



A subsidiary of Pinnacle West Capital Corporation

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102-06618-JJC/MAM/DCE  
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ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)  
Units 1, 2, and 3  
Docket No. STN 50-528, STN 50-529, and STN 50-530  
License No. NPF 41, NPF 51, and NPF 74  
Interim Part 21 Report for Flowserve Four Inch Regulating Valve**

Enclosed please find an interim report for an apparent deviation discovered on a Metrex Valve Corporation four inch regulating globe valve supplied and certified by Flowserve US, Inc. This report is being submitted pursuant to 10 CFR 21.21(a)(2).

In accordance with 10 CFR 50.4, copies of this notification are being forwarded to the NRC Regional Office, NRC Region IV and the Senior Resident Inspector. If you have questions regarding this submittal, please contact Mark McGhee, Operation Support Manager, Regulatory Affairs, at (623) 393-4972.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

JJC/MAM/DCE/hsc

Enclosure

cc: E. E. Collins Jr. NRC Region IV Regional Administrator  
L. K. Gibson NRC NRR Project Manager for PVNGS (electronic)  
M. A. Brown NRC Senior Resident Inspector for PVNGS

IEI9  
PRR

# **Enclosure**

**Interim Part 21 Report for Flowserve Four Inch  
Regulating Valve**

On September 12, 2012, Palo Verde Nuclear Generating Station (PVNGS) identified an apparent deviation in a basic component that could have adversely affected the safety-function of the PVNGS Essential Chilled Water System (EC).

PVNGS does not have sufficient information without the supplier's inspection of the component to determine whether a deficiency existed in the component in the "as-delivered" state or as a result of a vendor approved part substitution made on the delivered part by PVNGS prior to installation.

The part has been returned to the supplier for inspection to determine the cause of the malfunction.

Pursuant to 10 CFR 21.21(a)(2), the following information is provided related to the apparent deviation:

Description of the Deviation:

PVNGS installed a new refrigerant head pressure control valve (RHPCV) on the cooling water supply to the "B" train Essential Chilled Water System (EC) chiller. Specifically, the RHPCV regulates the condenser cooling water flow provided by the Essential Cooling Water System (EW) to maintain condenser refrigerant pressure within design requirements. PVNGS has two redundant EC trains required by Technical Specifications that provide cooling functions necessary to mitigate the consequences of analyzed accidents.

The RHPCV modulates over a range of positions from fully open to fully closed based on refrigerant pressure applied to the RHPCV actuator mechanism. RHPCV modulation controls the flow of cooling water (EW) through the chiller condenser to maintain a minimum refrigerant head pressure inside the chiller which prevents low refrigerant temperature trips during periods when the EW temperature is low concurrent with low EC system heat loads. The RHPCV closes in response to lower refrigerant pressure. The capability to fully close is needed to prevent trips of the EC chiller under concurrent low EW temperature and low EC system heat load conditions. The failure mode observed during the calibration activity could have prevented the fulfillment of the respective EC chiller's safety function under concurrent low EW temperature and low EC system heat load conditions.

During pre-installation activities on the RHPCV, PVNGS replaced the original bypass stem of the RHPCV in its delivered state with an approved alternative bypass stem kit provided by the vendor. The bypass stem feature permits adjustment of the RHPCV position by controlling metered bleed-off of actuator diaphragm differential pressure through the actuator internals. The approved alternative bypass stem kit contains a longer bypass stem that protrudes further from the body of the RHPCV and an

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adjustment knob that facilitates easier access for adjustment of valve position via the bypass stem.

During calibration activities after the RHPCV was installed, the RHPCV would not close beyond the 90% open position when the RHPCV control test pressure was removed. The apparent deviation is the RHPCV should have fully closed when the control test pressure was removed.

The new RHPCV was removed from the system. A previously installed, refurbished replacement RHPCV, which included a bypass stem replacement kit, was installed, successfully tested and placed into service.

An inspection of the valve internals by the supplier is required to provide sufficient information to determine whether:

1. Deviations existed in the RHPCV,
2. Deviations existed in the approved alternative bypass stem kit, or
3. The replacement activity damaged the RHPCV actuation mechanisms

The RHPCV has been shipped to and received by the supplier for inspection.

10 CFR 50 Appendix B Supplier and Components:

Supplier  
Flowserve US, Inc.  
1900 S SAUNDERS STREET  
Raleigh, NC 27603

Basic Components  
Metrex Corporation Four Inch Refrigerant Pressure Actuated Water Regulating  
Control Valve, Model MM3130B-11M  
Flowserve Part Number: 04002262

Metrex Corporation Alternative Bypass Stem Kit for Model MM3130B-11M  
Metrex Part Numbers 27M-245A, 1K5-14, 45M-744 and 4K1-50  
Flowserve Part Number: 04113854XXXXXXXX

The expected completion date of the evaluation is February 15, 2013.