

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 1		DOCKET NUMBER (2) 0 5 0 0 0 5 2 8	PAGE (3) 1 OF 0 3
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TITLE (4)
Inadvertent Start of Train "B" Diesel Generator

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	2	3	8	5	8	5	0	1	3	0	0	0 5 0 0 0
0	2	3	8	5	8	5	0	1	3	0	0	0 5 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

OPERATING MODE (9) 5	20.402(b)	20.406(c)	<input checked="" type="checkbox"/> 80.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 0 0	20.406(a)(1)(i)	80.38(c)(1)	80.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(ii)	80.38(c)(2)	80.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.406(a)(1)(iii)	80.73(a)(2)(i)	80.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	80.73(a)(2)(ii)	80.73(a)(2)(vii)(B)	
	20.406(a)(1)(v)	80.73(a)(2)(iii)	80.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME William F. Quinn (extension 4087)	TELEPHONE NUMBER AREA CODE 6 0 2 9 4 3 - 7 2 0 0
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

An inadvertent start of the Train "B" Diesel Generator occurred during routine surveillance testing. The surveillance procedure, which functionally tests the Train "B" Engineered Safety Features Actuation System (ESFAS) subgroup relays on an individual basis, initially contained an error in the method for testing certain subgroup relay contacts. A Procedure Change Notice (PCN) was subsequently generated, but this too was erroneous in that the Diesel Generator "B" "Control Mode" select switch, when in the OFF position, prevents an auto-start of the Diesel upon de-energizing the associated subgroup relay. This was placed back in the REMOTE position. Upon de-energizing the Train "B" Auxiliary Feedwater Actuation System subgroup relay (K113), the Train "B" Diesel Generator and its support equipment inadvertently started but did operate correctly per design. All actuated equipment subsequently was restored to normal and the procedural inadequacy corrected, after which the test was satisfactorily completed.

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

On February 23, 1985, Palo Verde Unit 1 was in Mode 5 with the RCS temperature at 112°F, the pressure at 75 PSIA, and the Pressurizer Level at 29%. The Secondary Plant was in a Cold Shutdown condition and initial preparations were being made for a Train "A" outage. The 18-month Engineered Safety Features Actuation System (ESFAS) Train "B" Subgroup Relay Surveillance Test was being performed. The purpose of this test is to verify that the automatic actuation subgroup relays, and associated equipment actuation circuits which can be actuated, operate properly. This is accomplished by individually selecting and then de-energizing each subgroup relay via built-in test features in the ESFAS Auxiliary Relay Cabinets.

An inadvertent start of the Train "B" Diesel Generator occurred at 0132 while testing the Auxiliary Feedwater Actuation Signal to Steam Generator 1 Train "B" (AFAS-1B) subgroup relay K113. Two of the contact sets of this relay are connected to the "Auto-Start Control" circuitry of the Train "B" Diesel Generator and the closing of these contact sets, which operated per design, resulted in the inadvertent start.

The surveillance procedure required that an initial equipment status verification be performed prior to de-energizing relay K113. This verification included, but was not limited to, the following summarized steps:

- (1) Verifying that the Train "A" Diesel Generator was operable.
- (2) Placing the Train "B" Diesel Generator "Control Mode" select switch in the OFF position.
- (3) Verifying that the two contact sets of relay K113 were open by checking for the presence of voltage across these contacts.

Steps (1) and (2) were satisfactorily performed, but no voltage could be measured across the relay contacts as required by summarized step (3) above. This is due to the fact that power is lost to the Auto-Start Control contacts when the "Control Mode" select switch is in the OFF position per step (2). At this point a decision was made by the engineer supervising the test to modify the procedure and place the "Control Mode" select switch back to the "REMOTE" position so that power would be restored to the relay K113 contacts. A Procedure Change Notice (PCN) was subsequently generated and implemented to delete the requirement of step (2) above. This decision was based on the fact that it would be desirable to verify the presence of voltage on the K113 contacts and therefore inherently check the continuity of the wiring to the Diesel circuitry, as opposed to modifying step (3) to perform a resistance measurement only to verify that the contacts were initially open. It was not realized at the time that the K113 contacts actually provided a START signal to the Diesel Generator. A controlled document which lists all ESFAS Train "B" Subgroup Relays, the associated Actuated Equipment, and the Function which the relay performs on that equipment misleadingly contained the words "BYP TRIPS" under the Function column. It was erroneously assumed that the only function of these contacts was to bypass the low priority Diesel Generator inherent trips which occurs upon a full LOCA emergency actuation, Auxiliary Feedwater Actuation Signal (AFAS) and/or Safety Injection Actuation Signal (SIAS), and that the actual Diesel Generator Start Signal (DGSS) was provided only by the Balance of Plant (BOP) ESFAS DGSS circuit. It was incorrectly concluded that by placing the "Control Mode" select switch back to the REMOTE position that a start would not occur. However, per design, upon the receipt of a full AFAS or SIAS, the Diesel Generator Auto-Start Circuit actually receives two redundant parallel start signals, one from the BOP ESFAS and the other directly from the subgroup relay. The bypassing of the low priority Diesel Generator trips is actually

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

accomplished internal to the Diesel Generator Auto-Start circuitry as a result of the emergency mode "Start" signal.

Subsequent to implementing the initial PCN, step (3) above checked out correctly.

Relay K113 was then de-energized per procedure, causing the "B" Diesel Generator to start and its support equipment to operate per design. Relay K113 was then reenergized and the Diesel Generator "B" and its support equipment were reset. The surveillance test was terminated and a detailed examination of the Diesel Generator internal auto-start control electrical diagrams was performed to determine the cause of the inadvertent start.

The procedural error in the initial PCN was subsequently corrected by generating a further PCN which placed the Train "B" Diesel auto control disconnect switch in the LOCAL position. This switch physically disconnects the emergency mode auto-start contacts, including the K113 contacts, and thus prevents the Diesel from starting upon closing the auto-start contacts. The second PCN also modified the procedure to initially verify the absence of voltage on the (K113) auto-start contact sets and then perform a resistance measurement to verify that the contact sets were open. The test was then satisfactorily completed. In addition, a Plant Change Request has been submitted to correct the misleading information in the document listing the ESFAS Subgroup Relays and Actuated Devices.

This event was caused by a procedural inadequacy that has been corrected. All equipment operated correctly per design and the safety margin of the plant was not jeopardized.



Arizona Nuclear Power Project

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

ANPP-32219-EEVB/WFQ
March 25, 1985

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-34
Licensee Event Report
File: 85-056-026; G.1.01.10

Dear Sirs:

Attached please find Licensee Event Report (LER) No. 85-013-00 prepared and submitted pursuant to 10 CFR 50.73. By copy of this letter we are also forwarding a copy of the LER to the Regional Administrator of the Region V Office.

If you have any questions or concerns, please contact me.

Very truly yours,

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

EEVB/GEC/mb
Attachment

cc: J. B. Martin
R. P. Zimmerman
E. A. Licitra
A. C. Gehr
INPO Records Center

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