

**Omaha Public Power District**  
1625 Harney Omaha, Nebraska 68102-2247  
402/536-4000

April 16, 1990  
LIC-90-0298

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

- References:
1. Docket No. 50-285
  2. Letter OPPD (K. J. Morris) to NRC (Document Control Desk) dated February 7, 1989 (LIC-89-161)
  3. Letter OPPD (K. J. Morris) to NRC (Document Control Desk) dated February 23, 1989 (LIC-89-227)
  4. Letter OPPD (K. J. Morris) to NRC (Document Control Desk) dated March 17, 1989 (LIC-89-246)
  5. Letter OPPD (K. J. Morris) to NRC (Document Control Desk) dated May 23, 1989 (LIC-89-447)
  6. Letter OPPD (K. J. Morris) to NRC (Document Control Desk) dated August 31, 1989 (LIC-89-772)

Gentlemen:

SUBJECT: Special Report on Past Inoperability of Wide Range Noble Gas Stack Monitor RM-063H for Post-Accident Monitoring

The Omaha Public Power District (OPPD) submits this report pursuant to the requirements of Fort Calhoun Station Technical Specification 2.21, "Post-Accident Monitoring Instrumentation." Technical Specification 2.21, Table 2-10, Item 2, requires that a minimum of one channel for each wide range noble gas stack monitor RM-063L, RM-063M and RM-063H be operable in Modes 1, 2 and 3. If the number of operable channels is less than the minimum operable channels requirement, OPPD must restore the inoperable channels to operable status within seven days of the event, or prepare and submit a special report to the Commission pursuant to Technical Specification 5.9.3 within 14 days following the event.

References 2 through 6 discussed the inoperability of RM-063H from February 7, 1989 to December 13, 1989 due to equipment and calibration problems. During this inoperable period, a discrepancy was discovered between the field equipment and design drawings that rendered RM-063H functionally inoperable since it had been installed in the Fort Calhoun Station in 1983. This Special Report is being submitted to notify the NRC of the past inoperability of RM-063H. The Fort Calhoun Station is presently in a refueling outage that began February 17, 1990.

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The discrepancy discovered was approximately 2/3 of an inch of lead in the lead sampling plug sensing window. This sensing window is shown as being open in the original design drawings. The sensing window was designed to pass an unshielded portion of the ventilation stack sample stream by the radiation monitor detector.

The low and medium range Radiation Monitor detectors, RM-063L and RM-063M, were not affected by this event. Therefore, the Fort Calhoun Station still had the ability to monitor up to a concentration of 1E2 microCuries/cc in the event of an accident involving the release of radioactivity through the ventilation stack. The Fort Calhoun Station also had alternate methods of monitoring the stack during the time period that RM-063H was functionally inoperable.

A root cause analysis was performed on this event and found that the cause of the lead being in the sensing window was due to an original manufacturing defect. The reason why the lead was not detected earlier was due to performing secondary source calibrations, which does not check the installed sensitivity of the radiation monitor, for the first three years and problems that were encountered during the performance of two primary calibrations. The problems encountered during the past two primary calibrations were with determining the actual radioactive concentration of the sample being used for the primary calibration and spurious electrical interference which simulated the detector response to the primary radioactive gas. Both of these problems were corrected prior to returning RM-063H to service in December of 1989.

RM-063H was originally designed to detect radioactive Xenon-133 gas between a concentration of 1E1 and 1E5 microCuries/cc. On February 20, 1990 a calculation was performed to determine what the sensitivity of RM-063H was with the lead in the sensing window. The calculation showed that RM-063H would not begin detecting radioactive gases until a concentration of approximately 1E13 microCuries/cc equivalent Xenon-133 was reached. Therefore, RM-063H was determined to be functionally inoperable since it failed to meet its original design criteria. A 10CFR21 evaluation was not performed on this equipment because RM-063H is non CQE and per the vendor, the configuration of the monitors supplied is unique to OPPD.

RM-063L, M, and H performed satisfactorily from when it was returned to service on December 13, 1989 until the Fort Calhoun Station entered mode 4 on February 20, 1990 on its way down for its thirteenth refueling outage. Operability of RM-063H is not required in modes 4 and 5.

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If you should have any questions, please contact us.

Sincerely,

*W. G. Gates*

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Division Manager  
Nuclear Operations

WGG/pjc

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