



# MIT NUCLEAR REACTOR LABORATORY

AN MIT INTERDEPARTMENTAL CENTER

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

Subject: Submission of Low Enriched Uranium (LEU) Conversion Preliminary Safety Analysis Report (PSAR) for the MIT Research Reactor (MITR), Docket 50-20, License R-37

The Massachusetts Institute of Technology (MIT) hereby submits for review and comment the attached Preliminary Safety Analysis Report (PSAR) for the conversion of the Massachusetts Institute of Technology Reactor (MITR-II) from HEU to LEU reactor fuel. The report follows the recommended format and content from the NRC codified in NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-power Reactors," Chapter 18, "Highly Enriched to Low-Enriched Uranium Conversions." The emphasis in any conversion SAR is to explain the differences between the LEU and HEU cores and to show the acceptability of the new design; there is no need to repeat information regarding the current reactor that will not change upon conversion. Hence, as seen in the report, the bulk of the PSAR is devoted to Chapter 4, Reactor Description, and Chapter 13, Safety Analysis.

Please note that MIT is not prepared to convert the MITR-II at this time. The proposed replacement reactor fuel has not been qualified by DOE or approved by NRC for use as a reactor fuel.

Sincerely,

Al Queirolo  
Director of Reactor Operations  
MIT Research Reactor

Lin-wen Hu, Ph.D.  
Director, Research and Services  
MIT Nuclear Reactor Laboratory

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 6, 2017  
Date

Signature

Cc: USNRC – Senior Project Manager  
Research and Test Reactors Licensing Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

USNRC – Senior Reactor Inspector  
Research and Test Reactors Oversight Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

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