

**GPU Nuclear**  
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 U.S. NUCLEAR  
 REGULATORY COMMISSION

TMI Program Office  
 Attn: Mr. L. H. Barrett, Deputy Program Director  
 US Nuclear Regulatory Commission  
 c/o Three Mile Island Nuclear Station  
 Middletown, PA 17057

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)  
 Operating License No. DPR-73  
 Docket No. 50-320  
 Reactor Building Airborne Monitoring

In response to NRC letter NRC/TMI-82-042 dated July 6, 1982, GPU has reviewed the present Reactor Building airborne monitoring capabilities and the possible upgrading of these systems.

The systems presently in place at TMI-2 for monitoring Reactor Building airborne conditions include:

1. Prior to allowing general work in the Reactor Building, a grab air sample is collected and analyzed at the beginning of each entry.
2. All personnel working in the Reactor Building are equipped with breathing zone air samplers.

GPU has reviewed the possibility of installing an interim airborne monitoring system in the Reactor Building Purge Exhaust System upstream of the HEPA filters as suggested in NRC letter NRC/TMI-82-042. Based on this review, the following conclusions were reached:

1. The system will not provide the capability to monitor the atmosphere in local work areas.
2. The system will not, in general, provide early detection of local

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airborne problems because:

- a. The exhaust duct inlet is inside the "B" D-ring and samples other areas only via atmospheric mixing, and
- b. The maximum flow rate for the exhaust duct is 25,000 cfm. At this rate, and based on a containment volume of 2,000,000 ft<sup>3</sup>, the building ventilation exchange time is in excess of one hour. Thus, the response time for many areas in the building will be substantial.

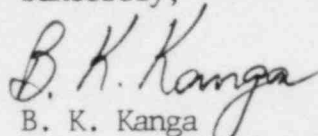
As an alternative to isokinetic sampling from the Reactor Building Purge Exhaust System, GPU is proceeding with a method to provide monitoring of local work areas using Constant Air Monitors (CAM).

Presently we are exploring the possibility of modifying an Eberline AMS-3<sup>TM</sup> CAM. The advantages of this unit are that it is relatively inexpensive, has a stripchart recorder, has a background subtract mode, and is readily available from the vendor. Because of the instrument design, however, there is a concern that it may not operate well in a high background. Laboratory tests which have been performed indicate that if the top of the instrument is properly shielded the "background subtract" mode will function well in background radiation fields up to 300 mR/hr. An AMS-3 CAM is being prepared for testing in the Reactor Building. The tests and results should be completed by September 10, 1982.

We anticipate that a satisfactory system for providing Constant Air Monitoring in the Reactor Building will consist of several units on the 305' and 347' elevations. The units will be made portable in order to provide flexibility. Pending favorable test results, the necessary number of CAMs will be purchased by December 1, 1982, and will be installed by January 4, 1983.

We will keep you informed on progress in this area.

Sincerely,

  
B. K. Kanga  
Director, TMI-2

BKK/JJB/jep

CC: Dr. B. J. Snyder, Program Director - TMI Program Office