

# CATEGORY 1

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 FACIL: STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi      05000530  
 AUTH. NAME      AUTHOR AFFILIATION  
 MARKS, D.G.      Arizona Public Service Co. (formerly Arizona Nuclear Power  
 OVERBECK, G.R.      Arizona Public Service Co. (formerly Arizona Nuclear Power  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 97-003-00: on 970211, notified of trevite activities  
 indicating that total of seven MSSVs had as-found lift set  
 pressures greater than 3 percent allowed by TS 3.7.1.1.  
 Investigation conducted. Seven MSSVs replaced. W/970707 ltr.

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NOTES: Standardized plant.

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104





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192-00994-GRO/DGM/RAS  
July 7, 1997

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

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS) Unit 3**  
**Docket No. STN 50-530**  
**License No. NPF-74**  
**Licensee Event Report 97-003-00**

Attached please find Licensee Event Report (LER) 97-003-00 prepared and submitted pursuant to 10 CFR 50.73. This LER reports the test results of Main Steam Safety Valve as-found lift settings that were out of the tolerance limits specified in Technical Specification Limiting Condition for Operation 3.7.1.1. In accordance with 10CFR50.73(d), a copy of this LER is being forwarded to the Regional Administrator, NRC Region IV. If you have any questions, please contact Daniel G. Marks, Section Leader, Nuclear Regulatory Affairs, at (602) 393-6492.

Sincerely,

GRO/DGM/RAS/ras

Attachment

cc: E. W. Merschoff (all with attachment)  
K. E. Perkins  
F. L. Brush  
INPO Records Center

IE221

9707150345 970707  
PDR ADOCK 05000530  
S PDR





# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Palo Verde Unit 3</b>										DOCKET NUMBER (2) <b>0 5 0 0 0 5 3 0</b>										PAGE (3) <b>1 OF 0 4</b>									
TITLE (4) <b>Seven Main Steam Safety Valves Found Out of Tolerance Prior To Refueling Outage</b>																													
EVENT DATE (5)						LER NUMBER (6)						REPORT DATE (7)						OTHER FACILITIES INVOLVED (8)											
MONTH		DAY		YEAR		YEAR		SEQUENTIAL NUMBER		REVISION NUMBER		MONTH		DAY		YEAR		FACILITY NAMES											
																		DOCKET NUMBERS											
																		N/A											
																		N/A											
OPERATING MODE (9)						THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																							
0 2 1 5 9 7 0 2 1 5 9 7 0 8 6						20.402(b)						20.405(c)						50.73(a)(2)(iv)						73.71(b)					
						20.405(a)(1)(i)						50.36(c)(1)						50.73(a)(2)(v)						73.71(c)					
						20.405(a)(1)(ii)						50.36(c)(2)						50.73(a)(2)(vii)						OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
						20.405(a)(1)(iii)						50.73(a)(2)(i)						50.73(a)(2)(viii)(A)											
						20.405(a)(1)(iv)						50.73(a)(2)(ii)						50.73(a)(2)(viii)(B)											
20.405(a)(1)(v)						50.73(a)(2)(iii)						50.73(a)(2)(ix)																	
LICENSEE CONTACT FOR THIS LER (12)																													
NAME <b>Daniel G. Marks, Section Leader, Nuclear Regulatory Affairs</b>																TELEPHONE NUMBER													
																AREA CODE													
																<b>6 0 2 3 9 3 - 6 4 9 2</b>													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																													
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS																			
SUPPLEMENTAL REPORT EXPECTED (14)																EXPECTED SUBMISSION DATE (15)													
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)																<input type="checkbox"/> NO													
																<b>0 9 3 0 9 7</b>													
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																													
<p>Between February 11, 1997, and February 15, 1997, Palo Verde Unit 3 was in Mode 1 (POWER OPERATION) operating at between 86 and 83 percent power, when control room personnel were notified of treviteest activities indicating that a total of seven MSSVs had as-found lift set pressures greater than the 3 percent allowed by TS 3.7.1.1. Six of the seven valves were adjusted and/or retested in accordance with APS procedures and were returned to an operable status on-line. Because MSSV SGE-PSV-691 did not lift at 5.8 percent of the rated lift set pressure, testing was suspended and the valve was quarantined until a root cause investigation could be performed during the upcoming refueling outage.</p> <p>An independent investigation of this event is being conducted in accordance with the APS Corrective Action Program. As part of the investigation a safety analysis was performed based upon the as-found MSSV data which demonstrated that the MSSVs would have performed their intended safety function. The analysis concluded that the condition would not have resulted in the secondary system pressure exceeding 110 percent (1397 psia) of the design pressure limit.</p> <p>During the Unit 3 refueling outage (February 22, 1997 through March 31, 1997) all seven MSSVs were replaced with spare valves from warehouse inventory. APS engineering personnel are continuing to investigate the cause of this condition and the corrective actions to prevent recurrence are pending.</p> <p>A previous similar event was reported LER 530/94-002-01.</p>																													



# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PAGE		
Palo Verde Unit 3		YEAR	SEQUENTIAL NUMBER	REVISIO NUMBER			
		97	- 003	- 00	02	of	04

**TEXT**

**1. REPORTING REQUIREMENT:**

This LER (530/97-003-00) is being submitted to report an event where a single cause or condition may have caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to:

(A) Shut down the reactor and maintain it in a safe shutdown condition;

(B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident, as specified in 10 CFR 50.73(a)(2)(vii).

Specifically, from February 11 through February 15, 1997, testing identified seven main steam safety valves (MSSVs) (RV) (SB) with as-found lift settings outside of the Technical Specification (TS) limit.

During an NRC Engineering Team Inspection (May 19, 1997, through June 6, 1997) an NRC inspector questioned why the MSSV out-of-tolerance condition had not been reported in accordance with 10 CFR 50.73. APS subsequently performed a reportability review June 5, 1997, and determined the MSSV out-of-tolerance condition should be reported in accordance with 10 CFR 50.73(a)(2)(vii). Although the cause of the MSSV out-of-tolerance condition has not been determined at this time, this LER is being submitted on the premise that a common mode failure may have caused the out-of-tolerance condition.

**2. EVENT DESCRIPTION:**

On February 11, 1997, Palo Verde Unit 3 was in Mode 1 (POWER OPERATION) operating at approximately 86 percent power when APS Maintenance, APS Engineering (other utility personnel) and Furmanite (contractor personnel) began on-line testing of the Unit 3 MSSVs using the Furmanite digital Trevitest method. By February 15, 1997, trevittest activities had identified a total of seven MSSVs with as-found lift set pressures greater than the 3 percent allowed by TS 3.7.1.1. Six of the seven valves were adjusted and/or retested in accordance with APS procedures and returned to an operable status by February 15, 1997.

During trevittest activities performed on February 11, 1997, the third valve tested, MSSV SGE-PSV-691, did not lift when subjected to an upward force equivalent to 5.8 percent of the rated lift setting and testing was suspended. SGE-PSV-691 was quarantined and was mechanically gagged and Unit 3 continued to operate with SGE-PSV-691 inoperable, in accordance with TS LCO requirements, until February 22, 1997, when the sixth refueling outage began.





# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PAGE	
Palo Verde Unit 3		YEAR	SEQUENTIAL NUMBER	REVISIO NUMBER		
		97	- 003	- 00	03	of 04

TEXT      There were no safety system actuations as a result of this event and none were required.

3.      ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THIS EVENT:

A safety analysis was performed based upon the as-found MSSV data which demonstrated that the MSSVs would have performed their intended safety function. The analysis concluded that the condition would not have resulted in the secondary system pressure exceeding 110 percent (1397 psia) of the design pressure limit.

The MSSV as-found out-of-tolerance condition did not result in any challenges to the fission product barriers or result in any release of radioactive materials. There were no adverse safety consequences or implications as a result of this event. This event did not adversely affect the safe operation of the plant or health and safety of the public.

4.      CAUSE OF THE EVENT:

An independent investigation of this event is being conducted in accordance with the APS corrective action program. Seven MSSVs had as-found lift set pressures greater than the 3 percent allowed by TS. (SALP Cause Code: E Component Failure). Six of the seven MSSVs were adjusted and/or retested in accordance with APS procedures and were returned to an operable status during trevittest activities. Following the initial as-found test, three acceptable lift tests (within +/- 3 percent of name plate set pressure) were obtained for each of these six valves, without performing any setpoint adjustments. This data demonstrates that initial as-found tests tend to require higher lift pressures than subsequent lift tests. The investigation is ongoing to understand the reason for the initial high lift pressures.

Valve SGE-PSV-691 was shipped to Wyle Laboratories for examination and testing. A root cause of failure analysis for SGE-PSV-691 is in progress and the results of the analysis will be disclosed in a supplement to this report which is expected to be submitted by September 30, 1997.

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event. No personnel or procedural errors contributed to this event.



1  
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3

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME	DOCKET NUMBER	LER NUMBER			PAGE	
Palo Verde Unit 3		YEAR	SEQUENTIAL NUMBER	REVISIO NUMBER		
		97	- 003	- 00	04	of 04

## TEXT

### 5. STRUCTURES, SYSTEMS, OR COMPONENTS INFORMATION:

There are no indications that any structures, systems, or components were inoperable at the start of the event which contributed to this event.

The MSSVs were manufactured by Dresser/Consolidated and are Consolidated 3700 series valves designed for nuclear service and certified under Section III, class 2, of the ASME Code for application in nuclear power systems. Palo Verde's specific valves are Maxiflow, model# 3707-RA-RT25 with 6" 1500 pound inlet and a 10" 300 pound outlet.

No component or system failures were involved. No failures that rendered a train of a safety system inoperable were involved. No failures of components with multiple functions were involved.

### 6. CORRECTIVE ACTIONS TO PREVENT RECURRENCE:

During the Unit 3 refueling outage (February 22, 1997 through March 31, 1997) all seven MSSVs were replaced with spare valves from warehouse inventory. All replacement MSSVs were tested and accepted in accordance with plant procedures.

A root cause of failure analysis is being performed for the SGE-PSV-691 test failure in accordance with the APS Corrective Action Program. Actions to prevent recurrence will be developed based upon the results of the investigation. The results of the investigation will be described in a supplement to this report.

### 7. PREVIOUS SIMILAR EVENTS:

LER 50-530/94-002-01 reported a similar MSSV out-of-tolerance condition. Based upon the results of the APS Corrective Action Program evaluation, a discussion of why previous corrective actions did not prevent this event will be included in a supplement to this report.

