NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palo Verde Unit 1	0 5 0 0 0 5 2 8	1 OF 0 4

TITLE (4)

Inadvertent Actuation of Engineered Safety Features Actuation System

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 5 0 0 0
0 4	1 7	8 5	8 5	–	0 2 8	–	0 0	0 5	1 7	8 5		0 5 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)	X	50.73(a)(2)(iv)	73.71(b)	
POWER LEVEL (10) 0 0 0	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)	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)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
W. F. Quinn (extension 4087) (Manager-Nuclear Licensing)	AREA CODE 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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

While performing a surveillance test of local operability of the Train "B" class electrical system, the "B" and "D" battery chargers supplied by this system were not properly verified as being returned to service in accordance with two consecutive steps of the procedure.

When the operator performing the test proceeded with the next step, which opens and recloses the "B" and "D" battery breakers, the Engineered Safety Features Actuation System (ESFAS) 2 out of 4 coincidence logic was actuated due to being de-energized.

A Procedure Change Notice (PCN) was issued and approved to provide additional clarification to the operators to provide positive determination that the battery chargers have been properly returned to service. With the PCN in place, the procedure was rerun without incident.

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

On April 17, 1985, at 0625, PVNGS Unit 1 was in Mode 5. The Reactor Coolant System (RCS) was at 124 degrees Fahrenheit, 50 PSIG, and 2445 ppm boron concentration. The Low Pressure Safety Injection (LPSI-A) pump was in operation providing shutdown cooling.

While performing procedure 41ST-1ZZ20 (Remote Shutdown Disconnect Switch and Control Circuit Operability, Appendix F) to test the local operability of the battery and battery chargers supply breakers on the "B" Train class electrical system, the "D" battery charger and the "B" battery charger were not verified to be properly returned to service in accordance with steps 2.2 and 2.3 of the procedure, respectively. This portion of the test is performed outside the Control Room and, as the designated disconnect switches are placed in the "LOCAL" position, the associated control indication and controls are isolated from their respective components. The "D" and "B" battery chargers had been removed from service earlier in the test and were to be restored using procedure steps 2.2 and 2.3 respectively. The "D" and "B" battery chargers were not properly restored to operation and this left their associated DC buses powered from the batteries. When the "B" battery breaker was opened in accordance with procedure 2.4.1, the associated 125VDC bus was de-energized which caused the associated 120VAC bus to be de-energized. This resulted in a Plant Protection System Matrix power supply failure. This caused the 2 of 4 logic of the Reactor Protection System (RPS) and the ESFAS to trip. Once an initiation circuit has tripped, lockout relays in the circuit prevent the trip signal from being reset automatically. The "B" battery breaker was reclosed. The "B" Train Engineered Safety Feature (ESF) load sequencer went to the Loss of Offsite Power (LOP) mode when the "B" battery breaker was reclosed. The "D" battery breaker was opened in accordance with procedure step 2.4.5. This action caused the associated 125VDC and 120VAC buses to be de-energized resulting in a second channel trip of the ESFAS 2 out of 4 coincidence logic and initiation of the following actuation signals:

Safety Injection Action Signal
Containment Isolation Actuation Signal
Main Steam Isolation Signal
Recirculation Actuation Signal (RAS)
Auxiliary Feedwater Actuation Signal

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

Containment Spray Actuation Signal
Fuel Building Essential Ventilation Actuation Signal
Control Room Ventilation Isolation Actuation Signal
Control Room Essential Filtration Actuation Signal
Containment Purge Isolation Actuation Signal
Loss of Offsite Power (B side only)

The "D" battery breaker was reclosed. The 2 out of 4 coincidence logic for the Reactor Protection System (RPS) had caused actuation of all RPS channels thereby opening the reactor trip breakers. The LPSI-A pump that had been running for shutdown cooling was tripped off due to the RAS. All "A" Train components operated properly. The High Pressure Safety Injection pump injected water into the RCS until stopped by the operator. The "B" Train ESF load sequencer, having gone to the LOP mode when power was restored, caused "B" Train load shedding to occur. The "B" Diesel Generator output breaker closed and the "B" Train components actuated but did not sequence due to the mode the ESF load sequencer entered when re-energized. (The load sequencer does not have a memory, therefore it must be reset after restoring power to it to assure normal functioning.) "B" Train components operated properly. A total of 1350 gallons of water was injected into the RCS during this event. The containment spray pumps did not start because the supply breaker control power had been removed to prevent unwanted operation while in Mode 5. At 0633 the operators began returning plant systems to normal. The operators were aware that shutdown cooling had been lost and, also, the Technical Specification requirement for suspension of positive reactivity additions to the core. RCS temperature was stable during the event and at 0747 the LPSI-A pump was started to restore shutdown cooling.

A detailed review of this event included evaluation of procedure 41ST-1ZZ20, the systems and components involved, the Plant Monitoring System (PMS) alarm printout, and conversations with the personnel involved. Based on this review it has been concluded that "B" and "D" battery chargers were not returned to service as called for in 41ST-1ZZ20, Appendix F, Sections 2.2 and 2.3. It appears that personnel error was the cause of this event however, not all data was retrievable from the PMS on equipment actuation and return to service. A PCN was approved and added to the procedure to provide additional clarification to the operators for making positive determination that the battery chargers have been properly placed in service. The procedure was re-run without incident. The surveillance test was performed by nonlicensed operating personnel.

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

Procedure 41ST-1ZZ20 will be reviewed and revised as necessary to minimize the chance of errors and the potential impact. Steps that must be verified completed properly prior to proceeding to prevent unwanted actuation or disabling of systems/components will be emphasized. This event will be reviewed with the Operations Department personnel to emphasize the need for ensuring proper completion of each procedural steps as testing is performed. The PSM problems are being evaluated and necessary corrections will be made.

All safeguards equipment operated per design.

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

ANPP-32659-EEVB/GEC
May 17, 1985

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528, License No. NPF-34
Licensee Event Report-Inadvertent Actuation of
Engineered Safety Features Actuation System
File: 85-056-026; G.1.01.10

Dear Sirs:

Attached please find Licensee Event Report (LER) No. 85-028-00 prepared and submitted pursuant to 10 CFR 50.73. This LER addresses an inadvertent actuation of the Engineered Safety Features Actuation System. 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,

EE Van Brunt JR

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

EEVB/GEC/slh
Attachment

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

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