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 LEVINE,J.M. Arizona Public Service Co. (formerly Arizona Nuclear Power
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SUBJECT: Special Rept 1-SR-93-002:on 930526,period for returning min
 number of explosive gas monitoring channels to operable
 condition exceeded.After all four cells rebuilt,calibr
 completed on 930602 & subj analyzer returned to svc.

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JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00848-JML/TRB/RJR
July 12, 1993

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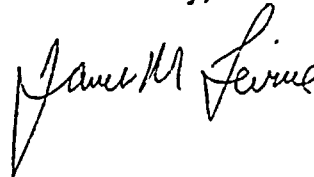
Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528(License No. NPF-41)
Special Report 1-SR-93-002
File: 93-020-404

Enclosed please find Special Report 1-SR-93-002 prepared and submitted pursuant to Technical Specifications 3.3.3.8 ACTION b. and 6.9.2. This report discusses the Gaseous Radioactive Waste Oxygen Analyzer being inoperable for a period greater than 30 days.

If you have any questions, please contact Thomas R. Bradish, Manager, Nuclear Regulatory Affairs, at (602) 393-5421.

Sincerely,

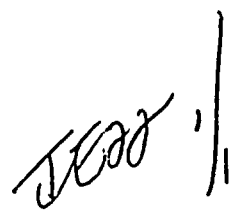


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Enclosure

cc: W. F. Conway (all with attachment)
B. A. Faulkenberry
J. A. Sloan
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PALO VERDE NUCLEAR GENERATING STATION UNIT 1

Gaseous Radioactive Waste Oxygen Analyzer Inoperable

License No. NPF-41

Docket No. 50-528

Special Report 1-SR-93-002

Initial Conditions

On May 26, 1993, Palo Verde Unit 1 was in MODE 1 (POWER OPERATION) operating at approximately 100 percent power.

Description of Event

This special report is being submitted pursuant to Technical Specification (TS) Limiting Condition for Operation (LCO) 3.3.3.8 ACTION b, and TS 6.9.2 to report an event in which the Gaseous Radioactive Waste Oxygen Analyzer was inoperable for a period greater than 30 days. The 30 day period for returning the minimum number of explosive gas monitoring channels to an OPERABLE condition was exceeded at approximately 0905 MST on May 26, 1993.

The oxygen analyzer has four available channels, and TS 3.3.3.8, Table 3.3-12 requires that a minimum of two channels be OPERABLE. The Gaseous Radioactive Waste Oxygen Analyzer samples the Gas Stripper, Holdup Tank, Gas Decay Tanks, Gas Surge Tank, and the Gas Surge Header. The analyzer's four detector cells (one per channel) monitor a selected gas stream and analyze it for oxygen. At a concentration of two percent, a high oxygen alarm sounds. At four percent a high-high oxygen alarm sounds and the Gaseous Radioactive Waste system is diluted with nitrogen. This prevents an explosive hydrogen and oxygen mixture from developing.

On April 26, 1993, two channels of the oxygen analyzer were OPERABLE when one of the channels "locked-up." "Lock-up" is a term used when the microprocessor, although energized, fails to execute its program instructions. At approximately 0905 MST, the "locked-up" channel was declared inoperable and removed from service. This left one channel of the analyzer OPERABLE. TS LCO 3.3.3.8, ACTION b, was entered. After the "locked-up" channel was removed from service, Plant Engineering support was requested. New backup batteries were installed in each channel which resolved the "lock-up" condition.

Prior to returning all channels to service, Plant Engineering determined that all the detector cells would be required to be rebuilt. A decision was made to complete the work on all four cells prior to returning the analyzer to service. Previously, two cells

would have been repaired and returned to service and the TS ACTION exited. Then the TS ACTION would have been re-entered and the remaining cells repaired. While the detector cells were being rebuilt, a hydrogen leak developed on the Main Generator. This caused some delay rebuilding the detector cells while available resources were used to restore the Main Generator to service. Rebuilding of the detectors was continued and calibration was started on May 24, 1993, when a wire in the analyzer broke. The wire was most likely broken during removal and installation of the back covers while calibrating the instrument. The wire was replaced on May 25, 1993, when calibration was delayed again by fitting leaks in the Gas Stripper piping. The leaks were repaired and the last analyzer cell was rebuilt and reinstalled on May 29, 1993. Calibration of all four cells was completed on June 2, 1993.

Cause of Event

There were several causes of the delay in returning the Gaseous Radioactive Waste Oxygen Analyzer to an OPERABLE status prior to the end of the LCO time limit. Previously, a decision had been made to return the analyzer to service with all four channels functioning. This was a different approach than what was done in the past where two channels would have been returned to service so the TS ACTION could be exited and the LCO time limit reset. Emergent work relating to the Main Generator hydrogen leak repair took priority over returning the oxygen analyzer to service. This shortened the repair time available to fix the analyzer before the LCO time limit was reached. Since all cells were being worked in stages, no two channels were available to return to service and reset the LCO time clock. When calibration of the analyzer was performed, additional required repairs (broken wire and Gas Stripper leaks) also added to the delay and the LCO time limit was exceeded.

Corrective Action

After all four cells were rebuilt, calibration was completed on June 2, 1993. The Gaseous Radioactive Waste Oxygen Analyzer was returned to an OPERABLE status at approximately 2222 MST with all four channels functioning.