valve RFW-FCV-10A, are used in combination to control Reactor water level during Plant cooldown. A Temporary Procedure 3.1.7, "Reactor Shutdown with RFW-FCV-10B Failed Open", instructed the Control Room Operator to start the RCIC System prior to manually scrambling the Reactor and to utilize the RCIC System for water level control following the scram. The use of the RCIC System contributed to the event because the RCIC System injects water through a head spray which caused a rapid Reactor pressure decrease. The Feedwater Flow Control Valve (RFW-FCV-10B) was manufactured by Masoneilan International Co., model number 4321, 1500 ANSICL. There were no other Plant structures, components, or systems inoperable at the start of the event which contributed to this situation.

The cause of this event was low pressure in the main steamlines due to a rapid Reactor pressure decrease caused by the RCIC head spray and by the failure of the CRO to promptly move the Reactor Mode switch to the "Shutdown" position. In the "Shutdown" position the NS<sup>4</sup> Group 1 isolation due to low main steamline pressure is bypassed.



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## 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	05000397	88	010	00	03	OF	04

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

A contributing cause of this event was the stuck-open Feedwater Startup Flow Control Valve RFW-FCV-10B. Since the effect of this stuck-open valve was not known, a temporary procedure (TP 3.1.7) was written and approved to shutdown the Plant without using the Feedwater Startup (Reactor) Level Control System. The temporary procedure specified that the RCIC System be used for Reactor water level control following the manual scram. The RCIC System returns water to the Reactor by means of a head spray located at the top of the Reactor Pressure Vessel (RPV). The RCIC water is sprayed directly into the steam at the top of the RPV which suppresses Reactor pressure. The Main Steamlines are also located near the top of the RPV so the RCIC head spray also decreased pressure in the Main Steamlines.

The root cause of this event was personnel error. Plant procedures require and training teaches that the Reactor Mode Switch be taken to the "Shutdown" position immediately following a scram. In this case, the CRO was asked to perform an additional step in trying to reset the scram. And, the Plant was in an off normal lineup for Reactor water level control. These two factors combined to create a unique situation to which the CRO did not respond correctly.

The Plant design actions for a Group 1 NS<sup>4</sup> Isolation are, 1) closure of both the inboard and outboard MSIVs, MS-V-22A-D (inboard MSIVs) and MS-V-28A-D (outboard MSIVs), and 2) closure of MS-V-16 Main Steamline Drain Valve (inboard) and MS-V-19 and MS-V-67A-D Main Steamline Drain Valves (outboard). All actions occurred as designed.

In addition to the initial Manual Scram, two other RPS actuations occurred during this event. Immediately following the Reactor Scram a low Reactor Water Level (+13 inches) RPS actuation occurred and when the MSIVs reached their 10% closed position another RPS actuation occurred. The RPS was still tripped from the Manual Scram when these actuations occurred and no actual control rod movement occurred.

This event is reportable per 10CFR50.73(a)(2)(iv).

#### Further Corrective Actions

A Monthly Operating Bulletin will be prepared describing this event and its operational aspects. Licensing Training will provide training on the MOB to all Licensed Reactor Operators.

The Feedwater Startup Flow Control Valve (RFW-FCV-10B) was repaired during this outage.

#### Safety Significance

There is no safety significance associated with this event. The Main Steamline Isolation Valves and Main Steamline Drain Valves closed as per the Plant design. With the RCIC System running, Reactor water level recovered rapidly following the initial transient. The lowest water level reached during the event was 0" inches. In Shutdown, water level must be maintained above the top of active fuel which is -161 inches. The health and safety of the public and Plant personnel were not affected by this event.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Washington Nuclear Plant - Unit 2	05000397	88	010	00	04	OF 04

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

Similar Events

None

EIIS InformationText ReferenceEIIS Reference

	System	Component
Nuclear Steam Supply Shutoff System (NS <sup>4</sup> )	BD	- - - - -
Reactor	AC	RCT
Reactor Core Isolation Cooling (RCIC) System	BN	- - - - -
Feedwater Startup Flow Control Valve (RFW-FCV-10B)	SJ	FCV
Reactor Protection System (RPS)	JC	- - - - -
Main Steamline (MS)	SB	PSP
Reactor Mode Switch	JO	JS
Main Steamline Isolation Valve (MSIV) MS-V-22A-D Inboard	SB	ISV
Main Steamline Isolation Valve (MSIV) MS-V-28A-D Outboard	SB	ISV
Reactor Pressure Vessel (RPV)	--	RPV
Flow Control Valve RFW-FCV-10A	SJ	FCV
Main Steamline Drain Valve MS-V-16 Inboard Drain	SB	V
Main Steamline Drain Valve MS-V-19 Outboard Drain	SB	V
Main Steamline Drain Valve MS-V-67 A-D Outboard Drain	SB	V



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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

May 31, 1988

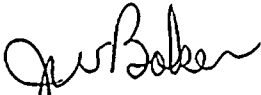
Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: NUCLEAR PLANT NO. 2  
LICENSEE EVENT REPORT NO. 88-010

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-010 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. 88-010

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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