

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 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 87-014-00: on 870604, electricians sent to troubleshoot
 supply breaker problem inadvertently tripped alternate power
 to reactor protection sys by opening wrong breakers. Caused
 by equipment failure & personnel error. W/870706 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 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/ROAB	2 2
	AEOD/DSP/TPAB	1 1	DEDRO	1 1
	NRR/DEST/ADE	1 0	NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1	NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1	NRR/DEST/MEB	1 1
	NRR/DEST/MTB	1 1	NRR/DEST/PSB	1 1
	NRR/DEST/RSB	1 1	NRR/DEST/SGB	1 1
	NRR/DLPQ/HFB	1 1	NRR/DLPQ/QAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/RAB	1 1
	NRR/DREP/RPB	2 2	NRR/PMAS/ILRB	1 1
	NRR/PMAS/PTSB	1 1	REG FILE 02	1 1
	RES DEPY GI	1 1	RES TELFORD, J	1 1
	RES/DE/EIB	1 1	RGN5 FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	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 5										PAGE (3) 1 OF 5	
TITLE (4) ESF Actuations Caused By Equipment Failures																					
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 (8)								
06	04	87	78	7-0114	0000	07	06	87					0 5 0 0 0 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)																			
POWER LEVEL (10)		23.402(b)				23.408(a)				88.73(a)(2)(iv)				73.71(b)							
0 0 0		23.408(a)(1)(i)				88.36(a)(1)				88.73(a)(2)(vi)				73.71(c)							
		23.408(a)(1)(ii)				88.36(a)(2)				88.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 308A)							
		23.408(a)(1)(iii)				88.73(a)(2)(i)				88.73(a)(2)(viii)(A)											
		23.408(a)(1)(iv)				88.73(a)(2)(ii)				88.73(a)(2)(viii)(B)											
		23.408(a)(1)(v)				88.73(a)(2)(iii)				88.73(a)(2)(ix)											
		23.408(a)(1)(vi)				88.73(a)(2)(iv)				88.73(a)(2)(x)											
LICENSEE CONTACT FOR THIS LER (12)																					
NAME Steven L. Washington, Compliance Engineer										TELEPHONE NUMBER 5 0 1 9 3 7 7 - 2 0 8 1 0											
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											
X	J C	- B K R	G O 8 0	Y																	
X	J C	- B K R	G O 8 0	Y																	
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR							
YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO											
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																					
<p>On June 4, 1987 with the Plant in Cold Shutdown (Mode 4), Plant operators were making preparations to start Reactor Recirculation (RRC) Pump 1A. Part of the preparation called for Plant operators to realign RPS-Bus-B power from Alternate Power to RPS-MG-B (the normal bus supply). However, Plant operators were unable to close the RPS-MG-B Supply Breaker (3D-EPA) to close. Plant electricians were sent to troubleshoot the problem and inadvertently tripped Alternate Power to RPS, Bus B, Logic Feed, by opening the wrong breakers.</p> <p>The loss of RPS-Bus-B power caused a Division 2 half scram and isolations of several NSSSS Groups. Plant operators responded by having the Plant electricians re-close the opened breakers, which restored RPS-Bus-B power from Alternate Power. The NSSSS Isolations were restored to their pre-event lineup.</p> <p>The decision was then made to start RRC-P-1A with RPS-Bus-B still powered from Alternate Power; however, the pump subsequently tripped on undervoltage, causing the same (planned) ESF actuation to occur. Plant operators then could not restore RPS-Bus-B power because another EPA Breaker (3E) would not reclose. Plant operators were successful in resetting all NSSSS Isolations and returning them to their pre-event lineup.</p> <p>The root cause of this event was equipment failure, and a contributing cause of the first ESF actuations was personnel error. This event posed no threat to the safety of either the public or Plant personnel.</p>																					
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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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 - 4 (Cold Shutdown)

Event Description

On June 4, 1987, with the Plant in Cold Shutdown (Mode 4), Plant operators were making preparations to start RRC-P-1A. Part of the preparation called for Plant operators to realign RPS-Bus-B power from Alternate Power to RPS-MG-B (the normal bus supply), since starting an RRC pump will cause an undervoltage trip of an RPS Bus powered from Alternate Power. Plant operators, however, could not get RPS-MG-B Supply Breaker (3D-EPA) to close. Plant electricians were sent to troubleshoot the 3D-EPA Breaker problem. The electricians believing the problem preventing the 3D-EPA Breaker from closing was a ground fault asked for permission to open breakers. The Control Room Supervisor gave permission to open any breaker between the RPS-MG-B output and the breaker that would not close. The electricians, however, began opening breakers on the powered side of RPS-Bus-B. At 2208 hours, the electricians opened two breakers one being the RPS Bus B logic feed which tripped Alternate Power to RPS, Bus B, Logic Feed; the second breaker opened was APRM-Bus-B Power Supply.

The loss of RPS-Bus-B power caused a Division 2 half scram, an inboard and outboard NSSSS isolation of Group 1 (Main Steamline drains only), Group 2 (Reactor Water Sample Valves), Group 5 (Residual Heat Removal and Traversing In-Core Probe), Group 6 (RHR Shutdown Cooling), and Group 7 (Reactor Water Cleanup). The RHR Shutdown Cooling System was in operation at the time of the event.

In addition the loss of RPS-Bus-B power causes an NSSSS Group 3 (Primary and Secondary Containment Ventilation and Purge System) isolation. The NSSSS Group 3 isolation is caused by the loss of power to Reactor Building Exhaust Monitors, a non-NSSSS ESF trip signal. All required Group 3 actions occurred as designed, including the automatic start of the Standby Gas Treatment System.

Plant Operators responded by having the Plant electricians re-close the opened breakers, which restored RPS-Bus-B power from Alternate Power. At 2210 hours RHR Shutdown Cooling was restored, the half scram reset and the NSSSS Isolations restored to their pre-event lineup.

At 2230 hours on June 4, 1987, Plant Management made the decision to start RRC-P-1A with RPS-Bus-B still powered from Alternate Power. RHR Shutdown cooling was secured in preparation for starting the pump, and operators were stationed at the Alternate Feed Breakers (3E and 3F EPA). At 2238 hours RRC-P-1A was started and the planned ESF actuations (same as described above) occurred when RPS-Bus B tripped on under voltage. Plant operators then could not restore RPS-Bus-B power because the 3E-EPA breaker would not reclose.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

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Plant operators jumpered the NSSSS Shutdown Cooling Isolation Relay (K81B) so that the RHR Shutdown Cooling Isolation Valves RHR-V-8 and 9 could be reopened (RHR-V-9 manually) and at 0029 hours June 5, 1987 RHR Shutdown cooling was restored. The Plant Shift Manager directed the Plant electricians to replace the 3D-EPA Breaker with the 3F-EPA Breaker. This breaker closed and RPS-MG-B power to RPS-Bus-B was restored at 0043. By 0100 all NSSSS isolations had been reset and returned to their pre-vent lineup. The RHR Shutdown Cooling NSSSS isolation relay jumper was removed. Subsequent investigation of the 3D and 3E EPA Breakers showed that a continuously-energized undervoltage restraint coil had released and would not allow the breakers to close. The investigation showed that by repositioning the coil slightly (approximately 1/16") the undervoltage restraint assembly could be reset and thus allow the breaker to close. The need to reposition the coil was possibly caused by either coil aging or the physical repositioning of the coil in the breaker due to unknown causes. The breakers were retested and reinstalled.

The root cause of this event was equipment failure and a contributing cause of the first ESF actuations was personnel error. Both the Plant Operators and Plant Electricians did not adequately follow the Plant Troubleshooting Procedure in that no troubleshooting boundaries were set, there was no review of plant drawings, and there was no discussion of possible plant transients.

Immediate Corrective Action

Regarding the first ESF acutation, Plant Operators directed the Plant Electricians to re-close the RPS-Bus-B logic feed and APRM-Bus-B power supply circuit breakers. Plant operators restored all NSSSS isolated systems, including Group 3, to their pre-event line up within a few minutes.

Regarding the second planned ESF actuation, Plant operators had the RHR shutdown cooling NSSSS isolation relay jumpered so the RHR-V-8 and 9 could be re-opened, and shutdown cooling reestablished. The inoperable 3D-EPA Breaker was replaced with the operable 3F-EPA Breaker and RPS-MG-B power to RPS-Bus-B was restored. All NSSSS Isolations were restored to their pre-event lineups.

Further Corrective Action

1. Plant personnel involved in this event have been counseled on the proper methods of implementing the Plant Troubleshooting Procedure.
2. The Plant Troubleshooting procedure will be revised to include that an action plan statement is to be prepared prior to the performance of troubleshooting activities.

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3. In addition, Plant Maintenance and Operations personnel will be provided training with regard to performance of troubleshooting activities. As a part of this training, the following Management expectations will be emphasized:
- A clearly-defined action plan statement is to be prepared prior to proceeding with a troubleshooting activity.
 - In those cases where changes are required, Plant personnel are required to contact the Shift Manager for guidance and/or resolution of concerns prior to continuing with the action plan. Under no circumstances, in these instances, are personnel to perform work outside of the boundary of the action plan without prior approval of the Shift Manager.
 - It is the responsibility of Control Room personnel to not only approve the action plan (and changes thereto), but to also demand that the troubleshooting procedure be properly followed. It is also the responsibility of Control Room personnel to be aware of (and communicate to personnel who perform troubleshooting actions) potential actions or adverse effects on system operability which may occur as a result of the troubleshooting activity.
4. The 3D and 3E EPA Breakers were taken to the Plant Electrical Shop. It was determined that the undervoltage restraint coil was the problem. This coil is normally energized and allows the EPA breaker to be closed when 12VDC is present from the undervoltage (RPS) logic board. This coil either due to age or a position change allowed the undervoltage trip mechanism to release. It was determined in the shop that repositioning the coil by as little as a one-sixteenth of an inch would allow the mechanical linkage of the undervoltage restraint to be reset. The breakers were extensively retested and are now installed in the alternate power circuit.

Safety Significance

There is no safety significance associated with this event because no plant conditions requiring the ESF actuation existed and all ESF actuations occurred as designed. The loss of RHR Shutdown Cooling for 2 hours was not a problem because, as required by the Plant Technical Specifications, forced reactor core circulation was provided by the running reactor recirculation pump, and reactor coolant temperature and pressure was monitored. This event posed no threat to the safety of the Public or Plant personnel.

Similar Events

None

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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

EIIS Information

Test Reference

EIIS Reference

System

Component

Reactor Recirculation Pump (RRC-P-1A)
Reactor Protection System (RPS)
Reactor Protection System Motor Generator (RPS-MG-B)
Reactor Protection System EPA Breakers (3D and E)
Nuclear Steam Supply Shut Off System (NSSSS)
Residual Heat Removal System (RHR)
Reactor Water Cleanup System (RWCU)
Traversing In-Core Probe (TIP)
Standby Gas Treatment System (SGT)
Reactor Building Radiation Monitor Exhaust

AD Pump
JC
JC
JC BKR
BD
BO
CE
IG
BH
IL

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

Docket No. 50-397

July 6, 1987

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 87-014

Dear Sir:

Transmitted herewith is Licensee Event Report No. 87-014 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.

This is a follow-up to the verbal notification given at 2222 hours on June 4, 1987.

Very truly yours,



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

CMP:mt

Enclosure:
Licensee Event Report No. 87-014

cc: Mr. John B. Martin, NRC - Region V
Mr. R. T. Dodds, 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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