

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8806220249 DOC. DATE: 88/06/14 NOTARIZED: NO DOCKET #
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
 AUTH. NAME AUTHOR AFFILIATION
 WYRICK, T. Washington Public Power Supply System
 POWERS, C. M. Washington Public Power Supply System
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-015-00: on 880515, loss of power to reactor protection sys (RPS) occurred due to flooding of reactor cavity. Caused by inadvertent removal of power to MC-7A. RPS switched to alternate power supply & RHR cooling restored. W/880610 ltr.

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

NOTES:

RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
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SAMWORTH, R	1 1		
INTERNAL: ACRS MICHELSON	1 1	ACRS MOELLER	2 2
AEOD/DOA	1 1	AEOD/DSP/NAS	1 1
AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
ARM/DCTS/DAB	1 1	DEDRO	1 1
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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/GAB 10	1 1	NRR/DOEA/EAB 11	1 1
NRR/DREP/RAB 10	1 1	NRR/DREP/RPB 10	2 2
NRR/DRPS/SJB 9A	1 1	NUDOCS-ABSTRACT	1 1
REG 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 9 7 1 OF 0 4

PAGE (3)

TITLE (4) Nuclear Steam Supply Shutoff System Isolations Caused by the Inadvertent De-energization of the Reactor Protection System Bus A Power Supply Due to Personnel Error

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	1	5	8	8	8	0	1	5	0	5	0	0	0		
0	5	1	5	8	8	8	0	1	5	0	5	0	0	0		

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																																	
5	<table border="1"><thead><tr><th>20.402(b)</th><th>20.405(c)</th><th>50.73(a)(2)(iv)</th><th>73.71(b)</th></tr></thead><tbody><tr><td>20.405(a)(1)(i)</td><td>50.36(c)(1)</td><td>50.73(a)(2)(v)</td><td>73.71(c)</td></tr><tr><td>20.405(a)(1)(ii)</td><td>50.36(c)(2)</td><td>50.73(a)(2)(vii)</td><td>OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td></tr><tr><td>20.405(a)(1)(iii)</td><td>50.73(a)(2)(i)</td><td>50.73(a)(2)(viii)(A)</td><td></td></tr><tr><td>20.405(a)(1)(iv)</td><td>50.73(a)(2)(ii)</td><td>50.73(a)(2)(viii)(B)</td><td></td></tr><tr><td>20.405(a)(1)(v)</td><td>50.73(a)(2)(iii)</td><td>50.73(a)(2)(ix)</td><td></td></tr></tbody></table>										20.402(b)	20.405(c)	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 366A)	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	
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20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)																															
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20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)																																

LICENSEE CONTACT FOR THIS LER (12)
NAME
Tana Wyrick, Compliance Engineer

TELEPHONE NUMBER

AREA CODE

5 0 9 3 7 7 - 2 1 5 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)
YES (If yes, complete EXPECTED SUBMISSION DATE) ☐ NO ☒

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

On May 15, at 1607 hours, while in Plant Mode 5 (Refueling) with the reactor head removed, the reactor cavity flooded, and the fuel pool gates removed, an inadvertent de-energization of MC-7A caused a loss of power to Reactor Protection System (RPS) Bus A. The loss of power to RPS Bus A caused a half-scam in RPS Division A and multiple Engineered Safety Feature (ESF) isolations and actuations.

The loss of RPS Bus A causes an Outboard Nuclear Steam Supply Shutoff System (NSSSS) isolation of Groups 1 (Main Steam Line Drains only), 2, 5, 6, and 7. NSSSS Group 5 isolates Residual Heat Removal (RHR) Shutdown Cooling. In addition, the loss of RPS A power causes some NSSSS Group 3 (Primary and Secondary Containment Ventilation and Purge Systems) and Group 4 (Miscellaneous Balance of Plant) isolations and actuations including Standby Gas Treatment (SGT) System and the Control Room Emergency Filtration System.

The cause of the event was the inadvertent removal of power to the temporary feed to MC-7A resulting in a loss of power to RPS Bus A.

The root cause of the event was determined to be inadequate work package research and preparation. Contributing factors which led to the event are misleading plant drawings and an unusual load center configuration.

Plant Operators responded by switching RPS Bus A to its alternate power supply. RHR Shutdown Cooling was restored within 15 minutes and by 1628 hours all other systems were restored to their pre-event lineup.

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PDR ADDCK 05000397
PDR

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		0 1 5	0 0	0 2	OF	0 4

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

Abstract (Cont'd)

The associated arrangement drawings will be redrawn to eliminate any confusion. The spare breaker has been clearly marked to indicate its power supply and demarkation tape has been attached to the load centers to identify the separation between SL-11 and SL-21.

There is no safety significance associated with this event. At the time of the event the 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.

Plant Conditions

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

Event Description

On May 15, at 1607 hours with the reactor in Plant Mode 5 (Refueling) with the reactor head removed, the reactor cavity flooded, and the fuel pool gates removed, an inadvertent de-energization of MC-7A caused loss of Reactor Protection System (RPS) RPS-MG-A which in turn caused a loss of power to RPS Bus A. The loss of power to RPS Bus A caused a half-scam and multiple Engineered Safety Feature (ESF) isolations and actuations.

The loss of RPS A power caused an Outboard Nuclear Steam Supply Shutoff System (NSSSS) isolation. The outboard isolations occurred for NSSSS Group 1 (Main Steam Line drains only), Group 2 (Reactor Water Sample Valves), Group 5 (Residual Heat Removal (RHR) and Traversing In-Core Probe (TIP) Systems), Group 6 (RHR Shutdown Cooling), and Group 7 (Reactor Water Cleanup (RWC) System). The RHR Loop B Shutdown Cooling System was in operation at the time of the event. The RWC System was not in operation at the time of the event.

In addition, the loss of RPS A power causes a NSSSS Group 3 (Primary and Secondary Containment Ventilation and Purge System) and Group 4 (Miscellaneous Balance of Plant) isolation. The NSSSS Group 3 isolation is caused by loss of power to the Reactor Building Exhaust Plenum Process Radiation Monitors, a non-NSSSS ESF trip signal. All required Group 3 and Group 4 actions occurred as designed including the automatic start of the Standby Gas Treatment System and the Control Room Emergency Filtration System and a Reactor Building HVAC Isolation.

Critical Bus MC-7A is normally powered from SM-7. However, SM-7 was de-energized for maintenance, and a jumper was installed between MC-7A and breaker 5A located on the 480 volt load center SL-11/SL-21 to provide temporary power to MC-7A for the duration of the SM-7 outage.

Prior to installing the jumper, the Plant Engineer responsible for preparing the work package, reviewed the top tier and arrangement drawings and incorrectly determined that breaker 5A was fed from SL-21. Breaker 5A is actually fed from SL-11. On May 14, a jumper was installed between SL-11 breaker 5A and MC-7A. At 1023 hours on May 15, the

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

Event Description (Cont'd)

Clearance Order was signed off indicating that the physical work was complete, shortly thereafter operations closed the breaker, temporarily feeding MC-7A from SL-11(5A). At 1607 hours, SL-11 was de-energized to perform scheduled maintenance, thereby causing a loss of power to MC-7A, which de-energized RPS Bus A, causing a half-scam and multiple ESF isolations and actuations.

Immediate Corrective Action

Plant Operators responded by switching RPS Bus A to its alternate power supply. RHR Shutdown cooling was restored within 15 minutes and by 1628 hours all other systems were restored to their pre-event lineup.

Further Evaluation and Corrective Action

There were no structures, components, or systems inoperable prior to the event that contributed to the event. SM-7 was out of service for maintenance prior to the event; however, the transfer of power during outages is a normal process and this event should not have occurred.

The root cause of this event is inadequate work package research and preparation. Contributing factors which led to the event are the misleading electrical arrangement drawing and the uniqueness of the SL-11/SL-21 load centers: The drawing denotes supply feeds with directional arrows indicating everything within the arrow span is fed from the same switchgear. Breaker 5A is shown within the SL-21 arrow span but is actually fed from SL-11. The top tier drawings were reviewed but did not identify specific cubicles for each load.

The Plant Engineer will be counseled on the importance of close attention to detail.

The associated arrangement drawings will be redrawn to eliminate any confusion.

Because SL-11/SL-21 are the only double ended load centers installed at WNP-2, demarkation tape has been attached to the front of the panels to clearly identify the separation between SL-11 and SL-21. Additionally, the spare breakers within the SL-11/SL-21 switchgear have been marked to indicate their power supplies on the front of each cubicle.

Safety Significance

There is no safety significance associated with this event. At the time of the event the 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. Additionally, no Plant condition requiring the ESF isolations and actuations existed and all ESF isolations and actuations occurred as designed. Accordingly, this event posed no threat to the health and safety of either the public or plant personnel.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Similar Events

None

EIIS InformationText ReferenceEIIS Reference

	System	Component
MC-7A	EB	MCC
Reactor Protection System (RPS)	JC	---
RPS Bus A	JC	BU
Nuclear Steam Supply Shutoff System (NSSSS)	BD	---
Residual Heat Removal (RHR) System	BD	---
Standby Gas Treatment (SGT) System	BH	---
Control Room Emergency Filtration System	VH	---
SL-11	EC	SWGR
SL-21	EC	SWGR
RPS-MG-A	JC	MG
Traversing In-Core Probe (TIP) System	IG	---
Reactor Water Cleanup (RWCU) System	CE	---
Reactor Building Exhaust Plenum Process System	IL	---
Control Room Emergency Filtration System	VH	---
SM-7	EB	SWGR

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

June 10, 1988

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 88-015

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-015 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

C.M. Powers (M/D 927M)
WNP-2 Plant Manager

CMP:lg

Enclosure:
Licensee Event Report No. 88-015

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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