

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 5 2 8 1					PAGE (3) 1 OF 3									
TITLE (4) Functional And Response Time Surveillance Tests Not Acceptable																								
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)											
1	1	5	8	5	8	5	0	7	9	0	0	1	2	1	6	8	5	0	5	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)																						
5		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)										
POWER LEVEL (10)		20.405(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)										
0 0 0		20.405(a)(1)(ii)				50.36(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 William F. Quinn, Manager - Nuclear Licensing (Extension 4087)										TELEPHONE NUMBER 6 0 2 9 4 3 - 7 2 0 0														
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																								
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs														
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)			MONTH DAY YEAR											
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input type="checkbox"/> NO			0 3 3 1 8 6											

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On November 15, 1985, with Unit 1 in Mode 5 at 0 percent power (COLD SHUTDOWN), it was determined that Unit 1 had operated in a condition prohibited by the Technical Specifications from April 30, 1985 until November 24, 1985. This condition had occurred due to the failure to address all aspects of the Channel Functional Test surveillance requirement for the 4.16 kV emergency bus loss of voltage and degraded voltage relays, and unacceptable performance of the response time surveillance requirement for the 4.16 kV emergency bus degraded voltage relays.

All aspects of the Channel Functional Test Surveillance Requirements had not been addressed due to an insufficient procedure; the response time surveillance had not been acceptably performed due to personnel error. As corrective action, a procedural revision was implemented and the appropriate personnel were counseled. With Unit 1 remaining in Mode 5, the surveillances were completed by November 24, 1985. An investigation into the root cause, and an assessment of the safety consequences and implications of this event are in progress, and the results will be provided in the supplement to this LER.

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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 (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Palo Verde Unit 1	0500052885	—	079	—	00	02 OF 03

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On November 15, 1985, with Unit 1 in Mode 5 at 0 percent power (COLD SHUTDOWN with cold leg temperature ≤ 210 degrees F), an onsite procedure review committee was performing a revision review of the Surveillance Test Procedure for the Class 4160 Bus Undervoltage Protection Relays (note that the revision being reviewed was not related to this event). During this review, it was determined that performance of this procedure did not address all aspects of the 18 month Channel Functional Test (CFT) surveillance required by Technical Specification (T.S.) Section 4.3.2.1, Table 4.3-2, VIII A and B, for the Engineered Safety Features Actuation System (ESFAS) (EIS System Code JE) 4.16 kV Emergency Bus Loss of Voltage and Degraded Voltage relays (EIS Component Code 27). Further investigation revealed that, due to personnel error, the 18 month Engineered Safety Features Response Time surveillance required by T.S. Section 4.3.2.3 had not been acceptably performed for the 4.16 kV Emergency Bus Degraded Voltage relays (the response time surveillance for the 4.16 kV Emergency Bus Loss of Voltage relays had been satisfactorily performed during preventive maintenance).

Based on these findings, the CFT surveillance requirement for the loss of voltage and degraded voltage relays, and the response time surveillance requirement for the degraded voltage relays had not been adequately performed. Since failure to perform a surveillance requirement within the specified time interval renders the equipment inoperable (T.S. Section 4.0.3), Unit 1 operated in a condition prohibited by the T.S. from initial Mode 3 entry (HOT STANDBY with cold leg temperature ≥ 360 degrees F) on April 30, 1985, until November 24, 1985, when the surveillances were completed (note that Unit 1 was periodically in modes during this time frame which did not require these relays to be operable).

All aspects of the CFT for the loss of voltage and degraded voltage relays had not been addressed due to an insufficient procedure. Previous functional testing of these relays had been performed as a Preoperational Test in October, 1983, and consisted of deenergizing the circuit to each relay with a local test push-button. Circuit integrity was then verified for each relay by operation of a light on the Balance of Plant (BOP)-ESFAS panel. Although the Preoperational Test did not address all aspects of the T.S. definition of CFT, it did, however, establish that the undervoltage relays would function as designed during a loss of voltage or degraded voltage condition.

As corrective action, the procedure was revised to address all CFT requirements. With Unit 1 remaining in Mode 5, the CFT surveillance was performed by November 24, 1985.

The response time surveillance requirement for the degraded voltage relays had not been acceptably performed due to personnel error. Contractor personnel had erroneously applied the testing method used for overcurrent protective devices (T.S. Section 4.8.4.1) to the response time surveillance. This resulted in only 10 percent (2 of 16; 8 Loss of Voltage and 8 Degraded Voltage) of the total number of relays being tested in March, 1985. (Note that all 8 Loss of Voltage relays had been response time tested during preventive maintenance in November, 1984, and all had operated within the T.S. requirement of ≤ 2.4 seconds. Therefore, the response time surveillance requirement was satisfied for these relays). The 8 Degraded Voltage relays had been response time tested during a Preoperational Test in October, 1983. Although 4 of the 8 response times exceeded the present T.S.

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U.S. NUCLEAR REGULATORY COMMISSION

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		YEAR 0 7 9 -	SEQUENTIAL NUMBER 0 0	REVISION NUMBER 0 3			

TEXT (If more space is required, use additional NRC Form 366A's) (17)

requirement of ≤ 35 seconds (worst-case being 35.8 seconds), the T.S. requirement had not been established at that time. The response times had met the existing test requirements and the relays were assumed to be functionally operable. An engineering evaluation has verified that, based upon the worst-case response time, the degraded voltage relays would have fulfilled the ESFAS requirements for a postulated Loss of Offsite power, in that emergency onsite A.C. power would have been restored to the emergency buses within the maximum time allowance of the safety analysis.

As corrective action, the appropriate personnel were counseled. With Unit 1 remaining in Mode 5, all Loss of Voltage and Degraded Voltage relays were response time tested by November 24, 1985.

The function of the ESFAS 4.16 kV Emergency Bus Loss of Voltage and Degraded Voltage relays is to provide the necessary signals to enable the diesel generator (EIS Component Code DG) to supply the emergency bus following a degraded or loss of voltage condition. Two actual Loss of Offsite Power events occurred in October, 1985 (see LER's 85-058 and 85-076). In each case, the diesel generators started and provided power to the Emergency Buses as required. Although surveillance credit is not being assumed for these occurrences, they are positive indications that the relays did and would have performed their design safety function during the time period since Unit 1 had initially entered Mode 3.

An investigation into the root cause and an assessment of the safety consequences and implications of this event are in progress and the results will be provided in a supplement to this LER.



Arizona Nuclear Power Project

P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

December 16, 1985
ANPP-34257 EEVB/GEC/98.06

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

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528; License No. NPF-41
Licensee Event Report 85-079-00
File: 85-020-404

Dear Sirs:

Attached please find Licensee Event Report (LER) No. 85-079-00 prepared and submitted pursuant to 10 CFR 50.73. In accordance with 10 CFR 50.73(d), we are herewith forwarding a copy of the LER to the Regional Administrator of the Region V Office.

If you have any questions, please contact me.

Very truly yours,

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/GEC/rw
Attachment

cc: J. B. Martin (all w/a)
R. P. Zimmerman
A. L. Hon
E. A. Licitra
A. C. Gehr
INPO Records Center

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