

**NUCLEAR REACTOR LABORATORY**  
AN INTERDEPARTMENTAL CENTER OF  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY



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J. A. BERNARD, JR.  
Director of Reactor Operations

February 17, 1995

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attn: Document Control Desk

Subject: Reportable Occurrence 50-20/1995-1, Operation for One Week Without  
Documenting Required Testing Results of Emergency Battery

Gentlemen:

The Massachusetts Institute of Technology hereby submits this report of an occurrence at the MIT Research Reactor (MITR). An initial report was made to Mr. Thomas F. Dragoun (NRC Region I), who was on-site inspecting the facility, at 1430 and by telephone to NRC Headquarters, Mr. Alexander Adams, Jr. at 1438 on February 6, 1995.

The format and content of this report are based on Regulatory Guide 1.16, Revision 1.

1. Report No.: 50-20/1995-1
- 2a. Report Date: 17 February 1995
- 2b. Date of Occurrence: 6 February 1995
3. Facility: MIT Nuclear Reactor Laboratory  
138 Albany Street  
Cambridge, MA 02139
4. Identification of Occurrence:

Documentation for the voltage and specific gravity measurements of a cell of the emergency battery bank was recorded at less than the specified weekly surveillance requirement in Technical Specification #4.3.5.

5. Conditions Prior to Occurrence:

The original emergency battery bank and support rack were replaced with a new battery bank and support rack on January 13, 1995. Prior to the replacement, the voltage and specific gravity of the pilot cell of the battery bank were measured and documented daily. When the new battery bank was installed, it was noted that the manufacturer recommended a monthly test for these parameters. Moreover, a

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more frequent test of these parameters was not recommended because it could result in damage to the battery bank as a result of potential acid spill and frequent removal of battery cell protective cap for the test. It was therefore decided to change the test frequency from daily to monthly in accordance with the manufacturer's recommendation. A temporary revision of PM 3.5, "Daily Surveillance Check" was instituted.

6. Description of Occurrence:

The new battery system was installed on January 13, 1995. The voltage and specific gravity on each battery cell were measured and all other necessary tests were performed and documented on January 16, 1995, according to the post-installation and pre-operational test procedures. Those parameters were also measured and documented almost daily thereafter because the battery acid levels were still equilibrating. This practice continued until January 23, 1995 when acid levels in all cells stabilized. Following that date, such measurements were performed every other day to verify the stabilization. However, because of the revision of PM 3.5, no documentation of such measurements was made until February 6, 1995. According to the MIT Reactor's Technical Specification #4.3.5, documentation of such measurements is to be made weekly, which in this case translated to no later than February 1, 1995. (Note: This date is derived based on Technical Specification #1.27(a) which states that: "Each required surveillance test or other function shall be performed within the specified time interval with a maximum allowable extension not to exceed 25% of the specified surveillance interval, unless otherwise stated in these Technical Specifications.")

7. Description of Apparent Cause of Occurrence:

The MIT Research Reactor's Technical Specification (TS) #4.3.5 states that: "The voltage of the emergency batteries and the voltage and specific gravity of one cell shall be measured weekly." The battery manufacturer recommended against a less-than-monthly test frequency because of the damage potential to the battery system as a result of the measurement when acid could spill and also the necessity to remove the protective cap of the battery cell each time a test is performed. That recommendation was accepted. Much attention was placed on designing procedures to perform the test safely and on a monthly basis. As a result, the weekly test requirement was overlooked.

8. Analysis of Occurrence:

This occurrence involved failure to document the measurement results of the voltage and specific gravity of a cell within the specified surveillance time as defined by the MIT Reactor's Technical Specifications. The measurement itself was in fact performed every other day. However, the results were not documented until one day after the maximum allowable extension of specified surveillance time interval. There was no challenge to the emergency battery system. Accordingly, there was no safety significance to this occurrence.

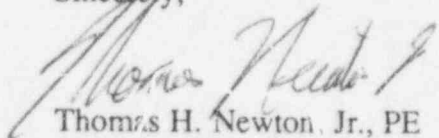
9. Corrective Action:

A request to NRC for an amendment to Facility Operating License No. R-37 to modify the surveillance frequency requirement from weekly to monthly is being prepared. In the meantime, measurements of the voltage and specific gravity of one cell (pilot cell) will continue to be performed and documented weekly until the Technical Specification amendment is received from NRC. Measurements (and documentation) of the voltage of the emergency battery bank will continue to be performed daily.

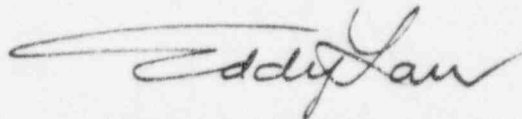
10. Failure Data:

None.

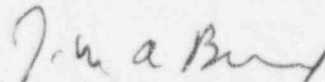
Sincerely,



Thomas H. Newton, Jr., PE  
Asst. Superintendent for Operations  
MIT Research Reactor



Edward S. Lau, NE  
Asst. Superintendent for Engineering  
MIT Research Reactor



John A. Bernard, Ph.D.  
Director of Reactor Operations  
MIT Research Reactor

EL/gw

cc: MITRSC

USNRC - Senior Project Manager,  
NRR/ONDD

USNRC - Region I - Project Scientist,  
Effluents Radiation Protection Section (ERPS)  
FRSSB/DRSS