10 CFR 50.73

APS A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear Generating Station

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102-06349-DCM/FJO
April 22, 2011

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 No. STN 50-528 and 50-530
License No. NPF-41 and NPF-74
Licensee Event Report 2011-001-00

Enclosed please find Licensee Event Report (LER) 50-528/2011-001-00 that has been prepared and submitted pursuant to 10 CFR 50.73. This LER reports an automatic actuation of the circuitry that starts the Unit 1 Train 'A' and Unit 3 Train 'B' emergency diesel generators due to an undervoltage condition on their respective 4.16 kV safety buses.

In accordance with 10 CFR 50.4, copies of this LER are being forwarded to the Nuclear Regulatory Commission (NRC) Regional Office, NRC Region IV and the Senior Resident Inspector. If you have questions regarding this submittal, please contact Marianne Webb, Section Leader, Regulatory Affairs, at (623) 393-5730.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

D. C. Mims

DCM/TNW/MNW/FJO/gat

Enclosure

cc:	E. E. Collins Jr.	NRC Region IV Regional Administrator
	L. K. Gibson	NRC NRR Project Manager for PVNGS (electronic / paper)
	J. R. Hall	NRC NRR Senior Project Manager (electronic / paper)
	M. A. Brown	NRC Senior Resident Inspector for PVNGS

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NRR

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Palo Verde Nuclear Generating Station (PVNGS) Unit 1	05000528	1 OF 4

4. TITLE

Unit 1 and Unit 3 Emergency Diesel Generator Actuation on Loss of Offsite Power to Class 4.16kV Bus

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
									PVNGS Unit 3	05000530
02	21	2011	2011	- 001 -	00	04	22	2011	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE: 1 / 1

10. POWER LEVEL: 100 / 100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Marianne Webb, Section Leader, Regulatory Affairs	623-393-5730

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	EA	XFMR	H015	Y					

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☒ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)*	☐ NO		06	03	2011

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

On February 21, 2011, at approximately 2001 Mountain Standard Time, a valid actuation of the circuitry that starts the emergency diesel generators (EDG) for Palo Verde Nuclear Generating Station Unit 1 train 'B' and Unit 3 train 'A' occurred due to an undervoltage condition on their respective 4.16 kV safety buses. Both EDGs started and loaded as designed.

The loss of power to the Unit 1 and Unit 3 safety buses was the result of a protective relay actuation on the AE-NAN-X02 startup transformer which de-energized the transformer and the Unit 1 13.8 kV intermediate bus 1E-NAN-S06 and the Unit 3 13.8 kV intermediate bus 3E-NAN-S05. The affected intermediate buses provide offsite power to the Unit 1 safety bus 1E-PBB-S04 and the Unit 3 safety bus 3E-PBA-S03 respectively.

The cause of the undervoltage was a cable splice failure on the cable for the 'Y' winding of the AE-NAN-X02 startup transformer. Unit 1 and Unit 3 entered Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, Condition A, for one required offsite circuit inoperable. Offsite power was restored to Unit 1 safety bus through the intermediate bus from the alternate supply. Offsite power was restored to Unit 3 safety bus through the intermediate bus from the alternate supply. The LCO condition was exited by Unit 1 and Unit 3.

The event investigation is in progress and the results will be reported in a supplement to this LER.

No similar events involving a cable splice failure have been reported by PVNGS in the last three years.

NARRATIVE

All times are Mountain Standard Time and approximate unless otherwise indicated.

1. REPORTING REQUIREMENT(S):

This Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73 (a)(2)(iv)(A) to report a valid automatic actuation of the circuitry that starts the emergency diesel generator (EDG) for Unit 1 and Unit 3 following an undervoltage condition on the affected safety bus for each unit on February 21, 2011. This event was reported to the NRC on February 21, 2011, via the event notification system (ENS 46633).

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

The safety related equipment for each Palo Verde Nuclear Generating Station (PVNGS) unit is divided into two load groups. Either one of the associated load groups is capable of providing power for safe plant shutdown. Each alternating current (AC) load group includes one 4.16 kV bus (EIIS: EB).

The preferred and alternate power sources for each load group is offsite AC power (EIIS: EK). Offsite power is supplied from a startup transformer (EIIS: EA) through intermediate buses (EIIS: EA) to a class 4.16 kV bus. The standby power supply for each safety related load group consists of one EDG (EIIS: EK), complete with its auxiliaries and fuel storage and transfer systems. The standby power supply functions as a source of 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 February 21, 2011, Palo Verde Unit 1 and Unit 3 were in Mode 1 (Power Operation) at 100 percent power, normal operating temperature and normal operating pressure. There were no inoperable structures, systems, or components at the time that contributed to this event.

4. EVENT DESCRIPTION:

On February 21, 2011, at 2001, a valid loss of power (LOP) actuation occurred due to an undervoltage condition on the Unit 1 train 'B' and Unit 3 train 'A' 4.16 kV safety buses which resulted in an automatic actuation of the circuitry that starts the Unit 1 train 'B' EDG and Unit 3 train 'A' EDG. Both EDGs started and loaded as designed.

The undervoltage condition on the Unit 1 and Unit 3 safety buses was the result of a protective relay actuation associated with the AE-NAN-X02 startup transformer which de-

energized the transformer and the Unit 1 13.8 kV intermediate bus 1E-NAN-S06 and the Unit 3 13.8 kV intermediate bus 3E-NAN-S05. The affected intermediate buses provide offsite power to the Unit 1 safety bus 1E-PBB-S04 and the Unit 3 safety bus 3E-PBA-S03 respectively.

Both Units 1 and 3 entered Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, Condition A, for one required offsite circuit inoperable. On February 22, 2011, at 0106, Unit 3 restored offsite power to safety bus 3E-PBA-S03 from the alternate supply and exited the LCO condition. At 0153, Unit 1 restored offsite power to safety bus 1E-PBB-S04 from the alternate supply and exited the LCO condition.

Unit 2 safety buses and required offsite circuits were unaffected by the AE-NAN-X02 startup transformer trip. Unit 2 safety buses, Unit 1 safety bus 1E-PBA-S03 and Unit 3 safety bus 3E-PBB-S04 were supplied by startup transformers AE-NAN-X01 and AE-NAN-X03.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

There were no inoperable structures, systems, or components at the time that contributed to this event. The EDGs responded as designed to the undervoltage condition on their respective safety buses. The conditional core damage probabilities for this event were calculated to be 7.56E-10 and 1.56E-9 for Unit 1 and Unit 3, respectively. This event did not result in any challenges to the fission product barriers or result in the release of radioactive materials. There were no actual safety consequences as a result of this event.

This event did not prevent the fulfillment of a safety function nor did it result in a safety system functional failure as described by 10 CFR 50.73 (a)(2)(v).

6. CAUSE OF THE EVENT:

The cause of the undervoltage was a cable splice failure on the cable for the 'Y' winding of the AE-NAN-X02 startup transformer.

The event investigation is in progress and the results will be reported in a supplement to this LER.

7. CORRECTIVE ACTIONS:

Immediate corrective actions were taken to restore offsite power to Unit 1 safety bus 1E-PBB-S04 and Unit 3 safety bus 3E-PBA-S03. Alternate supply power was provided from startup transformers AE-NAN-X01 and AE-NAN-X03 respectively, through their associated intermediate buses to the safety buses.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Nuclear Generating Station Unit 1	05000528	2011 --	001 --	00	4 OF 4

NARRATIVE

The event investigation is in progress and the results will be reported in a supplement to this LER.

8. PREVIOUS SIMILAR EVENTS:

No similar events resulting from a cable splice failure have been reported by Palo Verde in the past three years.