

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Palo Verde Unit 2</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 5 2 9</b>	PAGE (3) <b>1 OF 0 6</b>
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TITLE (4)  
**Use Of Uncalibrated Boronometer Causes a TS SR To Be Missed**

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 9	2 9	9 4	9 4	- 0 0 8	- 0 1	0 6	2 8	9 5	N/A	0 5 0 0 0 0
									N/A	0 5 0 0 0 0

OPERATING MODE (9) **5**

POWER LEVEL (10) **0 0 0**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)

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)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 305A)
20.405(a)(1)(iii)	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 <b>Burton A. Grabo, Section Leader, Nuclear Regulatory Affairs</b>	TELEPHONE NUMBER <b>6 0 2 3 9 3 - 6 4 9 2</b>
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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)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On September 29, 1994, at approximately 1000 MST, Palo Verde Unit 2 was in Mode 5 (COLD SHUTDOWN) at approximately 15 psia and 95 degrees Fahrenheit (F), when the Shift Technical Advisor (STA) identified that the preventive maintenance (PM) task for calibrating the boronometer was overdue. Technical Specification (TS) 3.1.2.7 Limiting Condition for Operation (LCO) allows the Reactor Coolant System (RCS) boron concentration to be determined by either boronometer or RCS sampling. 10CFR50 Appendix B Criterion XII requires that devices used in activities affecting quality be properly calibrated. Therefore, the boronometer could not be used to satisfy the above TS requirement.

The evaluation of this condition revealed that on three separate occasions between February 17 and March 15, 1994, the boronometer was used by Operations personnel to satisfy TS LCO 3.1.2.7 ACTION a. In two of the cases (February 18 and March 15, 1994), only the initial RCS sample was required by TS due to the fact that the Startup (SU) Channels were returned to operable status prior to the need for additional RCS samples. In the third case (February 17, 1994), the boronometer was used by Operations personnel to satisfy TS 3.1.2.7 monitoring frequency requirements of the Core Operating Limits Report (COLR). Therefore, an uncalibrated piece of equipment was used by Operations personnel to meet TS LCO 3.1.2.7. This was in violation of the frequency needed for compliance with TS LCO 3.1.2.7.

There have been no previous similar events reported pursuant to 10CFR 50.73.

The purpose of this supplement is solely for the inclusion of EIIS codes and correction of minor typographical errors.

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PDR



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**TEXT 1. REPORTING REQUIREMENT:**

This LER 529/94-008 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)(i)(B).

Specifically, on September 29, 1994, at approximately 1000 MST, Palo Verde Unit 2 was in Mode 5 (COLD SHUTDOWN) at approximately 15 psia and 95 degrees Fahrenheit (F), when the Shift Technical Advisor (STA) (utility, nonlicensed) identified that the preventive maintenance (PM) task for calibrating the boronometer (CB) was overdue. Technical Specification (TS) Limiting Condition for Operation (LCO) 3.1.2.7 ACTION a allows the Reactor Coolant System (RCS) (AB) boron concentration to be determined by either boronometer or RCS sampling (KN). 10CFR50 Appendix B Criterion XII requires that devices used in activities affecting quality be properly calibrated. Therefore, the boronometer could not be used to satisfy the above TS requirement.

**2. EVENT DESCRIPTION**

PVNGS's procedural requirement has the boronometer calibrated once every 18 months. The last time this calibration was completed was on September 26, 1991. The next scheduled performance of the task was due on March 26, 1993, with a maximum allowable extension (25 percent) due on August 23, 1993. On February 19, 1993, the calibration was stopped due to the fact that the PS-1 power supply (JX) did not meet its calibration specification in the PM. At this point work was stopped and the Shift Supervisor (SS) (utility, licensed) and work group supervisor (utility, nonlicensed) were notified of the condition. Also, a Corrective Maintenance work order was generated. The boronometer was left on line and it continued to track the boron sampling so that it would appear that it was operating normally.

A power supply was not available through the warehouse, therefore, one had to be ordered. There was no further work performed on the boronometer until April 20, 1994, when a power supply became available.



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## TEXT

The boronometer was worked on for one day when work was stopped due to the volume of water required to flush the instrument. Unit 2 already had a large volume of contaminated water to process and the completion of this job would have added to the existing burden.

On August 23, 1993, the calibration period exceeded the maximum allowable extension of 125 percent. On July 26, 1994, calibration of the boronometer was resumed and on July 27, 1994, an additional power supply, PS-3, was identified as being required to complete the calibration. This power supply was unavailable, therefore work was stopped again.

On October 24, 1994, a new PS-3 power supply was obtained and work began on the Unit 2 boronometer and was completed on November 12, 1994.

Therefore, the required calibration frequency was missed and the instrument was left on line and it continued to track the boron sampling so its appearance was that it was operating normally between February 18, 1993 and November 12, 1994

On December 23, 1994, the evaluation determined that the boronometer was used on 3 occasions to meet TS 3.1.2.7 Action a (February 17, 18 and March 15, 1994). On January 12, 1995, it was determined that this event was reportable.

### 3. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATION OF THIS EVENT:

In all three cases, an initial RCS boron sample and boronometer reading were taken. When compared, these two data points indicated to Operations personnel (utility, licensed) that the boronometer was tracking the RCS boron concentration. Therefore, Operations personnel made the decision to use the boronometer in lieu of taking further RCS samples.



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TEXT

The use of the boronometer on February 18 and March 15, 1994, were determined to be of no significance. The boron concentration monitoring frequency specified by TS was met by the initial RCS sample, because the length of time that the startup channels (IG) were out of service was within the sampling frequency required.

The use of the boronometer on February 17, 1994, was determined not to be within compliance with TS 3.1.2.7 Action a. Startup channel number 2 was out of service for approximately 4 hours and 7 minutes. Per TS 3.1.2.7 and the Core Operating Limits Report (COLR), the required sampling frequency is every two hours. Therefore, two boron samples were required. As stated previously, Operations personnel decided to use the boronometer due to their belief that the instrument was operating properly. Therefore, an uncalibrated piece of equipment was used by Operations personnel to meet a TS requirement.

The initial RCS boron sample was taken at 2255 MST on February 17, 1994. The results from this showed the boron concentration to be at 2597 ppm. Chemistry (utility, non-licensed) took its shiftly RCS sample at 0115 MST on February 18, 1994, and determined the boron concentration to be 2591 ppm. This sample missed the sampling frequency of TS 3.1.2.7 by 20 minutes. Therefore, TS 3.1.2.7 Action a was not met. However, this sample shows that there was not boron dilution event during this time frame.

This event did not result in any challenges to the fission product barriers or result in any releases of radioactive materials. Therefore, 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 the health and safety of the public.





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**TEXT**

**4. CAUSE OF THE EVENT**

An evaluation was performed in accordance with the APS Incident Investigation Program. The evaluation concluded that the apparent cause of the boronometer past calibration was a lack of concern for the instrument being calibrated correctly (SALP Cause Code A: Personnel error). Contaminated water processing, concerns with the mid-cycle outage, and lack of emphasis during this time frame overrode this maintenance activity.

Prior to September 1, 1994, the responsibility for resolution of equipment reliability problems was fragmented into several organizations. Lines of communications did not always provide the clearest emphasis relative to station or Unit priorities. The reengineered Maintenance organization has provided the focus and emphasis necessary to prevent a similar occurrence.

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

No other structures, systems, or components were inoperable at the start of the event which contributed to this event. There were no component or system failures involved, therefore, no safety systems were rendered inoperable. No components with multiple functions were involved. There were no safety system responses and none were required.

**6. CORRECTIVE ACTIONS TO PREVENT RECURRENCE:**

On September 29, 1994, procedure 30DP-9MP09, "Preventive Maintenance Processes and Activities", had been revised to address this type of condition. Step 3.2.4 states the following:

"I&C Section/Team Leaders shall refer out-of-tolerance results found during Operations Surveillance Test "NO WAIVE" PMs on installed plant equipment to the duty STA or other appropriate engineering personnel.



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**TEXT**

The STA/engineer shall perform a documented evaluation of the significance of the problem or deficiency and ensure that a CRDR is generated, if required. They shall also provide essential Failure Data Trending information, if required."

The evaluation of the event has not been completed to date. However, any additional corrective action items identified will be tracked under the APS Commitment Action Tracking System.

If information is developed which would affect the readers understanding or perception of this event, a supplement will be submitted.

**7. PREVIOUS SIMILAR EVENTS:**

There have been no previous similar events of this type of failure reported pursuant to 10CFR50.73 within the past three (3) years.

