



NUCLEAR REACTOR LABORATORY
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J. A. BERNARD, JR.
Director of Reactor Operations

December 8, 1995

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

Subject: Response to NRC Request for Additional Information Dated September 8, 1995
Regarding Amendment To Facility Operating License No. R-37, Docket No. 50-20, on
"Surveillance Frequency Requirement for Testing of the Emergency Battery."

Gentlemen:

The Massachusetts Institute of Technology (MIT) hereby submits this letter in response to the NRC Request for Additional Information dated September 8, 1995 to amend MITR Technical Specification #4.3.5 of Facility Operating License No. R-37.

Sincerely,

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cc: A. Adams, - NRC
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Response to NRC Request for Additional Information Dated September 8, 1995

Massachusetts Institute of Technology Research Reactor
Docket No. 50-20

The following addresses the three questions that were raised in the September 8, 1995 NRC correspondence:

Response to Question #1. We agree with the NRC recommendation to change the surveillance frequency of the emergency battery discharge test from the current "once every two years" to "once every year." MITR internal procedures call for an emergency battery discharge test be performed annually. This approach has the advantage of verifying the operability of the entire emergency battery system once a year. Accordingly, it is proposed that TS #4.3.5 in Appendix A of Facility Operating License No. R-37 be amended to read:

5. The voltage of the emergency batteries shall be measured weekly whenever the reactor is scheduled to operate any day of that week. The voltage and specific gravity of one cell shall be measured monthly whenever the reactor is scheduled to operate any day of that month. Specific gravity of all batteries shall be measured at any time a significant change is noted in the pilot cell and at least once a year. Discharge tests shall be performed once a year. Operability of the inverter motor-generator set and associated switches shall be verified quarterly.

For your convenience, we have underlined the words that change the surveillance frequency of the discharge test which includes measurement of the specific gravity on all batteries to be performed annually.

Response to Question #2. As explained in the response to the third question below, failure of the emergency battery to operate upon demand has no impact on safety. MITR Technical Specification #3.7 item #3 states that "Emergency power with the capacity to operate the equipment listed in Table II shall be available whenever the reactor is operating and shall be capable of operation for at least one hour following a loss of normal power to the facility." Thus the requirement for the emergency battery to be operable is only meaningful for those situations in which the reactor is at power or has been at power within the last hour. Therefore, there is no real need for performance of a surveillance test to verify operability of the emergency battery for the time periods in which the reactor is not scheduled to be at power. It will be sufficient to perform such tests (battery voltage and specific gravity measurement of the pilot cell) prior to reactor operation and at least once monthly. Moreover, as noted in the response to Question #3 below, the emergency battery is not necessary for either personnel or reactor safety..

Response to Question #3. There is no safety significance should the emergency battery fail to operate when called upon. Two issues are involved: personnel safety and reactor safety. The former is addressed through the use of battery-operated emergency lights that are located throughout the reactor building and through the use of battery-operated portable radiation detectors that could be used to identify radiation hazards if any. The latter is addressed through the design of the reactor which provides sufficient natural circulation for the removal of decay heat following an extended period of operation at full power. Forced circulation through the reactor core is not required when the reactor is shutdown. Tests were conducted that demonstrated the adequacy of the natural circulation for decay heat removal as part of the MITR Startup Testing in 1973-74. Details were previously provided to the NRC (MITR Startup Report, Section #5.11.2). A copy of the relevant pages is attached