



MIT NUCLEAR REACTOR LABORATORY

AN MIT INTERDEPARTMENTAL CENTER

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

Attn.: Document Control Desk

Subject: Emergency Plan, 10 CFR 50.54(q)(5), Docket No. 50-20, Facility License R-37

The Massachusetts Institute of Technology submits herewith a revision to the previously-approved "Emergency Plan and Procedures" in accordance with 10 CFR 50.54(q)(5).

All of the changes were reviewed and approved by the MIT Reactor Safeguards Committee on 14 December 2020, and were determined to cause no decrease in the effectiveness of the plan. The plan, as changed, continues to meet the requirements in Appendix E of 10 CFR 50. It was implemented on 19 May 2021.

Sincerely,

Edward S. Lau, NE
Assistant Director of Reactor Operations
MIT Research Reactor

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

Executed on 05/28/2021
Date

Signature

EL/st

Enclosure: As stated

- cc: USNRC – Senior Project Manager
Research and Test Reactors Licensing Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation
- USNRC – Senior Reactor Inspector
Research and Test Reactors Oversight Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

AX45
AD20
NRR

Safety Review Form No. 2019-33

Item: Emergency Plan and Procedures

Submitted by John Foster Date 10/07/19

Q/A number (required for all equipment changes) _____

	<u>Yes*</u>	<u>No</u>
Does the item change or contradict the Technical Specifications?	—	<u>X</u>
Does the item contradict the SAR?	—	<u>X</u>

*Attach explanation

Description of Change (Attach extra pages if necessary):
See attached sheets.

Safety Evaluation (Attach extra pages if necessary):
See attached sheets

Summary of Review:

	<u>Yes</u>	<u>No</u>
a) Does the proposal:		
i) require a license amendment (10CFR50.59(c)(2))	—	<u>X</u>
ii) decrease scope of requalification program (10CFR50.54(i-1))	—	<u>X</u>
iii) decrease effectiveness of security plan (10CFR50.54(p))	—	<u>X</u>
iv) decrease effectiveness of emergency plan (10CFR50.54(q))	—	<u>X</u>

b) Reviewer's Comments:

Reviewer Sarah Don (Sarah Don) Date 12/7/2020

Reviewer Frank Warmstey III Date 12/08/2020

Reviewer W.B. McCarthy (W.B. McCarthy) Date 12/7/2020
(Reactor Radiation Protection Officer)

Approved J. Foster (J. Foster) Date 12/8/2020
(Director of Reactor Operations)

Date of MITRSC approval if required 12/14/2020 Date of NRC approval if required N/A

List of Communications containing MITRSC additional conditions:

10 CFR 50.59 & 50.54 (p and q) changes included in Annual Report to NRC, Fiscal Year _____

Safety Review # 2019-33 – Emergency Plan and ProceduresDescription of Change

This Safety Review adds signature lines for each step of the Emergency Procedures as well as areas to include data as it is collected. Some data readings were not included as they are better represented by updating survey maps as appropriate. Some lengthy procedure steps were broken down into multiple steps for easier implementation during an emergency. All procedures were updated to include reference to all three Emergency Support Centers (ESC) to be consistent with the Emergency Plan.

The MIT Security and Emergency Management Office has been split into two functional groups. The Emergency Plan and implementing procedures will now reference MIT Emergency Management. The NRL's emergency communication channel is through the MIT Police. The MIT Police will provide communications to MIT Emergency Management who will in turn notify MIT officials, government and local agencies (other than the NRC), and initiate any campus wide alerts as coordinated through the NRL.

Safety Evaluation

The Emergency Plan was reviewed to the latest guidance per ANSI/ANS 15.16-2015 and Regulatory Guide 2.6, Rev 2, 2017 and found to be in compliance. These changes are mostly administrative in nature and therefore do not reduce the effectiveness of the Emergency Plan or Procedures. The communication channels are very clear and handled by personnel accustomed to such scenarios. The use of sign-offs for each procedural step allows for increased tracking during an emergency where many distractions could occur.

Evaluation of SR# 2019-33 under 50.59 Requirements

The licensee must obtain a license amendment if the change, test, or experiment would:

- 1) **result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the safety analysis report (SAR):** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure revision will result in less than a minimal increase in the frequency of occurrence of an accident previously evaluated in the SAR since the changes are within the envelope of the SAR and Technical Specifications.
- 2) **result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the SAR:** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure change will result in less than a minimal increase in the likelihood of malfunction of a structure, system or component (SSC) important to safety previously evaluated in the SAR.
- 3) **result in more than a minimal increase in the consequences of an accident previously evaluated in the SAR:** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure change will result in less than a minimal increase the consequences of an accident previously evaluated in the SAR.
- 4) **result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the SAR:** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure change will result in less than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the SAR.
- 5) **create a possibility for an accident of a different type than any previously evaluated in the SAR:** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure change would not create the possibility of an accident of a different type than any previously evaluated in the SAR.
- 6) **create a possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated in the SAR:** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better

tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure change would not create a possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated in the SAR.

- 7) **result in a design basis limit for a fission product barrier as described in the SAR being exceeded or altered:** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure change would not result in a design basis limit for a fission product barrier as described in the SAR being exceeded or altered.

- 8) **result in a departure from a method of evaluation described in the SAR used in establishing the design bases or in the safety analyses:** This safety review updates the Emergence Plan and Procedures to allow for individual step sign-offs to ensure better tracking during emergency conditions. Communication channel descriptions were updated to match MIT organizational changes. Therefore this procedure change would not result in a departure from a method of evaluation described in the SAR used in establishing the design bases or in the safety analyses.

ALARA Determination for SR# 2019-33

The addition of data recording of dose rates and stay times in key areas of the procedures will have a positive impact on ALARA. The remaining changes are primarily administrative in nature but could have a positive impact as well. Some steps were broken down into smaller action statements which should increase clarity and efficiency during an emergency situation thereby having a potential positive impact on ALARA.