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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 95-002-00: on 950519, TS LCO 3.1.2.2 & LCO 3.1.2.4 action statements not met. Caused by an unsatisfactory swagelok compression at union of flexible tubing & rigid tubing. Pressure transmitter sensing line repaired. W/950617 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Standardized plant.

05000529

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Arizona Public Service Company

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

192-00935-JML/BAG/KR

June 17, 1995

JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

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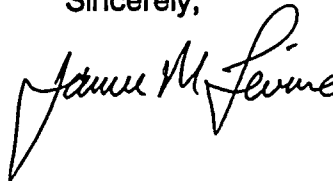
Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529 (License No. NPF-51)
Licensee Event Report 95-002-00**

Attached please find Licensee Event Report (LER) 95-002-00 prepared and submitted pursuant to 10CFR50.73. This LER reports a Technical Specification 3.0.3 entry when operations required by TS Limiting Condition for Operation 3.1.2.2 (no operable boration injection flow paths) and 3.1.2.4 (no operable charging pumps) ACTION statements were not met.

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 Burton A. Grabo, Section Leader, Nuclear Regulatory Affairs, at (602) 393-6492.

Sincerely,



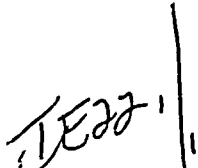
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Attachment

cc: L. J. Callan (all with attachment)
K. E. Perkins
K. E. Johnston
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260160

9506290258 950617
PDR ADOCK 05000529
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 5 2 9	PAGE (3) 1 OF 0 6
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TITLE (4)
TS 3.0.3 Entry Due to Loss of Charging Pumps and Boration Flowpaths

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	
0	5	1 9 9 5	9 5	- 0 0 2	- 0 0	0 6	1 7	9 5	N/A	0 5 0 0 0 0	
									N/A	0 5 0 0 0 0	

OPERATING MODE (9) 1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 1 0 0		20.402(b)		20.405(c)		50.73(a)(2)(v)		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)(vi)		OTHER (Specify in Abstract below and in Test, NRC Form 366A)			
		20.405(a)(1)(iii)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)		50.73(a)(2)(vii)(A)					
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(vii)(B)					
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(viii)					

LICENSEE CONTACT FOR THIS LER (12)	
NAME Burton A. Grabo, Section Leader, Nuclear Regulatory Affairs	TELEPHONE NUMBER AREA CODE 6 0 2 3 9 3 - 6 4 9 2

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) <input checked="" type="checkbox"/> NO					

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

On May 19, 1995, at approximately 2250 MST, Palo Verde Unit 2 was in Mode 1 (POWER OPERATION), operating at approximately 100 percent power when Technical Specification (TS) 3.0.3 was entered when operations required by TS Limiting Condition for Operation (LCO) 3.1.2.2 (no operable boration injection flow paths) and 3.1.2.4 (no operable charging pumps) ACTION statements were not met.

A swagelok fitting in the charging pump common discharge header pressure transmitter sensing line separated, resulting in a charging header to atmosphere leak. A preliminary root cause of failure analysis determined that the separation was attributed to an unsatisfactory swagelok compression at the union of the flexible tubing and the rigid tubing. Initial inspection has postulated that this condition has existed since initial installation (construction time frame). The preliminary investigation determined that this was an isolated event attributed to poor work practices.

As corrective action, the pressure transmitter sensing line was repaired. An independent investigation of this event is being conducted in accordance with the APS Corrective Action Program.

There have been no previous similar events reported pursuant to 10CFR50.73.

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TEXT

1. REPORTING REQUIREMENT:

This LER 529/95-002-00 is being written to report an event that resulted in a condition prohibited by the plant's Technical Specifications (TS) as specified in 10 CFR 50.73(a)(2)(1)(B).

Specifically, at approximately 2250 MST on May 19, 1995, Palo Verde Unit 2 was in Mode 1 (POWER OPERATION) operating at approximately 100 percent power when TS 3.0.3 was entered when operations required by TS Limiting Condition for Operation (LCO) 3.1.2.2 [no operable boration injection (CB) flow paths] and 3.1.2.4 [no operable charging pumps (CB)] ACTION statements were not met.

2. EVENT DESCRIPTION:

At approximately 2250 MST, Control Room personnel (utility, licensed) noted control board (IU) alarms for low charging (CB) header pressure, low charging flow, and a loss of reactor coolant pump (AB) seal injection. These alarms indicated a failure of the charging system. At approximately 2251 MST, a subsequent loss of letdown (CB) flow occurred when letdown isolation valve CHB-UV-515 automatically closed on high regenerative heat exchanger (CB) outlet temperature. Auxiliary operators (utility, non-licensed) were dispatched to determine the source of the apparent charging header leakage. At the time of the event, charging pumps (CHP) B and E were in service. CHP-A was unavailable in that it had been previously removed from service and declared inoperable to repair a discharge isolation valve (CHA-V339).

At approximately 2252 MST, CHP-E was secured and its manual discharge valve was closed to isolate the leakage. At approximately 2255 MST, an auxiliary operator reported that water was still leaking in the E charging pump room. Due to radiological conditions, he could not enter the room to investigate. At approximately 2300 MST, CHP-B was secured and its manual discharge valve was closed. The leakage was successfully isolated.

Control Room personnel determined that TS 3.0.3 had been entered at approximately 2250 MST when operations required by TS LCO 3.1.2.2 and 3.1.2.4 ACTION statements (with only one boron injection flow path or one CHP OPERABLE, restore at least two boron injection flow paths or two CHPs to OPERABLE status within 72 hours) were not met. In addition, Control Room personnel entered TS LCO 3.4.3.2 ACTION b for both auxiliary pressurizer spray valves (AB) inoperable (charging is required) and TS LCO 3.3.3.5 ACTION b (remote shutdown components associated with the inoperable CHP-B).

When the auxiliary operator entered the E charging pump room, he was unable to locate the source of the leakage with charging flow isolated.

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The CHP-E discharge valve was slowly throttled open to facilitate detection of the leakage source. At approximately 2325 MST, the leakage was noted to be coming from a fitting located on a sensing line between the instrumentation root isolation valve CHN-V425 and the charging pump common discharge header pressure transmitter (CHN-PT-212). The auxiliary operator secured CHN-V425 and successfully isolated the leakage. The auxiliary operator noted that tubing on the sensing line for CHN-PT-212 had pulled out of a swagelok fitting.

The leakage occurred when a swagelok fitting had separated resulting in a charging header to atmosphere leak in the E charging pump room. On isolation of the charging system pressure transmitter, Control Room personnel determined that TS LCO 3.3.3.5 ACTION a (inoperable remote shutdown monitoring channel for charging pressure) had been entered at approximately 2250 MST. TS LCO 3.3.3.5 ACTION a allows 7 days to restore the inoperable instrumentation or be in HOT STANDBY within the next 12 hours.

At approximately 2337 MST, CHP-B was restarted and TS 3.0.3 was exited (in approximately 47 minutes) for both TS LCO 3.1.2.2 (boration flow paths) and 3.1.2.4 (charging pumps). TS LCO 3.4.3.2 ACTION b (auxiliary pressurizer spray valves) and TS LCO 3.3.3.5 ACTION b (remote shutdown components associated with CHP-B) were also exited. Control Room personnel entered the ACTION for TS LCO 3.1.2.4 for only one charging pump available.

At approximately 2350 MST, RCP seal injection was restored to normal. At approximately 2358 MST, CHP-E was restarted and the ACTION statement for TS LCO 3.1.2.4 was exited with two charging pumps operable (CHP-B and CHP-E). At approximately 0011 on May 20, 1995, letdown was restored to normal.

Control Room personnel ensured that the suspected swagelok fitting and associated tubing were segregated for an equipment root cause of failure analysis (ERCFA). An investigation was initiated in accordance with the APS Corrective Action Program.

At approximately 1806 MST on May 21, 1995, Control Room personnel declared CHP-A operable. At approximately 1815 MST on May 21, 1995, TS LCO 3.3.3.5 ACTION a was exited following the repair of the CHN-PT-212 sensing line. There were no safety system responses and none were necessary. Due to the timely actions taken by Operations personnel to identify and correct the charging system leakage, the unit remained on line.

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TEXT

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

TS 3.0.3 was exited (in approximately 47 minutes) for both TS LCO 3.1.2.2 (boration flow paths) and 3.1.2.4 (charging pumps). There are no Updated Final Safety Analysis Report (UFSAR) Chapter 15 accident analyses that credit the charging system for accident mitigation. However, a major assumption regarding system operation during a steam generator (AB) tube rupture is that after the loss of offsite power (EA) (SGTR W/LOOP) subsequent to reactor (AC) trip, one charging pump is assumed available for auxiliary spray in the pressurizer, although no credit is taken for charging. For a double-ended tube rupture, the primary to secondary leak rate exceeds the capacity of the charging pumps. Two high pressure safety injection pumps (BQ) are assumed to be available following the generation of a safety injection actuation signal (BP/BQ)(JE) for reactor coolant system (RCS) (AB) makeup due to a SGTR RCS volume loss.

The only design basis event requiring the charging system to be operable is achieving cold shutdown as defined in the NRC Branch Technical Position (BTP) RSB 5-1 for the auxiliary pressurizer spray system (APSS) valves. Section 5.4.3 of NUREG-0857 Supplement 9, December, 1985, PVNGS Safety Evaluation Report (SER), identifies the licensing basis for the APSS to provide the capability to depressurize during a natural circulation cooldown for entry into shutdown cooling (BP) following a LOOP in accordance with the BTP. The APSS was originally credited for use during the mitigation of the SGTR event. However, the analysis was reperformed with depressurization capability provided by the safety-grade gas vent system vice the APSS. The NRC concluded in the SER that the radiological consequences of this event, as reanalyzed, were acceptable and that the APSS is not needed for mitigating the design basis SGTR. However, operation of the APSS is assumed for achieving plant cold shutdown in accordance with BTP RSB 5-1.

Per the TS BASES for 3/4.3.3.5 REMOTE SHUTDOWN SYSTEM, the OPERABILITY of the remote shutdown system insures that a fire will not preclude achieving safe shutdown. TS LCO 3.3.3.5 ACTION a allows for 7 days to restore the inoperable instrumentation to OPERABLE status. The ACTION was exited in approximately 43 hours and 25 minutes. Although there are no 10CFR50 Appendix R considerations adversely affected by this event, to assure that safe shutdown conditions can be achieved and maintained for a fire in the control room, procedures are in place and fire protection features are designed to use selected Train B remote shutdown components for safe shutdown activities (TS 3.5.5.5).

This event did not result in any challenges to the fission product barriers or result in any releases of radioactive materials from the plant. Therefore, there were no adverse safety consequences or implications as a result of this event. This event did not adversely

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TEXT

affect the safe operation of the plant or health and safety of the public.

4. CAUSE OF THE EVENT:

Entry into TS 3.0.3 occurred when operations required by TS LCO 3.1.2.2 and 3.1.2.4 ACTION statements were not met.

An independent investigation of this event is being conducted in accordance with the APS Corrective Action Program. The swagelok fitting in the charging pump common discharge header pressure transmitter sensing line separated, resulting in a charging header to atmosphere leak. A preliminary ERCFA determined that the separation was attributed to an unsatisfactory swagelok compression at the union of the flexible tubing and the rigid tubing. Based on visual inspection, the ERCFA determined that the tubing had not been properly compressed. Since no previous work history existed on the fitting, the ERCFA has postulated that this condition has existed since initial installation (construction time frame). The preliminary investigation determined that this was an isolated event attributed to poor work practices (SALP Cause Code A: Personnel Error). Over the years, the pipe vibration caused by the pulsation of water through the line attributed to the separation of the fitting.

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event. There were no apparent procedural errors which contributed to this event.

5. STRUCTURES, SYSTEMS, OR COMPONENTS INFORMATION:

Leakage occurred when a swagelok fitting separated. A preliminary ERCFA has determined that the separation was attributed to an unsatisfactory swagelok compression. The ERCFA determined that the unsatisfactory swagelok compression was attributed to poor work practices, not a component failure.

There are no other indications that any structures, systems, or components were inoperable at the start of the event which contributed to this event. No failures of components with multiple functions were involved. No component failures that rendered a train of a safety system inoperable were involved.

6. CORRECTIVE ACTIONS TO PREVENT RECURRENCE:

An independent investigation of this event is being conducted in accordance with the APS Corrective Action Program. As part of the investigation, an ERCFA of the swagelok fitting is being performed by APS Engineering personnel. A preliminary evaluation, based on

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TEXT

inspection of the fitting, has determined that the separation of the fitting was caused by improper work practices. The charging pump common discharge header pressure transmitters in Units 1 and 3 were visually inspected and no anomalies were detected. If the final evaluation results differ from this determination, a supplement to this report will be submitted to describe the final root cause of failure and corrective actions, as applicable.

7. PREVIOUS SIMILAR EVENTS:

No other previous events have been reported pursuant to 10CFR50.73 in the last three years that have been attributed to the same cause (i.e., separated swagelok fitting).

