



Palo Verde Nuclear
Generating Station

William E. Ide
Vice President
Nuclear Production

TEL (623) 393-6116
FAX (623) 393-6077

10CFR50.73

Mail Station 7602
P.O. Box 52034
Phoenix, AZ 85072-2034

192-01105-WEI/SAB/DJS
May 1, 2002

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-37
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 2002-001-00**

Attached please find Licensee Event Report (LER) 50-529/2002-001-00 that has been prepared and submitted pursuant to 10CFR50.73. This LER provides the findings relating to out-of-tolerance main steam safety valves (MSSVs) which were discovered during pre-outage testing in Unit 2.

In accordance with 10CFR50.4, a copy of this LER is being forwarded to the NRC Regional Office, NRC Region IV 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. The corrective actions described in this LER are not necessary to maintain compliance with regulations.

Sincerely,

WEI/SAB/DJS/kg

Attachment

cc: E. W. Merschoff (all with attachment)
J. H. Moorman
J. N. Donohew

A member of the **STARS** (Strategic Teaming and Resource Sharing) Alliance

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IE22

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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 Palo Verde Nuclear Generating Station Unit 2	2. DOCKET NUMBER 05000529	3. PAGE 1 OF 5
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4. TITLE
Main Steam Safety Valve As-Found Lift Pressures Outside of Technical Specification Limits

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
03	05	2002	2002	001	00	May	01	2002		05000
									FACILITY NAME	DOCKET NUMBER
										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	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)						
	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)						
	20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)						
	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)						
	20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A						
	20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)							
	20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)							
	20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	X 50.73(a)(2)(vii)							
	20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)							
	20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)							

12. LICENSEE CONTACT FOR THIS LER

NAME Daniel G. Marks, Section Leader, Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) 623-393-6492
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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
X	SB	RV	D243	Y					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE			MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO							

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

On March 5, 2002, Unit 2 was in MODE 1, operating at approximately 100 percent power when augmented testing revealed that two main steam safety valves (MSSV) had an as-found lift pressure above the Technical Specification limit of +/- 3 percent of design lift pressure. These MSSVs are believed to have experienced setpoint drift.

The valves were reset to +/- 3% of setpoint to maintain plant operability for the duration of the surveillance test clock. No attempt was made to reset the valves to +/-1% of the required setpoint since both valves were scheduled for replacement.

Previous similar events were reported in LER 50-529/2000-002.

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

1. REPORTING REQUIREMENT(S):

This LER is being submitted because the existence of similar out-of-tolerance conditions in multiple MSSVs is an indication that the condition developed over a period of time and it is reasonable to assume the condition existed during plant operation in excess of Technical Specifications (TS) 3.7.1 completion times. Therefore, the condition is reportable under 10 CFR 50.73(a)(2)(i)(B) "Any operation or condition prohibited by the plant's Technical Specifications."

In addition, this LER is being submitted pursuant to 10 CFR 50.73 (a)(2)(vii) because it is reasonable to assume that a single cause or condition caused multiple MSSV out-of-tolerance conditions in a single system designed to mitigate the consequences of an accident.

During surveillance testing of the Unit 2 main steam safety valves (MSSV) (EIS: RV, SB) on March 5, 2002, the as-found lift pressures for two Unit 2 MSSVs were found to be above the Technical Specification limit.

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

There were no other structures, systems, or components that were inoperable that contributed to this condition. There were no failures that rendered a train of a safety system inoperable and no failures of components with multiple functions were involved.

The MSSVs are Dresser/Consolidated 3700 series valves designed for nuclear service and certified under Section III, class 2, of the ASME Code. Palo Verde's specific valves are Maxiflow, spring-loaded, direct acting, model No. 3707-R with 6 inch, 1500 pound inlet and a 10 inch, 300 pound outlet. Five MSSVs are located on each of the four main steam lines, outside containment (EIS: NH), upstream of the main steam isolation valves (EIS: ISV, SB).

The total relieving capacity of the MSSVs is divided equally between the main steam lines and is sufficient to pass the steam flow equivalent to 105% of the plant's maximum

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steam flow. The MSSV design includes staggered setpoints, so that only the number of valves required to relieve pressure will actuate.

The primary purpose of the MSSVs is to provide overpressure protection for the secondary system. The MSSVs also provide protection against overpressurizing the reactor coolant pressure boundary (EIS: AB) by providing a heat sink for the removal of energy from the reactor coolant system (EIS: AB) if the preferred heat sink, provided by the condenser (EIS: SG) and circulating water system (EIS: KI, KE), is not available.

MSSVs are required to be tested once per five years by Technical Specification (TS) Surveillance Requirement (SR) 3.7.1.1 and the ASME Code requirements, however, Palo Verde tests the valves prior to each refueling outage in accordance with previously specified corrective actions. The MSSVs are tested in accordance with approved procedures under normal operating pressure and temperature conditions. SR 3.7.1.1 requires that each MSSV as-found lift setpoint must be within +/- 3 percent of the design lift setting. Upon completion of valve testing, the MSSVs must be returned to +/- 1 percent of the design lift setting.

3. INITIAL PLANT CONDITIONS:

On March 5, 2002, at approximately 12:54 Mountain Standard Time (MST), Palo Verde Unit 2 was in Mode 1 (POWER OPERATION), operating at approximately 100 percent power. There were no major structures, systems, or components that were inoperable at the start of the event that contributed to the event.

4. EVENT DESCRIPTION:

On March 5, 2002, at approximately 12:54 MST set pressure verification testing of MSSVs was commenced using the Furmanite Digital Trevitest method. Engineering personnel (utility, non-licensed) were conducting pre-outage testing of the MSSVs. The as-found setpoint for MSSV PSV0561 (a 1250 pounds per square inch gauge (psig) setpoint valve) was 1289 psig or +3.1% of the setpoint. Operations personnel declared MSSV PSV0561 inoperable and entered TS Limiting Condition for Operation (LCO) 3.7.1 condition A. The valve lift pressure was left within +/-3% of the design set pressure

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

and at 13:00 MST, Operations declared the valve operable and exited LCO 3.7.1 condition A. The valve was replaced during the refueling outage by one certified to be within +/-1 %.

The as-found setpoint for MSSV PSV0554 (a 1250 psig setpoint valve) was 1292 psig or +3.4% of the setpoint. At 14:42 MST, Operations personnel declared MSSV PSV0554 inoperable and entered TS Limiting Condition for Operation (LCO) 3.7.1 condition A. The valve lift pressure was left +/-3% of the design set pressure and at 15:11 MST, Operations declared the valve operable and exited LCO 3.7.1 condition A. The valve was replaced during the refueling outage by one certified to be within +/-1 %.

At PVNGS, when the as-found setpoint is found to be above +3%, a second lift test is performed to determine if the valve exhibits the characteristics of a "sticky" valve. Neither MSSV PSV0561 or PSV0554 exhibited the characteristics of a "sticky" valve based on the results of the second lift test.

5. **ASSESSMENT OF SAFETY CONSEQUENCES:**

A preliminary safety analysis has been performed to evaluate the as-found results from the Unit 2 surveillance testing. The analysis has found that the as-found condition of the Unit 2 MSSVs would not, under accident conditions, have resulted in peak pressures that would have exceeded the overpressure protection limits for the primary or secondary systems. Further analysis will be performed once the results of the Pressurizer Safety Valve testing is known.

Therefore, based on the MSSV as-found out-of-tolerance condition discovered prior to the Unit 2 tenth refueling outage, the overpressure protection limits for the primary or secondary systems would not have been exceeded in the event of an accident. There were no adverse safety consequences or implications as a result of this condition. This condition did not adversely affect the safe operation of the plant or health and safety of the public; and there were no challenges to fission product barriers or any releases of radioactive materials as a result of this condition. It is APS' position the out of tolerance as-found MSSV setpoints are the result of setpoint drift.

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Based on previous experience, APS anticipates the condition would not have prevented the fulfillment of the safety function and did not result in a safety system functional failure as defined by 10CFR50.73(a)(2)(v).

6. CAUSE OF THE EVENT:

It is APS' position the out of tolerance as-found MSSV setpoints are the result of setpoint drift. The valves did not exhibit the characteristics of sticking, therefore valve seat sticking is not considered to be the cause of this event.

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.

The out of tolerance setpoint (greater than +/- 3%) was determined to be a Maintenance Rule Functional Failure (MRFF). The intended function of the MSSVs is to lift and relieve steam pressure when pressure within the steam line is within 3% of setpoint. Each of these valves did not respond until steam line pressure was simulated to exceed +3% (3.1% and 3.4%) Although, the second lifts fell within setpoint limits and the departure from setpoint was relatively minor, these two failures should each be counted as a Maintenance Rule Functional Failures.

7. CORRECTIVE ACTIONS:

Unit 2 MSSVs PSV0554 and PSV0561, discovered to have high as-found lift pressures outside of the technical specification limit during the surveillance testing, were re-tested in accordance with the approved site procedure and returned to service. The valves were replaced during the refueling outage with ones certified to be within +/-1 %

8. PREVIOUS SIMILAR EVENTS:

Previous similar events were reported in LER 50-529/2000-002.