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JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00608-JML/TDS/RKR
December 23, 1989

U. S. Nuclear Regulatory Commission
NRC Document Control Desk
Washington, D.C. 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. STN 50-530 (License No. NPF-74)
Supplement to Special Report 3-SR-89-006
File: 89-020-404

Attached please find Supplement Number 1 to Special Report 3-SR-89-006 prepared and submitted pursuant to Technical Specification 3.3.3.8 ACTION 42 and 6.9.2. This report discusses a radiation monitor inoperable for greater than 72 hours.

If you have any questions, please contact T. D. Shriver, Compliance Manager, at (602) 393-2521.

Very truly yours,

James M Levine

JML/TDS/RKR/kj

Attachment

cc: W. F. Conway (all w/a)
J. B. Martin
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A. C. Gehr

IE22
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PALO VERDE NUCLEAR GENERATING STATION

Radiation Monitoring Unit Inoperable for Greater Than 72 Hours

License No. NPF-74

Docket No. STN 50-530

Special Report No. 3-SR-89-006-01

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

At approximately 1155 MST on August 12, 1989, Palo Verde Unit 3 was in Mode 6 (REFUELING).

B. Reportable Event Description (Including Dates and Approximate Times of Major Occurrences):

Event Classification: Special Report submitted in accordance with ACTION 42.b of Technical Specification 3.3.3.8

This Special Report is being submitted pursuant to Technical Specification 3.3.3.8 ACTION 42.b and Technical Specification 6.9.2, to report an event in which the Fuel Building Ventilation System High Range Radioactive Gaseous Effluent Monitor RU-146 was inoperable for greater than 72 hours. The 72 hour limit for returning the monitor to an operable status was exceeded at approximately 1155 MST on August 12, 1989.

Prior to the event, at approximately 1155 MST on August 9, 1989, Radiation Monitors RU-145 (Fuel Building Ventilation System Low Range Radioactive Gaseous Effluent Monitor) and RU-146 were removed from service in accordance with an approved work document since their power supply was going to be deenergized for a planned electrical outage. Radiation Monitors RU-145 and RU-146 work as a pair with RU-145 being the low range monitor and RU-146 being the high range monitor. Normal configuration consists of RU-145 operating and RU-146 in standby. When RU-145 reaches a predetermined setpoint, RU-146 starts and RU-145 goes to standby. Since RU-145 and RU-146 work in tandem, both monitors must be declared inoperable if the other monitor is out of service. Pursuant to Technical Specification 3.3.3.8 ACTION 42.a, the Preplanned Alternate Sampling Program was initiated to monitor the Fuel Building Ventilation System.

The electrical outage was completed at approximately 2251 MST on August 11, 1989. At approximately 0400 MST on August 12, 1989, a functional test of RU-145 was in progress when Radiation Monitor RU-146 malfunctioned. At the time, RU-146 was in standby.

The Radiation Monitors RU-145 and RU-146 were returned to service at approximately 1650 MST on October 4, 1989.

C. Status of structures, systems, or components that were inoperable at the start of the event that contributed to the event:

Other than the Fuel Building Ventilation System Radioactive Gaseous Effluent Monitors RU-145 and RU-146, no structures, systems or components were inoperable which contributed to this event.

D. Cause of each component or system failure, if known:

The cause of the monitor RU-146 malfunction described in Section I.B was due to low power supply voltage at the flow transmitter which affects calibration of the flow transmitter. Radiation Monitors RU-142, RU-144, and RU-146 are designed to be powered by an AC or DC power source. APS uses a 24 VDC power supply for these monitors. There is a rectifier in the power supply circuit to convert AC supplied power to the 24 VDC used by the monitor. Troubleshooting of the monitor found that with a 24 VDC power supply input to the rectifier, the rectifier reduces the actual supply voltage to the monitor's flow transmitter. This provides marginal operating voltage for this design and affects calibration of the flow transmitter.

E. Failure mode, mechanism, and effect of each failed component, if known:

The malfunction of monitor RU-146 resulted in loss of the capability to monitor post accident radioactive effluents in the Fuel Building Ventilation System. The failure described in Section I.B was due to low power supply voltage to the flow transmitter affecting calibration of the flow transmitter.

F. For failures of components with multiple functions, list of systems or secondary functions that were also affected:

Not applicable - there were no failures of components with multiple functions.

G. For failures that rendered a train of a safety system inoperable, estimated time elapsed from the discovery of the failure until the train was returned to service:

Not applicable - there were no failures which rendered a train of a safety system inoperable.

H. Method of discovery of each component or system failure or procedural error:

The malfunction of RU-146 was discovered while performing a functional test of RU-145 as described in Section I.B.

I. Cause of Event:

See Section I.D for cause of event.

J. Safety System Response:

Not applicable - no safety system response was expected and none were received.

K. Failed Component Information:

RU-146 is manufactured by Kaman Sciences Corporation. It is model number KMG-HRH-SQN-RU-146.

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

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments are calculated and adjusted in accordance with the methodology and parameters in the Off-Site Dose Calculation Manual (ODCM) to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20.

There are two separate radioactive gaseous effluent monitoring systems: the low range effluent monitors for normal radioactive gaseous effluents and the high range effluent monitors for post-accident radioactive gaseous effluents. The low range monitors operate at all times until the concentration of radioactivity in the effluent becomes too high during post-accident conditions. The high range monitors only operate when the concentration of radioactivity in the effluent is above the setpoint of the low range monitors. Radiation Monitors RU-145 and RU-146 monitor the Fuel Building Ventilation Exhaust for release of activity due to a fuel handling accident. These monitors initiate a Fuel Building Essential Ventilation Actuation Signal (FBEVAS) when the activity exceeds a predetermined limit.

During the period of monitor inoperability, the Fuel Building Ventilation Exhaust is being monitored in accordance with the Preplanned Alternate Sampling Program. No fuel movement occurred. There have been no fuel handling accidents requiring operation of RU-146. Thus, there is no impact on the health and safety of the public.

III. CORRECTIVE ACTIONS:

The Fuel Building Ventilation System Radioactive Gaseous Effluent Monitors RU-145 and RU-146 were declared inoperable. The Preplanned Alternate Sampling Program was initiated.

A site modification was developed which bypasses the rectifier in the power supply circuit for radiation monitors RU-142, RU-144, and RU-146. This site modification has been completed in Units 2 and 3. Unit 1 will complete the site modification prior to startup from the current outage.