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SUBJECT: Special Rept 2-SR-87-025: on 871002, radiation monitoring unit RU-142 declared inoperable for greater than 72 h. Caused by intermittent fluctuations occurring in CPU board reset switch. Monitors declared operable & returned to svc.

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192-00295-JGH-TRB/KCP
October 29, 1987

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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 2
Docket No. STN 50-529 (License NPF-51)
Special Report 2-SR-87-025
File: 87-020-404

Attached please find Special Report 2-SR-87-025 prepared and submitted pursuant to Technical Specifications 3.3.3.8 and 6.9.2. This report discusses a radiation monitor that was inoperable for greater than 72 hours.

If you have any questions, please contact T. R. Bradish, Compliance Supervisor at (602) 393-3531.

Very truly yours,

J. G. Haynes
Vice President
Nuclear Production

JGH/TRB/KCP/cld

Attachment

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PALO VERDE NUCLEAR GENERATING STATION

RADIATION MONITORING UNIT INOPERABLE FOR GREATER THAN 72 HOURS

License No. NPF-51

Docket No. STN 50-529

Special Report No. 2-SR-87-025

This Special Report is being submitted in accordance with Technical Specification (T.S.) 3.3.3.8 ACTION 42(b) and 6.9.2 to report an event in which a high range noble gas monitor (RU-142) was inoperable for greater than 72 hours. The 72 hour limit for inoperability was exceeded at approximately 0835 MST on October 5, 1987.

At approximately 0835 MST on October 2, 1987 Palo Verde Unit 2 was in Mode 1 (POWER OPERATION) at 100 percent power when the Condenser Vacuum Pump/Gland Seal Exhaust Low and High Range Monitors (RU-141/142) were declared inoperable to permit surveillance testing under 36ST-9SQ04, "Radiation Monitoring Quarterly Functional Check". Compensatory measures were established in accordance with T.S. 3.3.3.8, ACTIONS 36, 37, 40 and 42, and T.S. 3.11.2.1.

During the surveillance test, the skid-mounted indication and control unit (SMIC) for RU-142 displayed several incorrect values, preventing successful completion of the test. An investigation was subsequently conducted under an approved work document to determine the cause of failure and to implement appropriate corrective action. The RU-141/142 monitor pair remained inoperable as noted above.

RU-141 and RU-142 monitor for gaseous activity resulting from primary-to-secondary system leakage by continuously and isokinetically sampling the condenser vacuum pump/gland seal exhaust for airborne radioactive particles and iodine. These monitors work as a pair, with RU-141 as the low range monitor and RU-142 as the high range monitor. RU-141 provides automatic initiation of filtration of condenser vacuum pump/gland exhaust whenever the monitor is in a HIGH-HIGH alarm condition. Normal configuration consists of RU-141 operating and RU-142 in standby. Since RU-141 and RU-142 work in tandem, RU-142 must be declared inoperable if RU-141 malfunctions. RU-142 contains 5 channels, with Channel 1 as the mid-range channel and Channel 2 as the high range channel. Channels 3, 4 and 5 are shielded particulate/I-131 cartridges. A small G-M tube determines when a cartridge is sufficiently irradiated and automatically switches flow to the next cartridge. Upon initialization of RU-142, Channel 1 is operating with Channel 2 in standby, and Channel 3 is open with Channels 4 and 5 closed.

The investigation determined that intermittent fluctuations were occurring in the 5.0 VDC initialization voltage across the CPU board reset switch (SW1). When simulating conditions in which Channel 3 was to be off-line and Channel 4 on-line, these fluctuations caused the monitor to reset, placing Channel 3 on-line and Channel 4 off-line. These fluctuations were due to the CPU board being improperly seated. Additionally, the SMIC display board was found to contain a faulty LED which would not change value. To correct these conditions, the CPU board was reseated and verified to maintain the correct voltage across the CPU board reset switch, and the SMIC display board was replaced.

At approximately 1520 MST on October 5, 1987, RU-141/142 were declared operable and returned to service after satisfactory completion of surveillance testing under 36ST-9SQ04 and 75ST-9ZZ07, "Effluent Monitoring System Daily Surveillance Testing." The monitors were inoperable for approximately 79 hours.