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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 96-002-00:on 960504,critical bus SM-8 lost power when Supply breaker 3-8 tripped.Caused by personnel error. Operators counselled & procedures revised.W/960620 ltr.

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CATEGORY 1 DOCUMENT

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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June 20, 1996
GO2-96-124

Docket No. 50-397

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

Gentlemen:

Subject: **NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21, VOLUNTARY LICENSEE EVENT REPORT NO. 96-002-00**

Transmitted herewith is voluntary Licensee Event Report No. 96-002-00 for WNP-2. This event is not reportable under 10CFR50.72 or 10CFR50.73. This report is submitted voluntarily for information.

Should you have any questions or desire additional information regarding this matter, please call me or Ms. Lourdes Fernandez at (509) 377-4147.

Respectfully,

P. R. Bemis (Mail Drop PE20)
Vice President, Nuclear Operations

Enclosure

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IE22

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	1 of 4

TITLE (4) INADVERTENT LOSS OF POWER TO CRITICAL BUS AND EDG START DUE TO CLEARANCE ORDER RESTORATION ACTIVITY

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)
05	04	96	96	- 0 0 2 -	0 0	06	20	96	N/A	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	*
POWER LEVEL (10)	0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)

__ 20.402(b)	__ 20.405c	__ 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)	_X_ 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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER AREA CODE	TELEPHONE NUMBER
Bill Pfitzer, Licensing Engineer	509	377-2419

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
__ YES (If yes, complete EXPECTED SUBMISSION DATE)	_X_ NO				

ABSTRACT (16)

On May 4, 1996 at 0142, with the reactor defueled, critical bus SM-8 lost power when supply breaker 3-8 tripped. As a result, emergency diesel generator (EDG) 2 auto started and the backup transformer automatically provided power to SM-8. Detailed investigation into this event determined the cause to be accidental opening of the non-critical bus SM-3 potential transformer (PT) fuse compartment by an equipment operator (EO) performing restoration activities for a clearance order.

Event notification was made to the NRC pursuant to the requirements of 10 CFR 50.72(b)(2) as an Engineered Safety Feature (ESF) actuation. This notification was subsequently retracted after a detailed review of the event and the actuated equipment. The WNP-2 FSAR does not specify the EDGs as an Engineered Safety Feature. This LER is submitted on a voluntary basis.

* - Defueled

Event Description

On May 4, 1996 at 0142, with the reactor defueled, the control room received alarms indicating an undervoltage condition on non-critical bus [BU] SM-3. Breaker [BKR] 3-8 tripped due to the undervoltage condition causing a loss of power to critical bus SM-8. As a result, EDG-2 [DG] auto started, the backup transformer [XFMR] automatically provided power to the SM-8 bus, and residual heat removal pump 2B (RHR-P-2B) [BO,P], which was operating in the fuel pool cooling [DA] assist mode, experienced a temporary loss of power. Plant restoration activities were completed at approximately 0306.

Immediate Corrective Action

Immediately after the incident, Operations management suspended ongoing clearance order restoration activities and secured the area around the SM-3 auxiliary electrical cubicle to support investigation activities.

A Problem Evaluation Request (PER) was initiated.

RHR-P-2B was returned to service in the fuel pool cooling assist mode after approximately 45 minutes.

Plant electrical lineup and equipment restoration was completed at approximately 0306.

Further Evaluation

During the Incident Review Board (IRB) investigation, the EO reported that he had opened and closed the door of the SM-3 auxiliary electrical cubicle in preparation for restoration of a clearance order associated with transformer TR-S. The EO stated that after looking inside the cubicle he shut the door and then heard relays chatter. He speculated he had jarred the relays while closing the cabinet door. Event evaluation, including further interviews of the EO involved, determined the following:

- Momentary opening of the SM-3 bus PT fuse compartment, which is adjacent to the compartment specified by the clearance, would have caused all the auto actions which occurred during this event. Both fuse compartments are located inside the SM-3 auxiliary electrical cubicle which must be opened to view the compartments. The compartment doors utilize a protective feature which disconnects the fuses as the compartment door is opened.

- The door latch for the SM-3 bus PT fuse compartment was found in the 11:30 (just closed) position rather than the 9:00 (fully closed) position as expected.

- PT fuse disconnects of this type can be easily opened and re-closed in approximately 1-2 seconds.

- The control room alarm printer "SM-3 UNDERVOLTAGE" indication took about 2 seconds to return to normal.

- In an effort to reproduce an inadvertent relay operation, the SM-3 auxiliary electrical cubicle door was repeatedly slammed. No operation of SM-3 undervoltage relays due to mechanical jarring or bumping was observed.

- The maximum length of time for an HFA undervoltage relay to trip and return to normal due to mechanical jarring or bumping is approximately 40 to 50 milliseconds. In this case, the relay which must actuate after the undervoltage relay to effect opening of breaker 3-8 requires the undervoltage signal to be approximately 1.0 second in duration.

The physical evidence listed above led the IRB to postulate three possible causes for the SM-3 undervoltage condition. These potential causes were:

- Slamming the SM-3 auxiliary electrical cubicle door which jarred the undervoltage relays of SM-3 causing breaker 3-8 to trip.

- Dirty contacts on the SM-3 bus PT fuse stabs which caused poor contact, an undervoltage condition and tripping of breaker 3-8.

- Opening of the SM-3 bus PT fuse compartment which caused an undervoltage condition and tripping of breaker 3-8.

After careful consideration, Operations management concluded the cause of the event was momentary opening of the SM-3 bus PT fuse compartment by the EO. It was further concluded that the EO operated the SM-3 bus PT fuse compartment and, upon realizing his error, hastily reclosed the PT compartment leaving the compartment in the abnormal condition found by the IRB investigators. This conclusion is further supported by the information recorded on the control room alarm printer and the information obtained during testing of the components involved.

This LER is submitted on a voluntary basis.

Root Cause

The root cause for this event is personnel error. The SM-3 bus PT fuse compartment was inadvertently opened, causing an SM-3 undervoltage signal.

A contributing cause was inadequate pre-job brief. The Production Reactor Operator (RO) and Senior Reactor Operator (SRO) did not address the potential adverse consequences of operation of the bus PT fuse compartment.

An additional contributing cause was failure to follow the procedure requirements to identify clearance order steps for PT fuse restoration as requiring simultaneous verification.

Further Corrective Action

Personnel action appropriate to the circumstances was taken with the EO.

The Production RO and SRO were counseled concerning the necessity of performing adequate pre-job briefs prior to performance of critical clearance activities.

The procedures/instructions governing clearance order preparation will be revised to ensure the need for simultaneous verification is noted on the required clearance order steps.

Assessment of Safety Consequences

The safety consequences of this event are minimal. The reactor was defueled at the time this event occurred. Expected automatic actions occurred including auto starting of EDG-2 and re-energization of SM-8 from the backup transformer. RHR-P-2B, which was operating in the fuel pool cooling assist mode, tripped as a result of the loss of power but was restored after approximately 45 minutes. Estimated time to boil at the time of this event was 52 hours.

Previous Similar Events

Previous LERs documenting personnel error resulting in actuation of safety-related equipment are as follows:

- LER 96-001 involved inadvertent ESF actuations due to tripping of a temporary power supply to IN-3 by outage electricians.
- LER 95-002 involved Operations personnel operating the wrong lever during a main turbine test resulting in turbine trip and reactor scram.