APS

*A subsidiary of Pinnacle West Capital Corporation*

Palo Verde Nuclear
Generating Station

**10CFR50.73**

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192-01145-DMS/SAB/REB
July 9, 2004

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 1**
**Docket No. STN 50-528**
**License No. NPF-41**
**Licensee Event Report 2004-004-00**

Attached please find Licensee Event Report (LER) 50-528/2004-004-00 that has been prepared and submitted pursuant to 10CFR50.73. This LER reports a condition where APS did not adequately meet a technical specification surveillance requirement.

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.

The corrective actions described in this LER are not necessary to restore compliance with regulations. Arizona Public Service Company makes no commitments in this letter.

Sincerely,

DMS/SAB/REB/kg

Attachment

cc: B. S. Mallett — NRC Region IV Regional Administrator
M. B. Fields — NRC NRR Project Manager
N. L. Salgado — NRC Senior Resident Inspector for PVNGS

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

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)

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4. TITLE

## Missed Surveillance Requirement for Temperature Detector Calibration

| 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 |
| | | | | | | | | | PVNGS Unit 2 | 05000529 |
| 05 | 18 | 2004 | 2004 | - 004 | - 00 | 07 | 09 | 2004 | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | PVNGS Unit 3 | 05000530 |

| 9. OPERATING MODE | 1 |
|---|---|
| 10. POWER LEVEL | 97 |

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 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) | | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

| 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 February 27, 2004 it was determined by Engineering personnel that the Technical Specification required calibration of the shutdown cooling heat exchanger resistance temperature devices (RTD) was not adequately addressed in station procedures. Units 1 and 3 were operating in Mode 1, Power Operation and entered Technical Specification Surveillance Requirement 3.0.3. Unit 2 was in Mode 5, Cold Shutdown, which is not an applicable Mode for the RTDs. SR 3.0.3 allows delayed entry into a Limiting Condition of Operation (LCO) required action when a surveillance requirement has not been performed within the specified frequency. The surveillance test procedure was modified and successfully completed, without any adjustment required, in Unit 2 on March 4 and Units 1 and 3 on March 5, 2004.

The direct cause of the condition is an inadequate surveillance testing procedure. The apparent cause of the deficient procedure is the lack of recognition by the procedure owner and engineering personnel that the RTDs required calibration before and after improved TS implementation.

One similar condition has been reported by PVNGS with in the last three years.

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

1. REPORTING REQUIREMENT(S):

This LER (50-528/2004-004-00) is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B), to report a missed surveillance requirement in Units 1, 2, and 3. Specifically, Technical Specification (TS) 3.3.11, Remote Shutdown System, Surveillance Requirement (SR) 3.3.11.3 requires calibration of the shutdown cooling (EIIS Code: BP) heat exchanger (EIIS Code: HX) resistance temperature devices (RTD) (EIIS Code: DET) which was not performed within the required frequency.

The condition was initially determined by Regulatory Affairs personnel as not being reportable due to the belief that the SR was being met and had previously been met by station surveillance procedures. However, further evaluation performed on May 18, 2004, concluded that the condition was reportable since the surveillance procedure did not contain adequate steps to meet the calibration criteria within the three year reporting window.

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

The shutdown heat exchanger temperature detectors provide inlet and outlet temperature indication for the Control Room and Remote Shutdown Panel (RSP) during shutdown cooling operation. No automatic functions are associated with these devices.

3. INITIAL PLANT CONDITIONS:

On February 27, 2004 Units 1 and 3 were operating in Mode 1, Power Operation, at approximately 99 percent power and Unit 2 was in Mode 5, Cold Shutdown, due to a steam generator tube leak.

4. EVENT DESCRIPTION:
On February 27, 2004 during an engineering review of the Safety Injection System (EIIS Code: BP) it was discovered that the TS required calibration of the shutdown heat exchanger temperature detectors had not been performed. The TS definition of a channel calibration states in part:

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A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel.

The surveillance test (ST) procedure used to satisfy the surveillance requirement did not include steps to perform the qualitative assessment of sensor behavior for the RTDs. Units 1 and 3 entered TSSR 3.0.3 which allows delayed entry into a Limiting Condition of Operation (LCO) required action when a surveillance requirement has not been performed within the specified frequency. TSSR requires a risk evaluation be completed and the risk managed. The risk evaluation was completed on February 27. Since Unit 2 was in Cold Shutdown, no entry into TSSR 3.0.3 was required.

The use of a qualitative assessment of sensor behavior to calibrate an RTD was incorporated into the TS in August 1998 when all three units implemented improved TS. Prior to the implementation of improved TS, the calibration definition did not allow for the qualitative assessment to be used for calibration of an RTD. The ST procedure in use prior to improved TS also did not include steps for the calibration of these RTDs.

It should be noted that the calibration of these RTDs was questioned in June of 1998 (CRDR 53722). The evaluation of the issue incorrectly concluded that periodic calibration of the shutdown cooling heat exchanger inlet and outlet RTD temperature elements is not required.

5. ASSESSMENT OF SAFETY CONSEQUENCES:

The surveillance test procedure was modified then successfully performed in each unit without any adjustment required

The failure to perform channel calibration of the SDC heat exchanger temperature sensors has no safety impact. The Remote Shutdown Panel is only credited for the Control Room Fire initiating event which results in reactor trip and stabilization in Mode 3,

utilizing the Remote Shutdown Panel instrumentation and controls. Initiation of SDC is not required for successful mitigation of the Control Room Fire event. The SDC heat exchanger temperature instruments are not credited in the At-Power PRA Model, for internal or external events.

In addition, Control Room indication of SDC heat exchanger temperatures from these instruments is normally utilized for events requiring SDC initiation. However, SDC heat exchanger temperatures are not required to align and initiate shutdown cooling. Information on bulk RCS temperature is available in the Control Room from various alternate sources including core exit thermocouples and heated junction thermocouples. RTDs normally fail as no-output, rather than drift, making a failed sensor readily identifiable.

This condition did not constitute a condition that would have prevented the fulfillment of a safety function as described by 10CFR50.73(a)(2)(V) and is therefore not a safety system functional failure.

6. CAUSE OF THE EVENT:

The condition is being investigated per the Palo Verde corrective action program. The direct cause of the condition is an inadequate surveillance testing procedure. The apparent cause of the deficient procedure is the lack of recognition by the procedure owner and engineering personnel that the RTDs required calibration before and after improved TS implementation.

No unusual characteristics of the work location (e.g., noise, heat, poor lighting) directly contributed to this event.

7. CORRECTIVE ACTIONS:

The surveillance test procedure was modified then successfully performed, without any adjustment required, in Unit 2 on March 4 and Units 1 and 3 on March 5, 2004.

The ST procedure for other TS required RTDs includes steps that perform a qualitative assessment of RTD performance.

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Any additional corrective actions taken as a result of the investigation of this event will be implemented in accordance with the APS corrective action program. If information is subsequently developed that would significantly affect a reader's understanding or perception of this event, a supplement to this LER will be submitted.

8. PREVIOUS SIMILAR EVENTS WITHIN THE LAST THREE YEARS:

LER 528/2001-005-00 reported a condition in which the log power safety channels were not adequately tested. In that instance, the reported cause was inadequate documentation of system design impact upon the time response testing requirements for the ex-core nuclear instrument system. The corrective actions for that condition would not have reasonably been expected to prevent the condition reported in this LER.

9. ADDITIONAL INFORMATION:

It should be noted that shutdown cooling system operation is not permitted in Mode 3 due to design limitations on the SDC system for temperature. Licensing personnel are evaluating removing the RTDs from the Remote Shutdown System TS.