



A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear
Generating Station

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102-05613-CE/SAB/DJS
December 18, 2006

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1 and 3
Docket Nos. STN 50-528 and 50-530
License No. NPF 41 and NPF 74
Licensee Event Report 2006-007-00**

Attached please find Licensee Event Report (LER) 50-528/2006-007-00 prepared and submitted pursuant to 10 CFR 50.73. This LER reports an event resulting in the actuation of Unit 1 and 3 emergency diesel generators.

In accordance with 10 CFR 50.73 (d), copies of this LER are being forwarded to the NRC Regional Office, NRC Region IV and the PVNGS Senior Resident Inspector. If you have questions regarding this submittal, please contact James A. Proctor, Section Leader, Regulatory Affairs, at (623) 393-5730.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

CE/SAB/DJS/gt

Attachment

cc: B. S. Mallett NRC Region IV Regional Administrator
M. B. Fields NRC NRR Project Manager
G. G. Warnick NRC Senior Resident Inspector for PVNGS

A member of the STARS (Strategic Teaming and Resource Sharing) Alliance

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IE22

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Palo Verde Nuclear Generating Station (PVNGS) Unit 1	2. DOCKET NUMBER 05000528	3. PAGE 1 OF 6
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4. TITLE
Emergency Diesel Generator Actuation on Loss of Power to B Train 4.16KV Buses in Units 1 and 3

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	26	2006	2006	- 007 -	00	12	18	2006	PVNGS Unit 3	05000530
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFRs: (Check all that apply)									
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
10. POWER LEVEL 100	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER							
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A							

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME James A. Proctor, Section Leader, Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) 623-393-5730
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	PB	RLY	W120	Y					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

All times listed in this event report are approximate and Mountain Standard Time (MST) unless otherwise indicated.

On October 26, 2006, at approximately 23:53 MST, a valid actuation of the Palo Verde Nuclear Generating Station Unit 1 Train B Emergency Diesel Generator (EDG) and Unit 3 Train B EDG occurred as a result of under-voltage on their respective safety buses. Both EDGs started and loaded as designed. No Emergency Plan declaration was made and none was required.

The loss of power to the two safety buses was the result of an apparent protective relay actuation of Startup Transformer X01 output breakers to Unit 1 NAN-S06 and Unit 3 NAN-S06 electrical distribution busses. Unit 1 NAN-S06 bus was being supplied by its Alternate breaker (1ENANS06F) and Unit 3 NAN-S06 was being supplied by its Normal breaker (3ENANS06C). Prior to the event, maintenance personnel were restoring potential transformer (PT) fuses at Unit 1 breaker 1ENANS06, Cubicle G. Current belief is that the two simultaneous LOP conditions occurred when the cubicle door was closed on 1ENANS06, Cubicle G. This condition apparently caused the output breakers of Startup Transformer X01 to open. There was no electrical fault or damage to any electrical components.

In the past three years, Palo Verde reported Emergency Diesel Generator Actuation on Loss of Power but none associated with the same root cause.

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		2006	-- 007	-- 00	

17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

NOTE: All times listed in this event report are approximate and Mountain Standard Time (MST) unless otherwise indicated.

1. REPORTING REQUIREMENT(S):

This LER (50-528/2006-007-00) is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A), to report an event that resulted in the valid automatic actuation of one of the Unit 1 and one of the Unit 3 emergency diesel generators (EDGs) [EIS Code: EB].

Pursuant to 10 CFR 50.72(b)(3)(iv)(A), Arizona Public Service Company (APS) made notification of this event to the NRC Headquarters Operations Officer on October 26, 2006.

Specifically, on October 26, 2006 at 11:53 PM a valid actuation of the Palo Verde Nuclear Generating Station (PVNGS) Units 1 and 3 Train B EDGs occurred as a result of under-voltage on their respective safety buses. Both EDGs started and loaded as designed. No Emergency Plan declaration was made and none was required.

(Reference: ENS call # 42938)

2. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

Utility Grid System [EIS Code: FK]

The Palo Verde Nuclear Generating Station (PVNGS), is connected through the PVNGS switchyard (transmission system) to the Arizona-New Mexico-California-Southern Nevada extra high voltage (EHV) grid which is interconnected to other EHV systems within the Western System Coordinating Council (WSCC).

Onsite Power System [EIS Codes: EA, EB, EC & PB]

Offsite sources of power provide preferred power to the three units through the secondary windings of three startup transformers. The onsite power system of each unit is divided into two separate systems: the non-Class 1E power system and the Class 1E power system which is divided into two separate load groups. Power is supplied to the auxiliaries at 13.8 kV, 4.16 kV, and 480V levels. The onsite power system includes the Class 1E power system which provides auxiliary ac and dc power for equipment used to shut down

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the reactor safely following a design basis event. The Class 1E busses of each unit must be energized in order to provide preferred or standby power to the safety related loads of each unit.

Standby Power Supply [EIS Code: EK]

The standby power supply for each safety-related load group consists of one EDG, complete with its accessories and fuel storage and transfer systems. The standby power supply functions as a source of alternating current (ac) power for safe plant shutdown in the event of loss of preferred power and for post accident operation of engineered safety feature (ESF) loads.

3. INITIAL PLANT CONDITIONS:

On October 26, 2006 Palo Verde Units 1 and 3 were in Mode 1 (Power Operations), operating at approximately 100 percent power. Startup transformer NAN-X01 "Y" winding had been removed from service and was in the process of being returned to service. No other major structures, systems, or components were inoperable at the start of the event that contributed to the event.

4. EVENT DESCRIPTION:

In the process of returning startup transformer NAN-X01 "Y" winding to service, maintenance workers had just completed installing potential transformer (PT) fuses in Unit 1 switchgear 1ENANS06, cubicle "G." After this task was completed, this cubicle door was in the process of being closed when a loss of power to Unit 1 and Unit 3 class 4.160 kV safety buses occurred.

The loss of power to the two safety buses was the result of an apparent spurious protective relay actuation of Startup Transformer X01 output breakers to Unit 1 NAN-S06 and Unit 3 NAN-S06 busses. Unit 1 NAN-S06 bus was being supplied by its Alternate breaker (1ENANS06F) and Unit 3 NAN-S06 was being supplied by its Normal breaker (3ENANS06C).

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Preliminary information is that the two simultaneous Loss of Power (LOP) conditions occurred when the cubicle door was closed on 1ENANS06, Cubicle G. This condition apparently actuated an auxiliary relay located on 1ENANS06, Cubicle "G" door and caused the output breakers (feeder breakers 1ENANS06F (Unit 1 NAN-S06 bus supply) and 3ENANS06C (Unit 3 NAN-S06 bus supply)) of Startup Transformer X01 to open. There was no electrical fault or damage to any electrical components.

Both Units 1 and 3 entered Technical Specification LCO 3.8.1 Condition A for one required offsite circuit inoperable.

Both Unit 1 and Unit 3 were at approximately 100% power, at normal operating temperature and pressure prior to and following the EDG actuations. Unit 2 was de-fueled and was not impacted by the electrical disturbance. No other ESF actuations occurred and none were required.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

The event did not result in any challenges to the fission product barriers or result in the release of radioactive materials. Therefore, there were no adverse safety consequences or implications as a result of this event and the event did not adversely affect the safe operation of the plant or health and safety of the public.

The event did not result in a transient more severe than those analyzed in the updated Final Safety Evaluation Report Chapters 6 and 15. The event did not have any nuclear safety consequences or personnel safety impact.

The condition would not have prevented the fulfillment of any safety function and did not result in a safety system functional failure as defined by 10 CFR 50.73(a)(2)(v).

6. CAUSE OF THE EVENT:

An interim Significant Equipment Root Cause of Failure Analysis report has been completed. The report included the following preliminary causes.

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Direct Cause: The loss of power (LOP) event that occurred was caused by the inadvertent tripping of the feeder breakers to switchgear buses 1ENANS06 and 3ENANS06 due to the actuation of relay 586S, resulting in an under-voltage condition at switchgear busses 1EPBBS04 (Unit 1) and 3EPBBS04 (Unit 3). Feeder breakers 1ENANS06F and 3ENANS06C opened as a result of auxiliary relay 552X, located on the top of the 1ENANS06G cubicle door, actuating; in turn energizing lockout relay 586S. Auxiliary relay 552X actuated due to induced vibration when the 1ENANS06G cubicle door was closed.

Probable Root Cause: Auxiliary relay 552X is susceptible to vibration due to its location on switchgear cubicle door.

Contributing Causes: The switchgear doors are difficult to open and close due to aging which contributed to the actuation of relay 552X.

7. CORRECTIVE ACTIONS:

Corrective action to replace the 552X relay was completed.

Interim corrective actions:

- CAUTION signs were installed on doors for cubicles 1ENANS06G, 2ENANS06D and 3ENANS06D "Contact U-1 SM Prior to Opening" (complete).
- An Operations briefing/night order was issued on potential for offsite power loss when opening doors of switchgear cubicles 1ENANS06G, 2ENANS06D and 3ENANS06D (complete).
- Maintenance briefings are being conducted on the potential for offsite power loss when opening doors of switchgear cubicles 1ENANS06G, 2ENANS06D and 3ENANS06D.
- Permanent "CAUTION" signs will be installed on doors of switchgear cubicles 1ENANS06G, 2ENANS06D & 3ENANS06D to warn of LOP hazards when opening or closing doors.

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Any additional corrective actions taken as a result of this event will be implemented in accordance with the PVNGS corrective action program. If information is subsequently developed that would significantly affect a reader's understanding or perception of this event, a supplement to this LER will be submitted.

8. PREVIOUS SIMILAR EVENTS:

In the past three years, Palo Verde reported loss of power to PVNGS emergency buses and EDG actuations in LERs 50-530/2006-003, 50-530/2006-004, 50-528/2006-003, 50-528/2005-001, 50-528/2004-006-00, 50-529/2004-003-00 and 50-530/2003-004-00. However, these previous events or conditions did not involve the same underlying concern or reason as this event, such as the same root cause, failure, or sequence of events. There have been no previous similar events in the past three years that had a similar failure mechanism or that should have prevented this event from previously implemented corrective actions.