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FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
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SUBJECT: LER 89-007-02:on 890412,pressurizer safety relief valve setpoints out of tolerance.

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NOTES: 05000528

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Arizona Public Service Company
PALO VERDE NUCLEAR GENERATING STATION
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00622-JML/TRB/SBJ
January 28, 1990

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528 (License No. NPF-41)
Licensee Event Report 1-89-007-02
File: 90-020-404

Attached please find Supplement Number 2 to Licensee Event Report (LER) No. 89-007-00 prepared and submitted pursuant to 10CFR50.73. In accordance with 10CFR50.73(d), we are herewith forwarding a copy of the LER to the Regional Administrator of the Region V office.

If you have any questions, please contact T. R. Bradish, (Acting) Compliance Manager at (602) 393-2521.

Very truly yours,

James M Levine

JML/TRB/SBJ/kj

Attachment

cc: W. F. Conway (all with attachment)
E. E. Van Brunt
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D. Coe
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INPO Records Center

IE22
1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palo Verde Unit 1	0 5 0 0 0 5 2 8	1 OF 0 5

TITLE (4)

Pressurizer Safety Relief Valve Setpoints Out of Tolerance

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 NUMBER(S)
									N/A	0 5 0 0 0
0 4	1 2	8 9	8 9	— 0 0 7	— 0 2	0 1	2 8	9 0	N/A	0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	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)	X 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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Thomas R. Bradish, (Acting) Compliance Manager	6 0 2 — 3 9 3 — 2 5 2 1

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)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On April 12, 1989 between 1435 MST and 1630 MSt, Palo Verde Unit 1 was in Mode 4 (HOT SHUTDOWN) with a steam bubble being maintained in the pressurizer to allow ASME Section XI testing of the pressurizer relief valves when two of the four Pressurizer Code Safety Valves were discovered out of the Technical Specification tolerance of 2500 pounds per square inch-absolute (psia) plus or minus one percent (25 psi). Technical Specification 3.4.2.1 requires that a minimum of one Pressurizer Code Safety Valve be OPERABLE in Mode 4.

The cause of the event is a performance limitation of the pressurizer safety valves. Industry testing has shown that relief and safety valves, of the size and application of the Palo Verde pressurizer safety valves, have a lift setting repeatability of ±3 percent. All the pressurizer safety valves lifted within 3 percent of the required lift setting.

As immediate corrective action, the two valves were adjusted and retested satisfactorily. As discussed above, the valves are lifting within the manufacturer's tolerance; therefore, no further corrective action is required. Additionally, a change to the Technical Specification requirement for the setpoint tolerance is being pursued.

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On April 12, 1989, Palo Verde Unit 1 was in Mode 4 (HOT SHUTDOWN) at the time of this event. A steam bubble was being maintained in the pressurizer (AB)(PZR) to allow ASME Section XI testing of the Pressurizer Code Safety Valves (RV) in accordance with Technical Specification 3.4.2.1.

B. Reportable Event Description (Including Dates and Approximate Times of Major Occurrences):

Event Classification: Condition or operation prohibited by the plant's Technical Specifications

On April 12, 1989 between 1435 MST and 1630 MST two of the four Pressurizer Code Safety Valves were discovered out of the Technical Specification tolerance of 2500 pounds per inch-absolute (psia) plus or minus one percent. Technical Specification 3.4.2.1 requires that a minimum of one Pressurizer Code Safety Valve be OPERABLE in Mode 4. Thus, Palo Verde Unit 1 met the Limiting Condition for operation throughout the testing period.

Palo Verde Unit 1 is a two-loop pressurized water reactor (PWR). Overpressure protection for the primary loops (AB) is provided by four direct acting, spring loaded, stainless steel safety valves with enclosed bonnets. These valves are mounted on the top of the pressurizer. The opening pressure is set in accordance with ASME Code and Technical Specification requirements. The valves are all set to lift at 2500 psia plus or minus one percent (25 psi).

The primary safety valves are required to be tested once per five (5) years. The testing is conducted utilizing an approved surveillance test procedure. The surveillance test procedure verifies by on-line testing that the set pressure and operation of the primary safety valves are acceptable for continued service. The testing described herein was conducted utilizing the Furmanite Trevitest Method. The general principle involves utilizing hydraulic force to assist in overcoming the closing force of the valve spring. The applied force is measured, recorded, analyzed, and converted to a pressure term. This pressure term is then added to the system pressure at the time of the test to determine the lift point setting. In order to have an acceptable test by current procedural requirements, it is necessary to have three (3)

consecutive lifts within plus or minus one (1) percent of the given set pressure of the valve. The testing sequence involves declaring a safety valve inoperable, installing the testing device, and then testing until three consecutive, acceptable lifts are performed.

If three consecutive lifts cannot be made, the appropriate adjustments are made until the acceptance criteria can be satisfied. These adjustments (if necessary) are accomplished using an adjusting screw located external to the valve. After three successful lifts are performed, the valve is returned to service.

On April 12, 1989 at approximately 1435 MST RCE-PSV-201 was declared inoperable for testing. The "as-found" lift occurred at approximately 2556 psia. RCE-PSV-201 was adjusted and retested as previously described. At approximately 1540 MST RCE-PSV-201 was declared operable. At approximately 1542 MST RCE-PSV-202 was declared inoperable for testing. The "as-found" lift occurred at approximately 2547 psia. RCE-PSV-202 was adjusted and retested. At approximately 1630 MST RCE-PSV-202 was declared operable. The other two safety valves' (RCE-PSV-200 and RCE-PSV-203) "as-found" setpoints were within tolerance.

C. Status of structures, systems, or components that were inoperable at the start of the event that contributed to the event:

Other than the pressurizer code safety valves as described above, no structures, systems, or components were inoperable which contributed to the event.

D. Cause of each component or system failure, if known:

Not applicable - no failures were involved.

E. Failure mode, mechanism, and effect of each failed component, if known:

Not applicable - no failures were involved.

F. For failures of components with multiple functions, list of systems or secondary functions that were also affected:

Not applicable - no failures were involved.

G. For failures that rendered a train of a safety system inoperable, estimated time elapsed from the discovery of the failure until the trains were returned to service:

Not applicable - no failures were involved.

H. Method of discovery of each component or system failure or procedural error:

Not applicable - no failures were involved.

I. Cause of Event:

In 1982 the Electrical Power Research Institute (EPRI) performed testing to determine safety and relief valve performance data in response to NUREG 0578. A representative sample of valves from all Nuclear Steam Supply System (NSSS) and valve manufacturers, including the Dresser Model 31709NA utilized at Palo Verde, were tested. From this test data it was determined that relief and safety valves of the size and application tested have a lift setting repeatability of ±3 percent. All the Palo Verde Unit 1 pressurizer relief valves lifted within 3 percent of the lift setting. Therefore, the cause of the Palo Verde Unit 1 pressurizer safety valves not meeting the current ± 1 percent lift setting tolerance is the performance limitation of the valve.

J. Safety System Response:

No safety system responses occurred and none were necessary.

K. Failed Component Information:

Although there were no failed components associated with this event, the following data is provided for information:

Manufacturer: Dresser Valve and Control Division
Dresser Industries, Inc.

Model No: 31709NA

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

The basis for Technical Specification section 3/4.4.2 states, "the relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown." Thus, in the

mode during which testing was performed, the health and safety of the public was assured.

During operation, all pressurizer code safety valves must be OPERABLE to prevent the Reactor Coolant System (RCS)(AB) from being pressurized above its Safety Limit of 2750 psia. The combined relief capacity of these valves is sufficient to limit the system pressure to within its Safety Limit of 2750 psia following a complete loss of turbine generator (TA) load while operating at RATED THERMAL POWER and assuming no reactor trip until the first Reactor Protective System (JC) trip setpoint (Pressurizer Pressure-High) is reached (i.e., there is not direct reactor trip on the loss of turbine) and also assuming no operation of the atmospheric dump valves (SB)(V).

An analysis was performed to determine if the "as-found" condition discussed in Section I.B could have resulted in the RCS being pressurized above the Safety Limit of 2750 psia. The results determined that the Safety Limit would not have been exceeded.

III. CORRECTIVE ACTIONS:

A. Immediate

The two valves discovered out of tolerance were adjusted and retested in accordance with ASME Code and Technical Specification requirements. Both were tested satisfactorily and returned to service.

B. Action to Prevent Recurrence:

Based on the analysis described in Section II, a change to the Technical Specifications to expand the setpoint tolerance is being pursued. This change, if accepted, will provide more tolerance for "as-found" setpoint variations.

IV. PREVIOUS SIMILAR EVENTS:

This was the first testing of Pressurizer Code Safety Valves since startup testing in Palo Verde Units 1, 2, and 3.

Main Steam Safety Valves have been found out of tolerance and reported in LER 528/88-14 and LER 528/89-010. Previous corrective actions involved an increase in the frequency of testing. These corrective actions would not have prevented this event.