10CFR50.73

APS
Palo Verde Nuclear
Generating Station

A subsidiary of Pinnacle West Capital Corporation

David M. Smith
Plant Manager
Nuclear Production

Tel: 623-393-6116
Fax: 623-393-6077
e-mail: DSMITH10@apsc.com

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

102-05249-DMS/SAB/REB
April 18, 2005

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 2005-002-00

Attached please find Licensee Event Report (LER) 50-528/2005-002-00 prepared and submitted pursuant to 10 CFR 50.73. This LER reports an event resulting in a technical specification violation when a mode change occurred with a safety injection valve not in its required position.

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 Daniel G. Marks, Section Leader, Regulatory Affairs, at (623) 393-6492.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

DMS/SAB/REB/ca
Attachment

cc: B. S. Mallet, Region IV Administrator (all w/attachments)
G. G. Warnick, Sr. Resident Inspector
M. B. Fields, PVNGS Project Manager

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

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.

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 6

4. TITLE

Technical Specification violation: mode change with safety injection valve not in its required position.

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
02	17	2005	2005	- 002 -	00	04	18	2005	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE

3

10. POWER LEVEL

0

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

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☒ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Daniel G. Marks, Section Leader, Regulatory Affairs	623-393-6492

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

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 February 17, 2005 at approximately 17:52 hours MST, Unit 1 was in Mode 3, Hot Standby, and increasing reactor coolant system temperature and pressure to return the unit to power operation when a technical specification violation occurred. Specifically, mode changes were performed with a safety injection valve not in its required position. The condition was discovered on February 21, 2005 when an auxiliary operator noted dual light position indication at the valve breaker.

The cause of the event is under evaluation and is most probably a human error. Corrective actions include revising procedures to ensure adequate position verification is performed.

There have been 3 previous similar events reported to the NRC in the last 4 years.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTAL NUMBER	REVISION NUMBER	
Palo Verde Nuclear Generating Station Unit 1	05000528	2005	-- 002	-- 00	2 OF 6

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

1. REPORTING REQUIREMENT(S):

This LER 50-528/2005-002-00 is being reported under 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by the Technical Specifications. Specifically, on February 17, 2005 at approximately 17:52 hours MST Unit 1 entered a specified condition (reactor coolant system (RCS)(AB) pressure $\geq$ 1837 psia) with a safety injection valve (1JSIBHV0307)(INV) not in its correct position. This is contrary to LCO 3.0.4 which precludes entry into a MODE or other specified condition in the Applicability statement when an LCO is not met. LCO 3.5.3 requires two Emergency Core Cooling Systems (ECCS)(BP) to be Operable in Modes 1, 2, and in Mode 3 when pressurizer (AB) pressure is greater than or equal to 1837 psia or RCS cold leg temperature is greater than or equal to 485 degrees Fahrenheit.

This condition also existed on February 19 at approximately 04:02 and 14:36 hours MST when Modes 2 and 1 were entered respectively.

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 (AC) is protected after certain accidents. Two redundant, 100% capacity trains are provided with each train consisting of High Pressure Safety Injection (HPSI)(BQ) and Low Pressure Safety Injection (LPSI)(BP) subsystems including 1JSIBHV0307. 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.

Valve 1JSIBHV0307 is a motor operated 10 inch stainless steel globe valve that is normally operated from the main control room. This valve is used to throttle shutdown cooling (SDC) heat exchanger bypass flow during shutdown operations and to provide a safety injection injection flow path for the LPSI pump during accident conditions. The normal at power position for this valve is a throttled open position with a limit switch used to limit the open travel. Full open indication for this valve is a red (open) light on, the green (closed) light off and the adjacent analog valve position indicator indicating the valve is in

a throttled position. Verification of correct valve position is required following completion of valve stroking operation when the ECCS is required to be operable.

3. INITIAL PLANT CONDITIONS:

On February 17, 2005 at approximately 17:52 hours MST, Unit 1 was in Mode 3, Hot Standby, and increasing reactor coolant system temperature and pressure to return the unit to power operation following a forced shutdown due to an electrical bus event.

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 February 10, 2005, Unit 1 was in the process of cooling down to Mode 5, Cold Shutdown, for a forced outage caused by an electrical bus problem. As part of the procedure for placing the B train shutdown cooling system in a standby alignment (The A train of SDC was the train used to provide SDC flow), the B train SDC heat exchanger bypass valve, 1JSIBHV0307, was throttled closed to approximately 20% open from its normal full open position indication of approximately 38% open.

On February 15, 2005, activities were in progress to return Unit 1 to power operation. As part of the recovery of SDC from a standby to a normal operating lineup procedure, operations personnel were directed to ensure that 1JSIBHV0307 was open. (Red light on, green light out) The B train SDC alignment was completed at 17:41 hours.

On February 17, 2005, at 17:52, hours the unit was in Mode 3 and reactor coolant system pressure was increased above 1837 psia. Subsequently the unit entered Mode 2, Startup, and Mode 1, Power Operation, on February 19, 2005 at 04:02 and 14:36 hours, respectively.

On February 21, 2005, at approximately 00:30 hours, operations personnel discovered that valve 1JSIBHV0307 was not in its correct position when a dual light indication at the valve breaker indicated the valve was not in its full throttled open position. Further investigation revealed that the green closed light for the main control room position indication was burned out. The analog valve position indication indicated the valve was

approximately 20% open. Licensed operators entered LCO 3.5.3 Condition A then opened the valve to its throttle stop position. As required by the Technical Requirements Manual, a test was performed to verify the position of the valve and the LCO was exited at 02:44 hours on February 21, 2005.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

A risk analysis of this event concluded that the total change in risk, due to valve 1JSIBHV0307 being out of position, constituted a very low addition to risk exposure. For this analysis the low pressure safety injection function was assumed to be failed for the B train of safety injection for the duration that the valve was not in its technical specification required position (80 hours 52 minutes).

In addition, the event did not result in any challenges to the fission product barriers or result in the release of radioactive materials. 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 10CFR50.73(a)(2)(v).

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, personnel safety impact, or appreciable economic significance.

6. CAUSE OF THE EVENT:

The cause of this event is under investigation. If the completed investigation report includes information which would substantively change the reader's perception of the event, an LER supplement will be submitted. Preliminary investigation results indicate the cause of the event to be cognitive personnel error by two licensed operators.

First, the hand switch for valve 1JSIBHV0307 has a placard located near-by indicating that the operator should consult 40DP-9OP07, Operations Department Operating Guideline Instructions. This procedure requires a technical specification component condition record (TSCCR) be initiated to alert licensed personnel that testing is required, to ensure the valve is in its correct position, when the valve has been operated. The TSCCR was not initiated for this valve when it was throttled to

approximately 20% open during SDC standby line-up initiation operations. The operator assumed the test would be performed when the system was restored to a normal operating lineup.

Secondly, the recovery from SDC to normal operating lineup procedure (40OP-9SI02) has a step to open SIB-HV-307 and a separate step to initiate performance of the valve position verification test (73ST-1XI12). The operator verified the valve was open (based on light indication). He was not aware that the valve had been stroked to 20% open per the SDC initiation procedure (40OP-9SI01). He therefore incorrectly concluded the valve had not been operated/stroked and that no testing would be required to verify valve position.

7. CORRECTIVE ACTIONS:

On February 21, 2005 at 00:30 hours, the burned out bulb was replaced and valve 1JSIBHV0307 was placed in its full throttled open position. At 02:44 hours the surveillance test was completed verifying the valve was in its correct position.

The SDC initiation procedure, 40OP-9SI01, will be revised to require a TSCCR be initiated, when a SDC heat exchanger bypass valve is operated, to alert the operators to the requirement to perform the position verification test.

8. PREVIOUS SIMILAR EVENTS:

LER 50-530/2003-003-00 reported a condition in which a technical specification violation occurred when required reactor power instrumentation was not calibrated as required by surveillance requirements. The cause of the event was human performance error by control room licensed operators who did not recognize the change in acceptance criteria when power was reduced below 80 percent.

LER 50-528/2004-002-00 reported a condition in which power was raised above 20 percent rated thermal power without meeting the Limiting Condition for Operation (LCO) for Axial Shape Index (ASI). The cause was determined to be that control room operators had incorrectly interpreted a provisional note in procedures.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Palo Verde Nuclear Generating Station Unit 1	05000528	2005	-- 002	-- 00	6 OF 6

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

LER 50-530/2001-002-00 reported a condition in which control room personnel incorrectly interpreted a provisional note in LCO 3.7.5 that allows Mode 3 operation with the steam driven AFW pump inoperable and proceeded with a mode change to Mode 3 on two separate occasions in violation of LCO 3.0.4.