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SUBJECT: Provides history of process radiation monitor RT-204 as
 monitor relates to Unit 2 license condition & current status D
 of open startup test issue for monitor.Until monitor S
 replaced,portable monitoring instrumentation will be used.

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161-04180-WFC/JMQ

September 25, 1991

Docket Nos. STN 50-528/529/530

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-37
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- References: A) Letter from E. E. Van Brunt, APS to G. W. Knighton, U. S. Nuclear Regulatory Commission, ANPP-34129, "Justification for Interim Operation Related to the Radiation Monitors," dated November 29, 1985
- B) Letter from E. E. Van Brunt, APS to G. W. Knighton, U. S. Nuclear Regulatory Commission, ANPP 36152, "License Condition 2.C.(1).8," dated April 15, 1986
- C) Letter from J. G. Haynes, APS to U. S. Nuclear Regulatory Commission, Document Control Desk, '161-00290-JGH, "Startup Report Supplement 2," dated June 18, 1987

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Process Radiation Monitor RT-204
File: 91-131-419; 91-056-026

This letter provides the history of the Process Radiation Monitor (PRM) RT-204 as it relates to the Unit 2 License Condition and the current status of the open startup test issue for PRM RT-204.

Arizona Public Service Company (APS) committed in Reference A to have RT-204 operable by initial criticality. This was a Unit 2 low power and full power (NPF-46 and NPF-51, respectively) License Condition. Reference B defined the term "operable" for non-technical specification monitors, such as RT-204 as ". . . the monitors have successfully completed preoperational tests and the monitors have been placed in service." RT-204 has successfully completed its preoperational test and via a Calibration Work Order, the monitor was energized, calibrated, setpoints entered, and the monitor isolation valves were opened by May 1, 1986. The completion of the preoperational test and Calibration Work Order is necessary to consider the monitor capable of performing its intended function or meeting the term "placed in service."

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Reference C stated that the operation of the PRM in Unit 2 was not verified during Power Ascension Testing, and provided several commitments, some of which were to be implemented by the first refueling outage for Unit 2. These commitments were to: 1) repair the check valve associated with the PRM during the first planned outage; 2) conduct a design review of the subject PRM, and implement any modifications identified by the design review during the Unit 2 refueling outage; 3) test the PRM in accordance with CESSAR, Section 14.2.12.5.5, and 4) submit a summary report to the NRC following the satisfactory completion of the testing of the PRM.

APS has addressed the commitments in the referenced letter as follows:

- 1) The check valve, which provides bypass around the reactor coolant sample line, was repaired because it prevented the proper amount of flow from reaching the PRM. The low flow resulted in increasing plate out of antimony and other activated corrosion products on the PRM sample tube walls, thereby increasing the background count rate and degrading the monitor sensitivity. However, this repair did not return the monitor to proper functioning status.
- 2) A number of modifications were pursued to make the PRM functional. Examples of these modifications included adjusting the detector mounting bracket, reducing the sample volume measured by changing the sample tubing size on the detector skid, balancing the flow rate through the sample system by repairing the check valve, and evaluating the use of a smaller detector crystal in order to desensitize the monitor. These modifications were attempted during the first two refueling outages, but proved unsuccessful in meeting the full functional requirements of the monitor.
- 3) Because the PRM has not yet been replaced, testing in accordance with CESSAR Section 14.2.12.5.5, will be performed after replacement.
- 4) A summary report will be submitted following the satisfactory completion of the testing of the PRM.

The PRM is designed to provide information on both the long-term trends and rapid changes in the level of radioactivity in the reactor coolant. The monitor is used to provide a qualitative indication of reactor coolant activity and provide early detection of fuel cladding failure. The PRM is utilized during normal plant operations (Mode 1) only. It is not required per the Technical Specifications or Regulatory Guide 1.97.

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Since the modifications to make the PRM operable were unsuccessful, APS plans to replace the PRMs in the three units during future refueling outages, beginning with the Unit 3 third refueling outage in 1992 (The PRM will be installed in Unit 3 during the third refueling outage, but will not be fully functional until the fourth refueling outage. This is to ensure that all areas of potential concern have been thoroughly examined.), the Unit 2 fourth refueling outage in 1993, and the Unit 1 fourth refueling outage in 1993.

As compensatory action, until the subject monitor is functional, APS will use portable radiation monitoring instrumentation to qualitatively assess changes in fuel integrity. These monitors will provide annunciation and continuous indication in the control room, and will satisfy the general functional requirement of assessing fuel integrity as described in the UFSAR. However, the same monitors are also used as part of the Pre-planned Alternate Sampling Program (PASP) and for area monitor detector calibrations. Therefore, in the unlikely event that the portable monitor is required for the PASP or detector calibrations, it may be temporarily removed from monitoring letdown activity. The portable radiation monitoring instrumentation was installed on August 30, 1991.

NUREG-0401 states, "Experience from operating reactors has not identified any event or mechanism that might give rise to sudden failures of large numbers of fuel elements during normal operation." NUREG-0401 further states, "... a sensitive fuel failure detection system with a modest response time, along with the other more rapid primary system sensors that would detect accident conditions, are adequate to give an early warning under almost all circumstances and allow a timely response to degrading fuel conditions."

Therefore, based on NUREG-0401, the compensatory measures and corrective actions for the PRM are justified.

If you should have any questions or require additional information, please contact Michael E. Powell of my staff at (602) 340-4981.

Sincerely,



WFC/JMQ/jmq

cc: J. B. Martin
D. H. Coe
A. C. Gehr
A. H. Guterman

