APS

A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear
Generating Station

10CFR50.73

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192-01143-DMS/SAB/DJS
June 25, 2004

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 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 2003-001-01

Attached please find a supplemental voluntary Licensee Event Report (LER) 50-530/2003-001-01 that has been prepared and submitted pursuant to 10CFR50.73. This voluntary LER supplements the root cause related to an out-of-tolerance main steam safety valve (MSSV) which was discovered during pre-outage testing in Unit 3.

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,

DMS/SAB/DJS/pp

Attachment

cc:	B. S. Mallett	NRC Region IV Regional Administrator
	M. B. Fields	NRC NRR Project Manager + (send electronic and paper)
	N. L. Salgado	NRC Senior Resident Inspector for PVNGS

IE22

NRC FORM 366 (7-2001)

U.S. NUCLEAR REGULATORY COMMISSION

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 Unit 3	05000530	1 OF 5

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
										05000
03	20	2003	2003	– 001	– 01	06	25	2004	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	98		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)	XX	OTHER - Voluntary 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)		50.73(a)(2)(i)(B)		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	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
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 20, 2003, Unit 3 was in MODE 1, operating at approximately 98 percent power when augmented testing revealed that one main steam safety valve (MSSV) had an as-found lift pressure above the Technical Specification limit of +/- 3 percent of design lift pressure. The MSSV is believed to have experienced the phenomenon called "sticking" when the MSSV lifted during the surveillance testing. The out of tolerance as-found condition appears in some cases to be the results of the valve disc bonding with the nozzle seat.

The valve was reset per plant procedures to +/-1% of the required setpoint upon completion of valve testing.

Previous similar events were reported in LER 50-529/2000-002, LER 50-529/2000-009, LER 50-529/2001-001 and LER 50-529/2002-001.

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

1. REPORTING REQUIREMENT(S):

This supplemental voluntary LER 530/2003-001-01 is being submitted to report a condition related to equipment performance that does not meet the reporting threshold of 10CFR50.73 (a) for submitting a LER, but may prove useful and be of generic interest to the nuclear industry.

During augmented testing of a Unit 3 main steam safety valve (MSSV) (EIIS: RV, SB) on March 20, 2003, the as-found lift pressure for one Unit 3 MSSV was found to be above the Technical Specification limit.

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

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 a 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 (EIIS: NH), upstream of the main steam isolation valves (EIIS: 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 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 (EIIS: AB) by providing a heat sink for the removal of energy from the reactor coolant system (EIIS: AB) if the preferred heat sink, provided by the condenser (EIIS: SG) and circulating water system (EIIS: KI, KE), is not available.

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

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 20, 2003, at approximately 09:08 Mountain Standard Time (MST), Palo Verde Unit 3 was in Mode 1 (POWER OPERATION), operating at approximately 98 percent power. There were no major structures, systems, or components that were inoperable at the start of the event that contributed to the event. There were no failures that rendered a train of a safety system inoperable and no failures of components with multiple functions were involved.

4. EVENT DESCRIPTION:

On March 20, 2003, at approximately 09:08 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 PSV0578 (a 1290 pounds per square inch gauge (psig) setpoint valve) was 1333 psig or +3.3% of the setpoint. Operations personnel declared MSSV PSV0578 inoperable and entered TS Limiting Condition for Operation (LCO) 3.7.1 condition A. Adjustments to the valve lift pressure were made per plant procedures, to bring the lift pressure setpoint within +/-1% of the design set pressure and at 10:00 MST, Operations declared the valve operable and exited LCO 3.7.1 condition A.

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

5. ASSESSMENT OF SAFETY CONSEQUENCES:

A safety analysis has been performed to evaluate the as-found results from the Unit 3 surveillance testing. The analysis found that the as-found condition of the Unit 3 MSSV would not, under accident conditions, have resulted in peak pressures that would have exceeded the overpressure protection limits for the primary or secondary systems.

Based on the analysis, the out of tolerance 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:

The out of tolerance as-found condition appears in some cases to be the results of the valve disc bonding with the nozzle seat.

There are two principal failure modes where the MSSV as-found test results exceed setpoint by greater than the allowed 3%. One cause for the high as-found reading is a phenomenon called "sticking." Sticking occurs when the as-found setpoint is 2% or more, higher than the test results from second and subsequent tests. In most cases, the second lift point would be within the as-found range of +/- 3% of set point.

The second failure mode is "drifting" and is defined as a changing lift setpoint between succeeding lifts (as left to as-found, or 2nd to 3rd) with no physical changes being made by the testing personnel.

However, based on previous experience and similar events at PVNGS, the high as-found reading is most likely due to sticking. The setpoint out of tolerance was determined to be a Maintenance Rule Functional Failure (MRFF).

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.

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

The out of tolerance setpoint (greater than +/- 3%) was determined to be a Maintenance Rule Functional Failure (MRFF) even though the MSSVs as a group would not have exceeded the overpressure protection limits for the primary or secondary systems. The intended function of the MSSVs is to lift and relieve steam pressure when pressure within the steam line is within 3% of setpoint. The valve did not respond until steam line pressure was simulated to exceed +3% (3.3%).

7. CORRECTIVE ACTIONS:

Unit 3's MSSV PSV0578 was discovered to have a high as-found lift pressure outside of the technical specification limit during surveillance testing. The MSSV was adjusted and re-tested in accordance with the approved site procedure and returned to service.

8. PREVIOUS SIMILAR EVENTS:

Previous similar events were reported in LER 50-529/2000-002, LER 50-529/2000-009, LER 50-529/2001-001 and LER 50-529/2002-001.