

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 10 TO LICENSE NO. R-37

CHANGE NO. 13 TO THE TECHNICAL SPECIFICATIONS

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

DOCKET NO. 50-20

A. Introduction

On March 6, 1973 the Commission published in the Federal Register (38 F.R. 6096) a Notice of Proposed Issuance of Construction Permit and Amended Facility Operating License for the Massachusetts Institute of Technology (MIT) Research Reactor which is located on the MIT campus in Cambridge, Massachusetts. On April 9, 1973, Construction Permit No. CPRR-118 was issued to MIT. The March 6, 1973 Notice of Proposed Issuance stated that, "Upon completion of the modifications to the reactor in compliance with the terms and conditions of the construction permit and the application, as amended, and in the absence of good cause to the contrary, the Commission will issue to MIT (without prior notice) an amended Class 104a. and c. facility license authorizing operation of the reactor at power levels up to 5 megawatts (thermal) . . .".

Representatives of the Commission have inspected the facility and have found that construction has been completed in accordance with the application for a license. Since no significant changes have been made to the facility as described in the application, the conclusions of our Safety Evaluation (SE) of February 23, 1973, still apply. Subsequent to the issuance of our February 23, 1973 SE, we have reviewed and approved the applicants Physical Security Plan for the facility and Reactor Operator Requalification Program.

The MIT Research Reactor (MITR) was licensed for initial steady state operation at 1 MWT in 1958, for operation at 2 MWT in 1961 and for 5 MWT in 1965. The Construction Permit was issued for reactor modification on April 9, 1973, but because of delays in component procurement, the reactor was not shutdown for modification until May 24, 1974.



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Appendix D

Power History for MITR-II Startup Testing: August 1975 – April 1976

<u>Date</u>	<u>Power Level/Activity</u>
08/14/75	Initial criticality of MITR-II.
08/15/75 - 11/21/75	Intermittent operation at ≤ 500 W.
11/25/75	First operation at 50 kW (~6 hours).
11/26/75	First operation at 90 kW (~1.5 hours).
12/01/75	Brief operation at ≤ 50 kW.
12/02/75	Stepwise power increase to 400 kW.
12/03/75	First operation at 1 MW (5 minutes).
12/04/75	Performance of thermal power calibration at 1 MW (6.75 hours).
12/05/75 - 12/21/75	Intermittent operation culminating in operation at 4 MW for 3 hours on 12/21/75.
12/21/75 - 01/05/76	Intermittent operation at ≤ 4 kW.
01/06/76 - 01/08/76	Continuous operation at 1 MW (46 hours).
01/08/76 - 01/12/76	Intermittent operation at ≤ 40 kW.
01/13/76 - 01/14/76	Continuous operation at 2.5 MW (27 hours).
01/15/76 - 01/19/76	Intermittent operation at ≤ 4 kW.
01/20/76 - 02/06/76	Intermittent operation at 2.2- 2.5 MW (~182 hours).
02/07/76 - 03/08/76	Reactor shut down for core reconfiguration.
03/09/76	Initial criticality of reconfigured core.
03/10/76 - 03/24/76	Intermittent operation at ≤ 50 kW.
03/25/76 - 03/26/76	Stepwise power increase culminating in operation at 1 MW for 3 hours.
03/27/76 - 04/02/76	Intermittent operation at ≤ 1 MW (~81.8 hours).

Power History for MITR-II Startup Testing: August 1975 – April 1976 (cont.)

<u>Date</u>	<u>Power Level/Activity</u>
04/02/76 - 04/04/76	Intermittent operation at \leq 100 W.
04/05/76 - 04/07/76	Stepwise power increase to 2.5 MW.
04/08/76 - 04/09/76	Continuous operation at \leq 2.5 MW (37.25 hours).
04/10/76 - 04/13/76	Intermittent operation at \leq 500 W.
04/14/76	Stepwise power increase to 2 MW.
04/15/76	Reactor available for routine operation at \leq 2.5 MW.