



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

102-05410-CE/SAB/DJS
February 10, 2006

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

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528
License No. NPF-41
Licensee Event Report 2005-007-00**

Attached please find Licensee Event Report (LER) 50-528/2005-007-00 prepared and submitted pursuant to 10 CFR 50.73. This LER is being submitted for an event or condition that could have prevented fulfillment of a Safety Function to remove residual heat and mitigate the consequences of an accident. Specifically, due to a maintenance error a seismic event could have caused the "A" train of the Low Pressure Safety Injection System to become inoperable.

In accordance with 10 CFR 50.4, a copy of this LER is being forwarded to the NRC Region IV Office 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/DJS/ca
Attachment

cc: B. S. Mallet NRC Region IV Administrator (all w/attachment)
M. B. Fields NRC NRR Project Manager for PVNGS
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 (PVNGS) Unit 12. DOCKET NUMBER
050005283. PAGE
1 OF 54. TITLE
Potential Loss of Low Pressure Safety Injection (LPSI) due to a Seismic Event

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	04	2002	2005	- 007 -	00	02	10	2006		05000
										05000

9. OPERATING MODE

6

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (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) |
| <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 checked="" 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 checked="" type="checkbox"/> 50.73(a)(2)(i)(B) | <input checked="" type="checkbox"/> 50.73(a)(2)(v)(D) | Specify in Abstract below
or in NRC Form 366A |

10. POWER LEVEL

000

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME

James A. Proctor, Section Leader, Regulatory Affairs

TELEPHONE NUMBER (Include Area Code)

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
A	BP	INV	L200	Y					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO

15. EXPECTED SUBMISSION DATE

MONTH DAY YEAR

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

On October 26, 2005 a maintenance technician discovered a screwdriver inside the limit switch compartment for the motor operated safety injection valve SIAUV0635, "A" Train Low Pressure Safety Injection (LPSI) valve. The screwdriver was left in the limit switch compartment the last time the compartment was accessed during refueling outage 10 on October 4, 2002. A Maintenance Rule Functional Failure evaluation was completed on December 13, 2005. Engineering personnel determined that the screwdriver could have been dislodged during a seismic event potentially rendering SIAUV0635 inoperable. Based on Engineering's evaluation, this condition could have prevented the LPSI system train "A" from performing its safety function and as such LPSI was considered inoperable from October 4, 2002 through October 26, 2005.

The screwdriver was removed. SIAUV0635 was satisfactorily retested and is currently considered Operable. A briefing was conducted with the technicians in the valve services shop and the responsible individuals were coached

There have been no previous similar licensee events reported in the last three years.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station Unit 1	05000528	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		2005 --	007 --	00	

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

1. REPORTING REQUIREMENT(S):

This LER 50-528/2005-007-00 is being reported under 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by the Technical Specifications. Specifically, on December 13, 2005 a Maintenance Rule Functional Failure evaluation determined that a seismic event could have dislodged a "holding" screwdriver left inside a Low Pressure Safety Injection (LPSI) (EIS: BP) valve actuator limit switch compartment for SIAUV0635 (EIS: INV), thus LPSI train "A" was considered inoperable from October 4, 2002 through October 26, 2005. Technical Specification 3.5.3 requires two ECCS trains to be OPERABLE in MODES 1 (POWER OPERATION) and 2 (STARTUP), and in MODE 3 (HOT STANDBY) with pressurizer pressure greater than 1837 psia or with RCS cold leg temperature greater than 485°F. If one train becomes inoperable, Action Statement "A" requires the inoperable train to be returned to service within seven days. From October 4, 2002 through October 26, 2005 control room personnel were unaware that train "A" could have become inoperable during a seismic event therefore the Action Statement "A" was never entered or completed.

This LER is also being reported under 10 CFR 50.73(a)(2)(v); Condition that could have prevented the fulfillment of a Safety Function to (B) Remove residual heat; and (D) Mitigate the consequences of an accident. At the time of the discovery of the screwdriver being in the limit switch compartment, the Unit was de-fueled and the valve was not required to be operable, therefore no notification was made under 10CFR50.72 (b)(3)(v)(B) or (D).

Palo Verde did not experience a recordable seismic event during the time frame the screwdriver was inside the limit switch compartment of the LPSI injection valve.

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

The function of the ECCS is to provide core cooling and negative reactivity to ensure that the reactor core (EIS: AC) is protected after certain accidents. Two redundant, 100% capacity trains are provided with each train consisting of High Pressure Safety Injection (HPSI)(EIS: BQ) and LPSI subsystems. In MODES 1, 2, and 3, with pressurizer pressure greater than or equal to 1837 psia or with RCS cold leg temperature greater than or equal to 485°F, both trains are required to be OPERABLE to ensure that 100% of the core cooling requirements can be provided in the event of a single active failure.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station Unit 1	05000528	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 5
		2005 --	007 --	00	

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

3. INITIAL PLANT CONDITIONS:

On October 26, 2005, Unit 1 was in Mode 6 (Refueling).

There were no components or systems inoperable at the time of this event that affected this event other than the condition being reported.

4. CHRONOLOGY OF RELEVANT EVENTS:

On October 4, 2002, work order 2433802 was completed on SIAUV0635 (train "A" Low Pressure Safety Injection Valve). Work order 2433802 performed work inside the valve actuator limit switch compartment.

On October 26, 2005, during the performance of a preventative maintenance work order an insulated "holding" screwdriver was discovered inside the limit switch compartment of valve SIAUV0635. The screwdriver was lodged between the limit switch gear case and the terminal board.

On December 13, 2005, a Maintenance Rule Functional Failure evaluation determined that a seismic event could have dislodged the screwdriver, potentially rendering the valve inoperable.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

The last time maintenance was performed on LPSI "A" train Valve SIAUV0635 that would involve opening its limit switch compartment was during refueling outage 10. Work Order 2433802 involved opening the compartment and was completed on October 4, 2002. Since that time, the valve has been successfully stroked at least 15 times during quarterly performance of surveillance test 73ST-1XI11 "SAFETY INJECTION TRAIN A ECCS THROTTLE VALVES - INSERVICE TEST." Based upon these successful surveillance tests, the valve was capable of operation with the screwdriver in its limit switch compartment under normal conditions.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station Unit 1	05000528	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 5
		2005 --	007 --	00	

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

In addition, from October 4, 2002 until October 26, 2005, the LPSI "B" train was unavailable (Maintenance Rule considerations) for less than 2 percent of the time. (i.e. approximately 380 hours out of 26,800 hours.)

The small size of the screwdriver and its position in the compartment would not have allowed it to contact any energized equipment under normal conditions. However, during a seismic event, the screwdriver could become dislodged and potentially jam in the gear mechanism causing the valve to become incapable of full opening or closing.

During the time the screwdriver was inside the limit switch compartment the Palo Verde Nuclear station did not experience a recordable seismic event. Because Palo Verde Nuclear Station had not experienced a seismic event while the holding screwdriver was inside the limit switch compartment, the condition did not prevent the fulfillment of the safety function and did not result in an actual safety system functional failure but is being reported under 10CFR50.73(a)(2)(v) because the condition could have prevented the fulfillment of the LPSI safety function.

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

The condition 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 as a result of this condition and the condition did not adversely affect the safe operation of the plant or health and safety of the public.

6. CAUSE OF THE EVENT:

The direct cause of this incident was a failure on the part of assigned technicians to remove the screwdriver following the performance of 39MT-9ZZ02, "PM or EQ Inspection of the GL 89-10 Limitorque SMB/SB Motor Operated Valve Actuators" (PM task 2433802) on October 4, 2002 (date actual work restoration step was signed), during refueling outage 10.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Palo Verde Nuclear Generating Station Unit 1	05000528	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 5
		2005	-- 007	-- 00	

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

The root cause is attributed to poor work practices on the part of the technicians who performed the PM task and their failure to adequately utilize error prevention techniques and prevent events tools relative to Foreign Material Exclusion (FME), e.g., self-checking, peer checking, and two minute drills.

7. CORRECTIVE ACTIONS:

The October 2002 maintenance activity was reviewed with the technicians in the valve services shop and the responsible individuals were coached.

Corrective measures are in progress to address other FME concerns. One of these measures was the establishment of a Site FME coordinator in October 2005. The System Cleanliness and Foreign Material Exclusion Controls procedure is currently being revised to be more prescriptive and user friendly. Valve work order templates were revised to better emphasize system cleanliness and FME control requirements. Additionally, specific steps have been added to the "instructions" section of the valve work order templates that verify FME requirements are met. The additional requirements and increased focus on FME inspections and associated documentation should preclude future occurrences.

A significant investigation is currently ongoing and any resulting corrective actions will be implemented in accordance with the corrective action program.

8. PREVIOUS SIMILAR EVENTS:

There have been no previous similar licensee events reported in the last three years.