



A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear
Generating Station

Cliff Eubanks
Vice President
Nuclear Operations

Tel (623) 393-6116
Fax (623) 393-6077

Mail Station 7602
PO Box 52034
Phoenix, Arizona 85072-2034

102-05566-CE/SAB/JAP/DFH
September 14, 2006

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

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529
License No. NPF 51
Licensee Event Report 2006-002-00**

Attached please find Licensee Event Report (LER) 50-529/2006-002-00 prepared and submitted pursuant to 10 CFR 50.73. The LER reports two trains of Auxiliary Feedwater rendered inoperable as a result of a single watertight fire door being left open and uncompensated.

In accordance with 10 CFR 50.4, copies of this LER are being forwarded to the NRC Regional Office, NRC Region IV and the 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/JAP/DFH/gt

Attachment

cc: B. S. Mallett NRC Region IV Regional Administrator
M. B. Fields NRC NRR Project Manager - (send electronic and paper)
G. G. Warnick NRC Senior Resident Inspector for PVNGS

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 Unit 2	2. DOCKET NUMBER 05000529	3. PAGE 1 OF 4
---	-------------------------------------	--------------------------

4. TITLE
Two Independent Trains of Auxiliary Feedwater Inoperable Due to Single Cause

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
07	16	2006	2006	- 002 -	00	09	14	2006	None	05000
									FACILITY NAME	DOCKET NUMBER
									None	05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
10. POWER LEVEL 100	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input checked="" type="checkbox"/> 50.73(a)(2)(vii)						
	<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 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 - Compliance	TELEPHONE NUMBER (Include Area Code) (623) 393-5730
--	--

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

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)

On July 16, 2006 at approximately 14:52 Mountain Standard Time (MST) Unit 2 was operating at 100 percent power, Mode1 (power operations), when an Area Operator (AO) notified the control room that door C-A-06 was found open with no compensatory measures established. Door C-A-06 is a watertight fire door that functions as the train separation barrier between Auxiliary Feedwater (AF) pump rooms 'A' and 'B.' When door C-A-06 is open with the unit operating in Mode 1, compensatory action must be taken in order to maintain both trains of AF operable. The AO who discovered door C-A-06 open and unattended, closed the door immediately. Based on a review of security computer transaction logs, control room personnel determined that door C-A-06 was open with no compensatory actions in place for approximately 4 hours and 20 minutes. As such, AF trains 'A' and 'B' were considered inoperable between 10:32 and 14:52 (MST). Based on further review and personnel interviews, an investigation concluded that a Fire Department Emergency Services Officer (ESO) had failed to close C-A-06 after leaving the AF pump room.

In the past three years, there were two similar events reported (LER 50-529/2005-003-00, and 50-530-2006-001-00).

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station Unit 2	05000529	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		2006	-- 002	-- 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 (50-529/2006-002-00) is being submitted pursuant to 10 CFR 50.73(a)(2)(vii), to report an event where a single condition caused two independent trains to become inoperable in a single system designed to remove residual heat and mitigate the consequences of an accident. Specifically, on July 16, 2006 a watertight fire door (EIS: NM, DR) functioning as the train separation barrier between Auxiliary Feedwater (AF) (EIS: BA) pump rooms 'A' and 'B' was left open and unattended for approximately 4 hours and 20 minutes. As a result, AF trains 'A' and 'B' were rendered inoperable.

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

The AF system consists of one essential steam turbine driven pump (train 'A') (EIS: BA, P, TRB), one essential motor driven AF pump (train 'B') (EIS: BA, P, MO), and one non-essential motor driven AF pump (train 'N') configured into three trains. The essential steam turbine-driven and motor-driven AF pumps are located on the 80 ft level in the Main Steam Support Structure (EIS: NM) in separate rooms designed to seismic category I requirements. Each essential pump provides 100 percent of AF flow capacity to the steam generators (EIS: AB, SG) as assumed in the accident analysis. The AF system mitigates the consequences of any event with a loss of normal feedwater (EIS: SJ). The design basis of the essential AF trains is to supply water to the steam generator to remove decay heat and other residual heat, by delivering at least the minimum required flow rate to the steam generators at pressures corresponding to 1270 psia at the entrance to the steam generators. A watertight fire door (C-A-06) functions as the train separation barrier between train 'A' and 'B' AF pump rooms.

3. INITIAL PLANT CONDITIONS:

On July 16, 2006, at 14:52, Palo Verde Unit 2 was in Mode 1 (power operations), operating at approximately 100 percent power. There were no major structures, systems, or components inoperable at the start of the event that contributed to the event.

4. EVENT DESCRIPTION:

On July 16, 2006 at 10:28, a Fire Department Emergency Services Officer (ESO) (utility,

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station Unit 2	05000529	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		2006	-- 002	-- 00	

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

non-licensed) entered the 80' Main Steam Support Structure (MSSS) through security door C-A-01 to perform assigned tasks in the train 'A' AF room. The ESO then entered C-A-06 to conduct inspections in the train 'B' AF room. The ESO completed the tasks and exited the area at 10:32. Later the same day at 14:52 an Area Operator (AO) (utility, non-licensed) entered door C-A-01 and found door C-A-06 open. The AO secured door C-A-06, exited the area, and notified the Unit 2 Control Room Supervisor (CRS) (utility, licensed) of the open door. Operations personnel declared both train 'A' and 'B' AF pumps inoperable for the duration door C-A-06 was left open and unattended.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

The condition of two Auxiliary Feedwater (AF) trains inoperable in Mode 1, 2, or 3 is addressed by Limiting Condition for Operation (LCO) 3.7.5 Condition C requiring the unit to be in Mode 3 within 6 hours and in Mode 4 within 12 hours. Since the duration of this event was 4 hours and 20 minutes, no condition prohibited by Technical Specifications existed.

In this case, there was no flooding, fire, or seismic event; therefore, there was no actual consequence to safety related functions.

Total Risk Impact of having the door between the two Class 1E AF pump rooms open is the sum of Incremental Conditional Core Damage Probability (ICCDP) (fire), ICCDP (seismic), and ICCDP (flood).

The fire delta core damage frequency (CDF) was conservatively assessed to be the sum of risk due to a fire in train 'A' AF room with the train 'B' AF out of service and a fire in train 'B' AF room with train 'A' AF out of service (OOS), minus the baseline fire risk. (3.5E-8/yr). The ICCDP is the delta CDF times the event duration (4 hours, 20 minutes) which was rounded to 5 hours.

$$\text{ICCDP (fire)} = 3.5\text{E-}8/\text{yr} * 5\text{hr}/(8760\text{hr}/\text{yr}) = 2\text{E-}11$$

The open barrier does not provide any seismic mitigation function, so the seismic delta CDF is null, ICCDP (seismic) is equal to 0.

The flood delta CDF was conservatively assessed as a miscellaneous reactor trip event with the flood analysis pipe break frequency for the train 'A' AF and train 'B' AF pump rooms, assuming train 'A' AF and train 'B' AF are out of service (3.56E-6/yr.)

$$\text{ICCDP(flood)} = 3.56\text{E-}6/\text{yr} * 5\text{hr}/(8760\text{hr}/\text{yr}) = 2\text{E-}9$$

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station Unit 2	05000529	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4
		2006	-- 002	-- 00	

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

ICCDP total = $2E-11 + 0 + 2E-9 = 2E-9$

This indicates the risk impact of the condition described above with barrier door C-A-06 between train 'A' AF and train 'B' AF pump rooms being left open and unattended, is not significant.

6. CAUSE OF THE EVENT:

The direct cause of the event was the ESO failed to follow procedural requirements for closing and securing door C-A-06. The root cause was the ESO inspecting the area inside door C-A-06 did not maintain sufficient attention to ensure the door was closed.

7. CORRECTIVE ACTIONS:

The company implemented its' disciplinary policy for this event.

Signs for Units 1, 2, and 3 were posted at the entry to the A train AF room (C-A-01) alerting employees to secure the B train AF room door for each entry and exit.

A site wide communication was distributed and the Vice President of Nuclear Operation directed a plant stand down be held to discuss the importance of door C-A-06 being closed after entry or exit.

A local door alarm will be added to C-A-06 to alert personnel when the door is open. Until the door alarm is installed, a compensatory measure will be established by posting a Security Officer at the entry point to the AF rooms to ensure plant personnel entering the AF rooms secure C-A-06.

8. PREVIOUS SIMILAR EVENTS:

In the past three years, two similar events were reported (LER 50-529/2005-003-00, and 50-530/2006-001-00). The corrective actions associated with these events did not effectively prevent recurrence. Note that the corrective action discussed in LER 50-530/2006-001-00 to install a local door alarm on C-A-06 had not yet been completed at the time of this event; however, the interim corrective actions were ineffective.