

CATEGORY 1

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SUBJECT: LER 98-013-00: on 980805, ESF actuations due to deenergization
 of vital electrical bus SM-8 was noted. Caused by inadequate
 direction in troubleshooting plan. Reset ESF actuations &
 stabilize plant. With 980903 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • Richland, Washington 99352-0968

September 3, 1998
GO2-98-161

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,
LICENSEE EVENT REPORT NO. 98-013-00

Transmitted herewith is Licensee Event Report No. 98-013-00 for WNP-2. This report is submitted pursuant to 10 CFR 50.73 and discusses the items of reportability, corrective action taken, and action to preclude recurrence.

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

Respectfully,

PR Bemis
Vice President, Nuclear Operations
Mail Drop PE23

Enclosure

cc: EW Merschoff, NRC RIV
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Washington Nuclear Plant - Unit 2	DOCKET NUMBER (2) 50-397	PAGE (3) 1 OF 4
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TITLE (4)
Engineered Safety Feature (ESF) Actuations Due to Deenergization of Vital Electrical Bus SM-8

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV. NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
08	05	98	98	013	00	09	03	98	N/A	

OPERATING MODE	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
		20.402(b)		20.405(c)	X	50.73(a)(2)(iv)		73.71(b)	
POWER		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
	100	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
		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 Bill Pfitzer, Licensing Engineer	TELEPHONE NUMBER (include Area Code) 509-377-2419

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

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, completed EXPECTED SUBMISSION DATE).				<input type="checkbox"/> NO				

ABSTRACT:
 On August 5, 1998 at 1452 hours, during troubleshooting activities to determine the cause of apparent emergency diesel generator 2 (EDG-2) voltage regulator problems, vital electrical bus SM-8 and its associated loads were deenergized causing several engineered safety feature (ESF) system isolations and half-isolations to occur. SM-8 was reenergized by Operations approximately 8 minutes after being deenergized. All ESF actuations occurred as designed during the event.

Immediate corrective actions were taken to reset the ESF actuations and stabilize the plant.

The cause of the event has been determined to be inadequate direction in the troubleshooting plan to respond to anticipated abnormal system responses.

Management has reiterated the need for Engineering personnel to include contingency actions in troubleshooting plans for unexpected conditions which may result from troubleshooting activities. Additionally, training will be conducted for Engineering personnel concerning the need to address anticipated abnormal conditions in troubleshooting plans.

The safety significance of this event is considered minimal.

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

Event Description

On August 4, 1998, while performing the emergency diesel generator 2 (EDG-2)[DG] monthly operability test, EDG-2 reactive load (MVAR) oscillations were observed. The oscillations were anomalous and unexpected, and as a result EDG-2 was shutdown and declared inoperable in accordance with Technical Specification (TS) 3.8.1.B. The subsequent troubleshooting and repair efforts focused first on potential grid voltage variations, then on the components of the EDG-2 voltage regulation system. On August 5, 1998, during one of the troubleshooting tests conducted with EDG-2 paralleled to the electrical grid via transformer [XFMR] TR-S and vital electrical bus [BU] SM-8, MVAR oscillations were again observed as EDG-2 was loaded. Personnel involved in the test allowed EDG-2 to run in this condition in an attempt to record data and determine the cause of the oscillations. After approximately 5 minutes the MVAR meter pegged high, causing high EDG-2 output voltage. In accordance with precautions and limitations of the normal plant operating procedures, Operations personnel attempted to regain control of EDG-2 voltage by manual adjustment of the voltage regulator [RG]. When these efforts proved unsuccessful, Operations personnel began reducing generator load. At 1452 hours, about 18 seconds after the MVAR indication pegged high, breaker [BKR] 8-3 tripped and locked out due to actuation of protective overload relays [RLY]. This resulted in immediate tripping of breaker 8-DG2 due to breaker interlock logic, which in turn resulted in the temporary loss of vital bus SM-8 and its associated loads. About 24 seconds after automatic tripping of these breakers Operations personnel manually tripped EDG-2. Vital electrical bus SM-8 was reenergized by Operations approximately 8 minutes after being deenergized.

As a result of the loss of SM-8 and its associated loads the following ESF actuations occurred:

- * Isolation of reactor water clean up (RWCU-V-1)[CE][V]
- * Isolation of radioactive equipment drains from the containment (EDR-V-19)[JM][V]
- * Isolation of radioactive floor drains from the containment (FDR-V-3)[JM][V]
- * Isolation of reactor recirc sample line (RRC-V-19)[JM][V]
- * Isolation of reactor building and containment sampling, due to loss of isolation valve power

The failure of the EDG-2 voltage regulator and resultant Technical Specification-required plant shutdown is the subject of Licensee Event Report 98-014.

Immediate Corrective Action

All ESF actuations were subsequently reset and the associated systems returned to service during plant recovery efforts.

Problem evaluation requests were initiated for the deenergization of SM-8.

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Further Evaluation

Subsequent evaluation confirms that all ESF actuations that occurred were in accordance with plant design, and that those actuations which should have resulted from this condition did occur as designed.

Cause of Event

The Engineering personnel involved in developing the troubleshooting plan did not interpret the procedural guidance for development of troubleshooting plans correctly. Consequently, the troubleshooting plan was deficient in that it relied on the precautions and limitations in the normal operating procedure for EDG-2 to provide direction to testing personnel should unexpected system responses occur. These precautions and limitations are based on operable equipment with predictable responses, and, as in this case, are not adequate when troubleshooting a faulty system or component with an increased potential for unknown or unexpected system responses. The troubleshooting plan should have included additional guidance for abnormal conditions which could have been anticipated as a result of this testing.

Additionally, a review of the precautions and limitations of the normal operating procedure for the EDGs will be conducted to determine if additional direction is necessary for the abnormal conditions which may be encountered during EDG operation.

Further Corrective Action

Management has reiterated the need for Engineering personnel to include contingency actions in troubleshooting plans for unexpected conditions which may result from troubleshooting activities.

Training will be conducted for Engineering personnel concerning the need to address anticipated abnormal conditions in troubleshooting plans.

A review of the precautions and limitations of the normal operating procedure for the EDGs will be conducted to determine if additional direction is necessary for the abnormal conditions which may be encountered during EDG operation. Revisions will be made to the procedures if necessary.

Procedural guidance for development of troubleshooting plans will be revised to address the need for contingency actions/plans when unusual conditions can be anticipated during troubleshooting activities.

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Assessment of Safety Consequences

All ESF actuations which should have resulted from this event occurred in accordance with plant design. All ESF actuations were subsequently reset and the associated systems returned to service during plant recovery efforts. Therefore, the safety significance of this event is considered minimal.

Similar Events

No previous events have been reported which are attributable to lack of adequate detail in troubleshooting plans.



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