

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8806210218 DOC. DATE: 88/06/13 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 88-013-00: on 880512, loss of power occurred on reactor protection sys (RPS). Caused by phase-to-ground faults due to lightning strikes. Affected RPS alternate supply electrical protection assembly breaker & logic reset. W/880613 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
	PD5 LA	1 1	PD5 PD	1 1
	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
	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/GAB 10	1 1	NRR/DOEA/EAB 11	1 1
	NRR/DREP/RAB 10	1 1	NRR/DREP/RPB 10	2 2
	NRR/DRTS/SIB 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	PAGE (3) 1 OF 0 4
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TITLE (4) Nuclear Steam Supply Shutoff System Isolations Caused By EPA Breaker Undervoltage Trips Due to Lightning Strikes While Reactor Protection System on Alternate Power
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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	1	2	8	8	0	1	3	0	0	0
0	5	1	2	8	8	0	1	3	0	0	0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)												
OPERATING MODE (8) 5		20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)			73.71(b)	
POWER LEVEL (10) 0 0 0		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)(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)				

LICENSEE CONTACT FOR THIS LER (12)									
NAME J.D. Arbuckle, Compliance Engineer								TELEPHONE NUMBER 5 0 1 9 3 7 7 1 - 1 2 1 1 1 5	

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM

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)

During the annual Maintenance and Refueling Outage, a loss of power occurred on Reactor Protection System (RPS) Bus "A", which caused an RPS, Division "A", half scram and Multiple Engineered Safety Feature (ESF) actuations on the following dates:

- May 12, 1988 at 2030 hours
- May 13, 1988 at 0030 hours

At the time of both events, RPS "A" was being fed from noncritical 480 Volt Motor Control Center MCC-6B (powered by 230KV Startup Transformer TR-S) because the Motor-Generator Set(RPS-MG-A) was shutdown for maintenance. The loss of RPS "A" power was caused by phase-to-ground faults due to lightning strikes on the 230KV Midway-Priest Rapids No. 2 line in Grant County, Washington. The electrical faults caused the RPS Electrical Protection Assembly (EPA) Breakers to trip on undervoltage, causing loss of RPS "A" Power.

The loss of RPS "A" power causes an Outboard Nuclear Steam Supply Shutoff System (NSSSS) isolation of Groups 1 (Main Steam Line Drains Only), 2, 4 (two drain valves only) 5, 6 and 7. NSSSS Group 7 isolates the Reactor Water Cleanup System (RWCU). In addition, the loss of RPS "A" power causes a NSSSS Group 3 (Primary and Secondary Containment Ventilation and Purge Systems) and a partial Group 4 (Miscellaneous Balance of Plant) isolation and Standby Gas Treatment (SGT) System and Control Room Emergency Filtration System actuation.

Plant Operators responded by re-setting the affected RPS alternate supply EPA Breakers and affected logic. In both cases, all systems were returned to pre-event lineup status within 20 minutes. Further corrective action consists of performing an Engineering evaluation to consider increasing the trip output time delay settings on the EPA circuit boards.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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	88	0 1 3	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 - 0%
- b) Plant Mode - 5 (Refueling)

Event Description

During the annual Maintenance and Refueling Outage, a loss of power occurred on Reactor Protection System (RPS) Bus "A" which caused an RPS, Division "A", half scram and multiple Engineered Safety Feature (ESF) actuations on the following dates:

- May 12, 1988 at 2030 hours
- May 13, 1988 at 0030 hours

At the time of both events, RPS "A" was being fed from noncritical 480 Volt Motor Control Center MCC-6B (powered by 230KV Startup Transformer TR-S) because the Motor-Generator Set (RPS-MG-A) was shut down for maintenance. The loss of RPS "A" power was caused by phase-to-ground faults due to lightning strikes on the 230KV Midway-Priest Rapids No. 2 line in Grant County, Washington. The electrical faults caused an undervoltage condition of sufficient magnitude and duration on the 230KV source to WNP-2 such that the RPS Electrical Protection Assembly (EPA) Breakers tripped open, causing loss of RPS "A" power. A review of Bonneville Power Administration (BPA) oscillograph traces confirmed that a transient dip in voltage occurred on the line at the time of the lightning strikes.

The loss of RPS "A" power caused a Nuclear Steam Supply Shutoff System (NSSSS) Containment Outboard 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). At the time of both events, RHR Shutdown Cooling System, Loop "B", was in service. The RWC System was not in operation at the time of either event.

In addition, the loss of RPS "A" power causes an 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 4 actions occurred as designed, including the automatic start of the Standby Gas Treatment (SGT) and Control Room Emergency Filtration Systems, and a Reactor Building HVAC Isolation.

Immediate Corrective Action

Plant Operators responded by re-setting the affected RPS alternate supply EPA Breakers and affected logic. In both cases, all systems were returned to pre-event lineup status within 20 minutes.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

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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)

Further Evaluation and Corrective Action

1. At the time of both events, Motor-Generator Set RPS-MG-A was shutdown for maintenance. As a result, RPS "A" was being fed from MCC-6B which is provided to allow of either Motor-Generator Set to be taken out of service for maintenance. There were no other structures, systems or components inoperable at the time of the events which contributed to either event.
2. The immediate cause of these events was the undervoltage trip of the EPA breakers which, in turn, caused the loss of RPS "A". The root cause of the events was phase-to-ground faults due to lightning strikes on the 230KV Midway-Priest Rapids No. 2 line.
3. These events are reportable under 10CFR50.73(a)(2)(iv), "any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)."
4. An Engineering Evaluation will be performed to consider adjusting the trip output time delay settings on the EPA circuit boards to prevent such unnecessary challenges to ESF equipment. The time delays, which are adjustable from 0-4 seconds, are currently set at 0.1 seconds (100 milliseconds).

Safety Significance

There is no safety significance associated with these events. At the time of both events, reactor water level was greater than 22 feet above the reactor vessel flange which provided a large heat sink for core cooling and adequate time to restore RHR Shutdown cooling, or initiate an alternate decay heat removal process. In addition, no Plant Conditions existed requiring the ESF isolations and actuations, 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.

Similar Events

None

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)	
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

EIIS InformationText ReferenceEIIS Reference

	System	Component
Reactor Protection System (RPS)	JC	- - - - -
RPS Electrical Protection Assembly (EPA)	JC	BKR
RPS-BUS-A	JC	BU
Nuclear Steam Shutoff Supply System (NSSSS)	BD	- - - - -
Startup Transformer TR-S (230kv)	EA	XPT
Motor Control Center MCC-6B	EA	MCC
Motor-Generator Set (RPS-MG-A)	JC	88
Standby Gas Treatment (SGT) System	BH	- - - - -
Residual Heat Removal (RHR) System	BD	- - - - -
Reactor Water Cleanup (RWCU) System	CE	- - - - -
Traversing In-Core Probe (TIP) System	IG	- - - - -
Reactor Building Exhaust Plenum		
Process System	IL	- - - - -
Reactor Building HVAC System	VA	- - - - -
Control Room Emergency Filtration System	VH	- - - - -

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

June 13, 1988

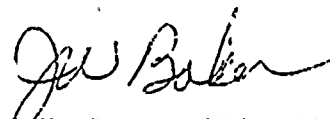
Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 88-013

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-013 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. 88-013

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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