

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Washington Nuclear Plant - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 9 7	PAGE (3) 1 OF 0 4
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TITLE (4)
Diesel Generator Output Voltage Low

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 1 3	1 8	5 8 5		0 0 8	0 0 0	2 2	7	8 5			0 5 0 0 0
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THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)

OPERATING MODE (9) 1	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 1.0 0	20.406(a)(1)(i)	50.38(c)(1)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(ii)	50.38(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(vi)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A) 50.72(B)(2)(iii)
	20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME R. L. Koenigs, Compliance Engineer	TELEPHONE NUMBER 5 0 9 3 7 7 - 2 5 0 1
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) Ext. 2279

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS
A	E B D G		S 4 0 7	N					

SUPPLEMENTAL REPORT EXPECTED (14) <input type="checkbox"/> YES (if not complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15) MONTH: DAY: YEAR:
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ABSTRACT (Limit to 1400 spaces; i.e. approximately fifteen single-space typewritten lines) (16)

During a Scram and the subsequent loss of normal and preferred power incident on January 31, 1985, the Standby Electrical Diesel Generators did not reach the required voltage to allow automatic closure of their output breakers.

The voltage adjust potentiometers for both generators were found to have been adjusted to the low voltage limit. This would have precluded the diesel generators from accomplishing their automatic safety functions without further operator action.

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

Plant Conditions

- a) Power Level - 100%
- b) Plant Mode - 1

Event

A loss of normal and preferred power occurred and the Division I and Division II Standby Diesel Generator sets received a start signal. Both diesels automatically started and accelerated to rated speed. During an inspection of the diesel generators, approximately one half hour following the scram, a Plant engineer observed Division I and Division II diesel generator (DG) output voltages of 3700-3800 VAC. Rated voltage is 4,160 VAC. Control room personnel were immediately notified of this discrepancy and the generator voltages were adjusted to normal values.

An investigation revealed that on 1/21/85, the voltage adjusting motor operated potentiometers (MOP's) had been run to their lowest voltage setpoint. Following is a description of the actions leading to this event: On 1/21/85, Plant operators noticed an illuminated voltage regulator limit indication for DG #1 in the control room. This limit light indicates that the MOP is at the high or low limit of its travel. No procedural guidance existed to direct operators on required followup actions. During an investigation as to the cause of this indication, the DG #1 MOP was adjusted to its low limit point. During MOP operation, a shift electrician attempted to verify operation of the limit switches which provided the high/low limit signal. Upon examination of the MOP, it was discovered that the operating cam for these limit switches had slipped and was providing an erroneous signal. The DG #2 MOP was then operated and correct operation of its limit switches confirmed. It was determined that a Maintenance Work Request would be required to adjust the DG #1 limit switches. It was felt that the cam adjustments did not affect MOP operability, and it was decided that the adjustment could be performed during the next planned maintenance outage. This decision process did not receive further management review. The MOP's for both DG #1 and DG #2 were left at their minimum voltage adjustment positions. It was erroneously believed that once the MOP control switch was released, the MOP would return to a position that provided normal voltage output for the DG's. The Division III High Pressure Core Spray DG is designed with this provision.

In summary, the MOP design allowed the potentiometers to be adjusted while the generator was not operating. The Plant engineer responsible for the startup testing of these diesel generators did not provide input to the operating procedure concerning the voltage adjust high and low limit lights. The procedure did not contain a caution to Plant operators concerning the fact that voltage could be adjusted outside the range which was required for automatic breaker closure. Nor was a caution present to indicate that if the voltage regulator was adjusted, while the diesel generator was secured, the voltage would not return to a preset value upon starting. These precautions should have been included in the procedure. The absence of these precautions is considered a personnel error which resulted in deficient procedures.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

Immediate Corrective Action

- o Upon notification of the low voltage conditions, the control room immediately adjusted the DG MOP's to obtain the voltage setpoint.
- o This condition was not analyzed as preventing automatic DG breaker closure until the afternoon of 2/1/85. Upon completing this analysis, the event was reported to the NRC at approximately 1640 hours on 2/1/85.

Further Corrective Action

- o The control circuitry for both Division I and Division II diesel generators has been modified to preclude MOP operation while the DG's are shutdown. Further design changes will be pursued which will provide an automatic voltage setpoint reset upon receipt of a DG start signal.
- o It was noted that the WNP-2 simulator model for the HPCS DG did not include the automatic voltage setpoint reset feature. This will be corrected to reflect the actual design.
- o The diesel generator operating and surveillance procedures have been changed to ensure that Plant operators adjust voltage and frequency to obtain rated conditions prior to securing the DG's.
- o An evaluation will be performed of the Plant's current operator training on diesel generator units. The next cycle of operator requalification training will be modified in accordance with the evaluation results.
- o An evaluation will be made by the Nuclear Safety Assurance Group of the human factors aspects of the MOP high/low limit light indications and whether these particular indications are necessary. This evaluation will include consideration of whether light indicators should be included in annunciator response procedures.
- o The Operations Department Manager will reinforce, to operations personnel, the various administrative procedure mechanisms that identify Plant operating problems and which provide feedback to the Plant staff and management for future review and followup action.
- o A review of the system responsibilities for the Engineer involved in startup of this system revealed that he was not responsible for any other safety-related systems. This is believed to be an isolated case and that engineer no longer works for the Supply System. No further corrective action is anticipated.

In summary, positive corrective action has been implemented by way of both design and procedural changes which preclude the possibility of this event recurring. No changes can be made to the voltage adjustment MOP while the DG units are shutdown and operators are procedurally required to verify that correct voltage conditions exist prior to securing the units. This ensures the MOP adjustment will support attaining correct voltage conditions on both manual and automatic DG starts.

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

Safety Significance

The failure of the DG voltage to exceed the breaker close enable setpoint rendered the emergency diesel generators immediately unavailable to support low pressure coolant injection systems.

Both high pressure coolant injection systems were available and restored reactor water level. The lowest level recorded was above -49 inches. Low pressure coolant injection systems were not challenged.

Voltage control is available in the control room. Thus both emergency diesel generators were available, pending operator action to raise the voltages.

WNP-2 currently performs surveillance tests on the DG units once per 31 days on a staggered basis. The units had not failed any previous surveillance due to problems with this circuitry and it can therefore be concluded the condition is limited to this event. Due to the manner in which we schedule DG surveillances, this condition could not have existed, simultaneously on both DG's, for longer than approximately 15 days before being discovered.

Special Data Required by Regulatory Guide 1.108, Regulatory Position C.3.b

1. Failed Unit: DG1 and DG2
2. 3rd failure in last 100 starts (Note: The 2 failures reported in this LER are not considered valid failures).
3. Cause: Operator error in adjusting DG MOP circuit. This error resulted from a lack of procedural direction that included knowledge gained during the initial startup of the DG units.
4. The voltage regulator circuit has been changed. Additional future changes will be incorporated. Plant procedural changes have been incorporated to provide additional guidance.
5. Units were not available, without operator action, for a period of 10 days.
6. Current test interval is once per 31 days.
7. This test interval is in compliance with Regulatory Guide 1.108, Regulatory Position C.2.d.

Washington Public Power Supply System

P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

Docket No. 50-397
January 27, 1985

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 85-008

Dear Sir:

Transmitted herewith is Licensee Event Report No. 85-008 for WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the item of reportability, corrective action taken, and action taken to preclude recurrence.

This is the follow-up report to the verbal notification given at approximately 1640 hours on February 1, 1985.

Very truly yours,

J.M. Powers for
J. D. Martin (M/D 927M)
WNP-2 Plant Manager

JDM:mm

Enclosure:
Licensee Event Report No. 85-008

cc: Mr. John B. Martin, NRC - Region V
Mr. A. D. Toth, NRC - Site (901A)
Ms. Dottie Sherman, ANI
INPO Records Center - Atlanta, GA

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