

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 1										DOCKET NUMBER (2) 0   5   0   0   0   5   2   8   1   0   0   4										PAGE (3) 1 OF 0   4			
TITLE (4) Diesel Generator Failure as per Technical Specifications																							
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   3	0   5	8   5	8   5	0   1   8	0   1	0   6	1   0	8   5							0   5   0   0   0								
OPERATING MODE (9) 5			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																				
POWER LEVEL (10) 0   10   0		20.402(b)				20.405(c)				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)				<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 365A)									
		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)				Special Report									
LICENSEE CONTACT FOR THIS LER (12)																							
NAME William F. Quinn, Manager - Nuclear Licensing(extension 4087)										TELEPHONE NUMBER AREA CODE 6   0   2   9   4   3   -   7   2   0   10													
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 type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO											
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																							
<p>This Special Report is required by Palo Verde Unit 1 Technical Specification (Tech. Spec.) 4.8.1.1.3.</p> <p>On March 5, 1985, Unit 1 Diesel Generator "A" failed to attain the Tech. Spec. 4.8.1.1.2.a.4 required voltage, frequency, and speed within the required 10 seconds during a surveillance test. This start failure would have been the first failure (on a per nuclear unit basis) in four valid tests. Based on an internal reevaluation of the acceptance criteria, Unit 1 remains under the requirements of Tech. Spec. Table 4.8-1 and the criteria of Regulatory Guide 1.108.C.2.d.(1) with no valid start failures.</p> <p>On March 8, 1985, Unit 1 Diesel Generator "B" failed to attain the Tech. Spec. 4.8.1.1.2.a.4 required voltage, frequency, and speed within 10 seconds. This start failure would have been the second failure (on a per nuclear unit basis) in five valid tests, placing Unit 1 in a shortened test interval schedule. A detailed review of this event indicated that this also was not a valid test in accordance with Regulatory Guide 1.108 and, therefore, a shortened test interval was not required.</p>																							



# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Palo Verde Unit 1	0 5 0 0 0 5 2 8	8 5	— 0 1 8	— 0 1	0 2	OF	0 4

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

This Special Report is required by Palo Verde Unit 1 Technical Specification (Tech. Spec.) 4.8.1.1.3.

On March 5, 1985, at 2154, Unit 1 Diesel Generator "A" was determined inoperable due to not meeting the acceptance criteria of Surveillance Test 41ST-1DG05.

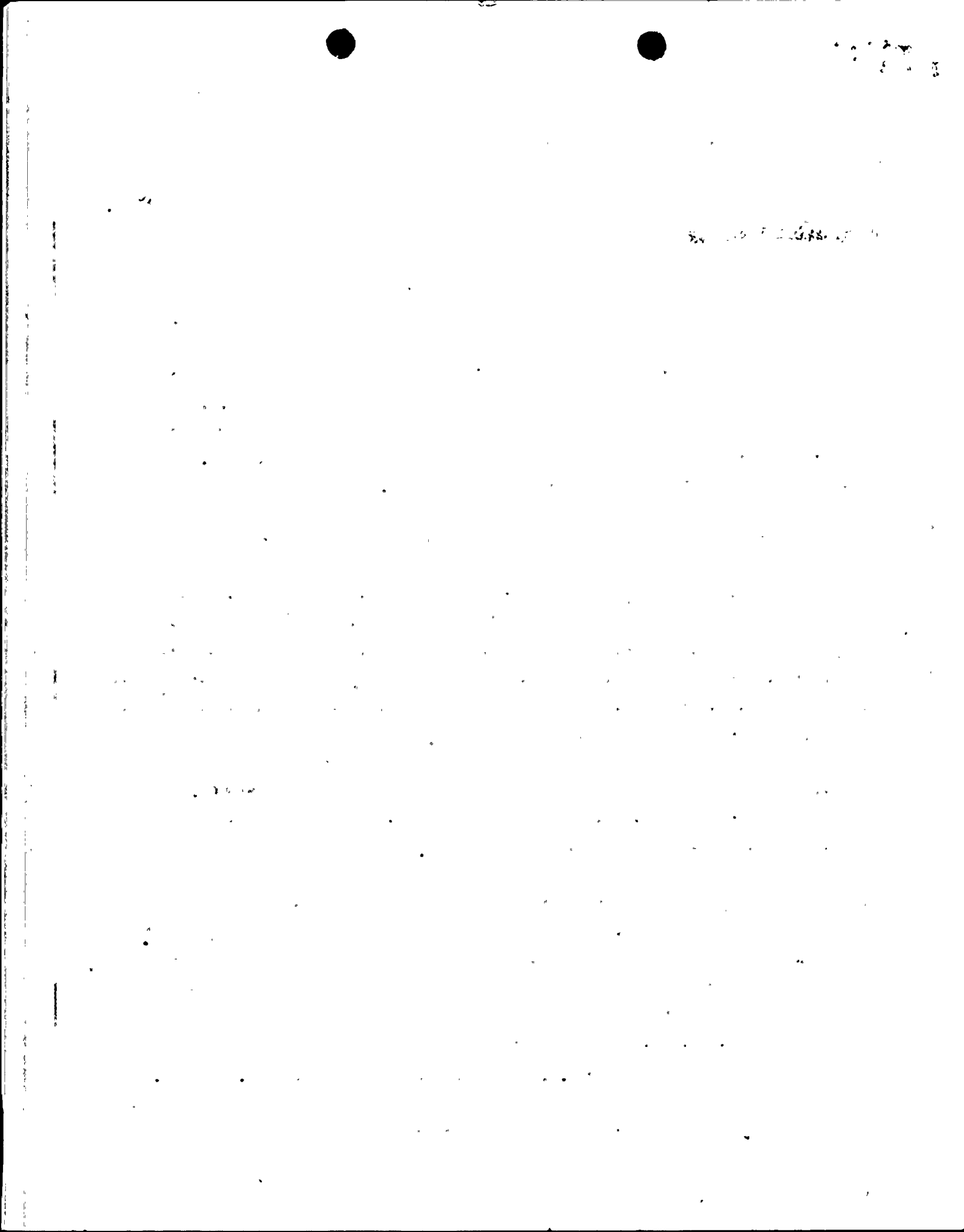
Unit 1 Diesel Generator "A" failed to attain the required voltage, frequency, and speed within 10 seconds (actual time: 10.51 sec.) per Tech. Spec. 4.8.1.1.2.a.4. This start failure would have been the first failure (on a per nuclear unit basis) in four valid test, placing Unit 1 under the requirements of Tech. Spec. Table 4.8-1 and the criteria of Regulatory Guide 1.108.C.2.d.(1).

Based on an inspection, data analysis, and experience, the system engineers attributed the excessive start time to pneumatic start system leakage and a misadjusted Turning Gear Lockout Valve. Leak checking of the control air and air start systems identified two Swagelock tube fitting leaks and one instrument shutoff valve bonnet leak. All leaks were repaired and the Turning Gear Lockout Valve was readjusted in accordance with the Cooper Bessemer Technical Manual. A troubleshooting start attempt was performed on March 8, 1985, at 1130, which met all acceptance criteria of 41ST-1DG05 with no abnormal conditions noted.

On March 8, 1985, at 1957, 41ST-1DG05 was reperformed with all acceptance criteria satisfied and Diesel Generator "A" was declared operable, having been declared inoperable for a total of 70 hours and 3 minutes.

On March 8, 1985, at 0215, Unit 1 Diesel Generator "B" was determined inoperable due to not meeting the acceptance criteria of Surveillance Test 41ST-1DG06. The Diesel Generator failed to attain the required voltage, frequency, and speed within 10 seconds (actual time: 11.6 sec., 12.55 sec., and 12.06 sec. respectively) in accordance with Tech. Spec. 4.8.1.1.2.a. This start failure would have been the second failure (on a per nuclear unit basis) in five valid tests, placing Unit 1 in a shortened test interval schedule per R.G. 1.108.C.2.d.(2) and Tech. Spec. Table 4.8-1.

Two troubleshooting start attempts and a reperformance of 41ST-1DG06 were completed on March 8 with no changes, adjustments, or alterations of the diesel generator system.



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

All three subsequent starts fully met the acceptance criteria and no abnormal conditions were noted. Unit 1 Diesel Generator "B" was declared operable on March 9, 1985, at 2155, having been inoperable for 19 hours and 10 minutes.

Since Diesel Generator "B" performed as designed during troubleshooting, further investigation was required to determine the cause of the start failure. Based on additional information and data analysis, the start failure is attributed to miscommunication between the test initiator and the test timers in conjunction with questionable timing practices and requirements. By the fact that the start failure is attributed to a test performance error and not an actual Diesel Generator failure, R.G.1.108.C.2.e.(2) allows Unit 1 to maintain the existing test schedule specified in R.G. 1.108.C.2.d.(1).

The following corrective actions will be or have been implemented: 1) An internal Technical Specification Interpretation Request to evaluate the start timing acceptance criteria for 41ST-1DG05 was completed and discussed with the NRC Resident Inspector and approved by ANPP management on May 17, 1985. Analysis of Technical Specification 4.8.1.1.2.a.4 showed the acceptance criteria of 41ST-1DG05 to be ambiguous and too conservative in requiring parameter stabilization within the 10 second starting time criteria. Therefore, Technical Specification Interpretation #77 changed the acceptance criteria of 41ST-1DG05 to require that the voltage, frequency, and speed need only attain their respective bands and not stabilize within them. This change in acceptance criteria resulted in the start of Unit 1 Diesel Generator "A" on March 5, 1985, meeting all acceptance criteria. The starting times for frequency and speed (the parameters originally failing to meet the criteria of 41ST-1DG05) can now be reduced by approximately one second, resulting in an actual time of 9.51 seconds which is within the 10 second criteria of Technical Specification 4.8.1.1.2.a.4. The start failure of Diesel Generator "A" on March 5, 1985, was not an actual failure based on the revised acceptance criteria of 41ST-1DG05 and Unit 1 will remain under the requirements of Technical Specification Table 4.8-1 and the criteria of Regulatory Guide 1.108.C.2.d.(1) with no start failures. 2) A design change is under consideration to install an oscillograph device to record and time selected Diesel Generator parameters for testing,



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

troubleshooting, and trend analysis. 3) The Surveillance Test Program has been modified to allow Engineering to review test data for Diesel Generator reliability and trending analysis. 4) Work has been expedited to replace existing air start tubing with tubing of the correct wall thickness as identified in EER-85-DG-002. 5) Analysis will be performed on the Diesel Generator pneumatic system to minimize the number of Swagelock tube fittings and verify adequate tubing support to reduce the sources and causes of air leaks. 6) Cooper Energy Services will be asked to evaluate reducing the Diesel Generator start times and provide design change recommendations to accomplish this. 7) A design change is under review to modify the engine mounted instrumentation junction boxes to allow access to the instrument shutoff and test connection valves for maintenance and leak checking. 8) Procedural changes will be implemented to check the adjustment of the Turning Gear Lockout Valves following each Turning Gear usage. A design change is also under consideration to modify the Turning Gear pneumatic lockout system to provide a more positive indication if the Turning Gear Lockout Valve is not in the fully disengaged position. 9) Procedural changes will be implemented to allow local test initiation to eliminate timing errors due to communications.

