

# MIT NUCLEAR REACTOR LABORATORY

AN MIT INTERDEPARTMENTAL CENTER

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Assistant Director  
Reactor Operations

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12 March 2020

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

Attn.: Document Control Desk

Subject: License Amendment Request for Position Title Change in Technical Specifications for Level 1 Staff, Docket No. 50-20, License R-37

The Massachusetts Institute of Technology (MIT) hereby submits a License Amendment Request (LAR) for its Facility Operating License No. R-37. In association with the Nuclear Reactor Laboratory (NRL) management restructuring that became effective 1 August 2019, the title of the Level 1 staff member is changing from "Director" of the NRL to "Managing Director for Operations". The requested amendment modifies Technical Specifications Figure 7.11 Management Organization chart accordingly, such that the Level 1 manager has the new title of "Managing Director for Operations". Additionally, the following Technical Specifications are similarly revised: TS 7.1.2.2, TS 7.1.2.6, TS 7.2.1, TS 7.2.3.3 (in two places), and TS 7.6.1b.

Furthermore, the title of Figure 7.11 is expanded from "Management Organization" to "Management Organization for Reactor Operations", in order to better match the content of the chart.

The new position title will continue to be filled by the Level 1 staff member in the Reactor Operations organization, and will continue to be in compliance with various industry and regulatory standards for Level 1 staffing:


- ANSI/ANS 15.1-2007 "The Development of Technical Specifications for Research Reactors" section 6.1.1(1) – *"Level 1 – Individual responsible for the reactor facility's licenses or charter"*. The individual in the Level 1 position will continue to be the organizational head for Reactor Operations, and will be responsible for the R-37 license for the reactor. The license is held by MIT, and the individual in this position will have the authority to act on behalf of MIT, including the immediate authority to divert university resources as needed to ensure reactor safety.
- NUREG-1537 "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors" Part 1, section 12.1.1 "Structure" – *"The individual or group with legal responsibility for holding the reactor license (e.g., the university provost or the dean) should be shown at the top of the organization..."* The individual in the Level 1 position will continue to be at the top of the Reactor Operations organization, and will continue to have legal responsibility for holding the reactor license.

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NRR

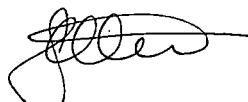
- NUREG-1537 Part 2, section 12.1 "Organization", Acceptance Criteria – *"The applicant should submit a multi-level organizational chart showing the person or group with legal responsibility for the reactor license (the licensee) at the top of the organization..."* The individual in the Level 1 position will continue to be at the top of the Reactor Operations organization, and will continue to have legal responsibility for holding the reactor license.

The basis for this License Amendment Request is further discussed in the enclosed analysis, which has been reviewed and approved by the MIT Reactor Safeguards Committee.

Sincerely,



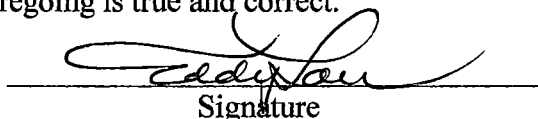
Edward S. Lau, NE  
Assistant Director of Reactor Operations  
MIT Research Reactor



John P. Foster  
Director of Reactor Operations  
MIT Research Reactor

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

Executed on 12 March 2020  
Date

  
Signature

EL/t

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

Safety Review Form No. 2019-29

Item: Position Title Change for Level 1 Staff in Association with  
NRL Management Restructuring

Submitted by E. Lau / S. Tucker Date 8/15/2019

Q/A number (required for all equipment changes) 2019-29

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

Does the item contradict the SAR?	<u>X</u>	<u>—</u>
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\*SAR to be updated in separate Safety Review under this Q/A package.

Description of Change (Attach extra pages if necessary):

See attached.

Safety Evaluation (Attach extra pages if necessary):

See attached.

Summary of Review:

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

b) Reviewer's Comments:

Reviewer E. Lau / S. Tucker Date 09/12/2019

Reviewer Doomsley Date 9/16/19

Reviewer W. B. ... Date 9/16/19  
(Reactor Radiation Protection Officer)

Approved [Signature] Date 9/16/19  
(Director of Reactor Operations)

Date of MITRSC approval if required 10/28/2019 Date of NRC approval if required \_\_\_\_\_

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 \_\_\_\_\_

Evaluation of SR#-2019-29 under 50.59 Requirements

Because this change revises the wording of the Technical Specifications, it requires a license amendment.

ALARA Determination for SR#-2019-29

This update will have no impact on ALARA, as it is purely administrative in nature.

Safety Review # 2019-29 – Position Title Change for Level 1 Staff  
in Association with NRL Management Restructuring

Description of Change

The Technical Specifications (TS) are updated to change the title "Director" of the Nuclear Reactor Laboratory (NRL) to "Managing Director for Operations" at the Nuclear Reactor Laboratory. This is in accordance with an MIT Administration-initiated leadership change for Level 1 staffing at the MIT NRL, effective 1 August 2019. – See appended MIT News Office article dated 15 July 2019 from the Office of the Vice President for Research, and NRL letter to NRC dated 1 August 2019 designating an Interim Director for the NRL.

The new leadership structure is headed by three officials:

- The Managing Director for Operations will be responsible for all activities of Reactor Operations.
- The Science & Technology (S&T) Director and Director for Strategic R&D Partnerships will be responsible for all activities for research and utilization of the MIT Reactor.
- The Senior Advisor for Strategic Partnerships & Business Development and Leader of the NRL Irradiation Materials Sciences Group will assist the S&T Director on business and utilization.

The Technical Specifications Figure 7.1-1 Management Organization chart is modified accordingly, so that the Level 1 manager has the new title of "Managing Director for Operations", while the title of the Figure is expanded from "Management Organization" to "Management Organization for Reactor Operations" to better match the content of the chart. The other two leadership officials are therefore not part of this organizational chart, as the chart now addresses only the Reactor Operations aspects of the Nuclear Reactor Laboratory.

In addition to the Figure 7.1-1 organizational chart, the following Specifications are similarly revised: TS 7.1.2.2, TS 7.1.2.6, TS 7.2.1, TS 7.2.3.3 (in two places), and TS 7.6.1b.

Likewise, "NRL Director" becomes "NRL Managing Director for Operations" in Section 4b(iv) of the Quality Management Program for Generation of MITR-II Medical Therapy Facility Beams for Human Therapy. (Note: The Quality Management Program is incorporated in the Technical Specifications document but does not constitute a Specification

in its own right. Thus the change here does not require NRC approval, but does require NRC notification under the terms of the Program.)

The new management structure aims to improve senior leadership in order to maintain the safe and reliable operation of the MIT Reactor, while improving research and utilization at the Nuclear Reactor Laboratory. According to the MIT News Office article, "The new leadership team will collectively oversee an updated organizational model for the NRL that will allow the laboratory to more closely align its operations with the scientific research agenda of the Department of Nuclear Science and Engineering and other MIT researchers."

A further change is made in the Figure 7.1-1 organizational chart to correct a line-break in the block for the Level 2 manager, the Director of Reactor Operations (DRO). The modified layout better matches the text version of the title as used in TS 7.1.2.1 (responsibility), TS 7.1.4.1 (DRO requirements), and elsewhere throughout the document.

#### Safety Evaluation

All parts of this change are administrative in nature, to improve the management structure of the Nuclear Reactor Laboratory. Safety is unaffected by the change.

# MIT News

ON CAMPUS AND AROUND THE WORLD



Left to right: Gordon Kohse, Jacopo Buongiorno, Lance Snead

Photos courtesy of the researchers

## New team to lead MIT Nuclear Reactor Laboratory

Gordon Kohse, Jacopo Buongiorno, and Lance Snead will co-lead the laboratory; David Moncton will step down after 15 years of service.

**Office of the Vice President for Research**  
**July 15, 2019**

The Office of the Vice President for Research announced the appointment of a new leadership team for the Nuclear Reactor Laboratory (NRL). The team will consist of Gordon Kohse, managing director for operations; Jacopo Buongiorno, science and technology director and director for strategic R&D partnerships; and Lance Snead, senior advisor for strategic partnerships and business development and leader of the NRL Irradiation Materials Sciences Group. The team will succeed David Moncton, who plans to return to his research after taking a department head sabbatical. Moncton has served as director of the NRL since 2004.

The new leadership team will collectively oversee an updated organizational model for the NRL that will allow the laboratory to more closely align its operations with the scientific research agenda of the Department of Nuclear Science and Engineering and other MIT researchers. "I look forward to working with this thoughtful and experienced team as they implement their vision for a vibrant operation supporting the critical work of our research community," says Maria Zuber, vice president for research.

Kohse, a principal research scientist with the NRL and previously the deputy director of research and services, has worked with the NRL for over 40 years, ensuring the smooth operation of experiments at the laboratory. As managing director for operations, Kohse will oversee reactor operations, the newly created program management group, quality assurance, and the irradiation engineering group, and will work closely with Lance Snead on overseeing the Irradiation Materials Sciences Group. Kohse says, "I look forward to a new chapter in my work at the NRL. This is an exciting opportunity to build on the skills and dedication of the laboratory staff and to renew and strengthen cooperation with MIT faculty. My goal is to continue safe, reliable operation of the reactor, and to expand its capabilities in the service of expanding missions in nuclear research and education."

### RELATED

Nuclear Reactor Laboratory

Department of Nuclear Science and Engineering

School of Engineering

### ARCHIVES



MIT Energy Initiative study reports on the future of nuclear energy



For one graduate student, MIT's nuclear reactor is like a "second home"



Eva Lisowski: Pushing the limits

In his new NRL leadership role, Jacopo Buongiorno, the TEPCO Professor of Nuclear Science and Engineering, will oversee the NRL's Centers for Irradiation Materials Science. These centers will focus on a variety of research questions ranging from new nuclear fuels, to in-core sensors, to nuclear materials degradation. All experimental research utilizing the MIT reactor will be coordinated through the Centers for Irradiation Materials Science. Ongoing and installed programs will be managed through the program management group.

Buongiorno is also the director of the Center for Advanced Energy Systems (CANES), which is one of eight Low-Carbon-Energy Centers (LCEC) of the MIT Energy Initiative (MITEI); he is also the director of the recently completed MIT study on the Future of Nuclear Energy in a Carbon-Constrained World.

Buongiorno and Snead, an MIT research scientist and former corporate fellow with Oak Ridge National Laboratory, will spearhead efforts to expand external collaborations with federal and industry sponsors and work with MIT's faculty to identify ways the NRL can provide the needed experimental support for their research and education objectives. "Our vision is to grow the MIT reactor value to MIT's own research community as well as position it at the center of the worldwide efforts to develop new nuclear technologies that contribute to energy security and decarbonization of the global economy," says Buongiorno.

This new leadership team will build on NRL's accomplishments under the direction of David Moncton. Moncton was instrumental in the 20-year relicensing of the reactor, led the NRL in developing the research program which boasts the most productive and innovative program for in-core studies of structural materials, new fuel cladding composites, new generations of nuclear instrumentation based on ultrasonic sensors and fiber optics, and studies of the properties of liquid salt in a radiation environment for use as a coolant in a new generation of high-temperature reactors. The NRL has become a key partner of the Nuclear Science User Facilities (NSUF) sponsored by Idaho National Laboratory, and it has established a world-class reputation for its in-core irradiation program.

Anne White, professor and head of the Department of Nuclear Science and Engineering, notes, "The unique capabilities of NRL together with the Centers for Irradiation Materials Science will create a new and exciting nexus for nuclear-related research and education at MIT, opening up opportunities not only for faculty in the nuclear science and engineering department (Course 22), but across the entire Institute."

The new leadership team will begin their tenure effective Aug. 1, 2019.

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- Topics:   Nuclear Reactor Lab   Nuclear science and engineering
- School of Engineering   Nuclear power and reactors   Faculty   Staff
- Administration   Renewable energy

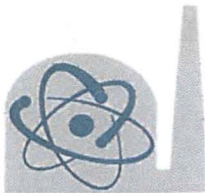
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# MIT NUCLEAR REACTOR LABORATORY

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1 August 2019

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

Attn.: Document Control Desk

Subject: NRL Director, Docket No. 50-20, License R-37

Massachusetts Institute of Technology (MIT) provides the following notification of a change in Level 1 facility staffing, in accordance with MIT Reactor Technical Specification 7.7.3(a): Dr. Gordon Kohse has been named the Interim Director for the MIT Nuclear Reactor Laboratory (NRL), effective 1 August 2019. He succeeds Dr. David E. Moncton, who departs the Lab and plans to return to his research after taking a department head sabbatical. Dr. Kohse has education and experience commensurate with MIT's requirements for the NRL Director position. He is a Principal Research Scientist with the NRL and previously served as Deputy Director of Research and Services, working at the NRL for over 40 years. In accordance with ANSI/ANS Standard 15.4-2016 Section 4.2, he has received briefings sufficient to provide an understanding of the general operational and emergency aspects of the reactor facility.

Sincerely,

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

John P. Foster  
Director of Reactor Operations  
MIT Research Reactor

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

Executed on

08/01/2019

Date

Signature

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

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- (i) The review shall be performed by the Director of the MIT Radiation Protection Program or his designate.
  - (ii) The review shall be performed annually.
  - (iii) Patient administrations selected for review shall be audited to determine compliance with each of the requirements listed in paragraph (3) above.
  - (iv) The review shall be written and any items that require further action shall be so designated. Copies of the review shall be provided to the NRL **Managing Director for Operations** and to the MIT Reactor Safeguards Committee who will evaluate each review and, if required, recommend modifications in this quality management program to meet the requirements of paragraph (3) above. A copy of these reviews will also be provided to each medical use licensee.
- b) Records of each review, including the evaluations and findings of the review, shall be retained in an auditable form for three years.
- c) The licensee (MIT) shall reevaluate the Quality Management Program's policies and procedures after each annual review to determine whether the program is still effective or to identify actions required to make the program more effective.
2. Response to Recordable Event: Within thirty days after the discovery of a recordable event, the event shall be evaluated and a response made that includes:
- a) Assembling the relevant facts, including the cause;
  - b) Identifying what, if any, corrective action is required to prevent recurrence; and
  - c) Retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action, if any, was taken.
- A copy of any recordable event shall be provided to the affected medical use licensee.
3. Records Retention: The following records shall be retained:
- a) Each written directive for three years; and
  - b) A record of each administered radiation therapy where a written directive is required in paragraph (3(a)) above, in an auditable form, for three years after the date of administration.
4. Program Modification: Modifications may be made to this quality management program to increase the program's efficiency provided that the program's effectiveness is not decreased. All medical use licensees shall be notified of any modifications and provided with a copy of the revised program. The licensee (MIT) shall furnish the modification to the NRC (Region I) within 30 days after the modification has been made.

## 7.1 Organization

### 7.1.1 Structure

The organization for the management and operation of the reactor facility is shown in Figure 7.1-1.

### 7.1.2 Responsibility

1. The Director of Reactor Operations is directly responsible for the safe operation of the facility.
2. In all matters pertaining to safe operation of the MIT Reactor (MITR-II) and to these Technical Specifications, the Director of Reactor Operations shall report to and be directly responsible to the Managing Director for Operations of the Nuclear Reactor Laboratory. The management organization is shown in Figure 7.1-1.
3. The MIT Reactor Radiation Protection Officer shall be responsible for radiation protection at the MITR-II. He shall advise the Director of Reactor Operations on all matters pertaining to radiation protection.
4. The MIT Reactor Radiation Protection Officer shall report to and be directly responsible to the Director of MIT Environment, Health, and Safety Office.
5. The MIT Reactor Radiation Protection Officer shall be a member of the MIT Reactor Safeguards Committee.

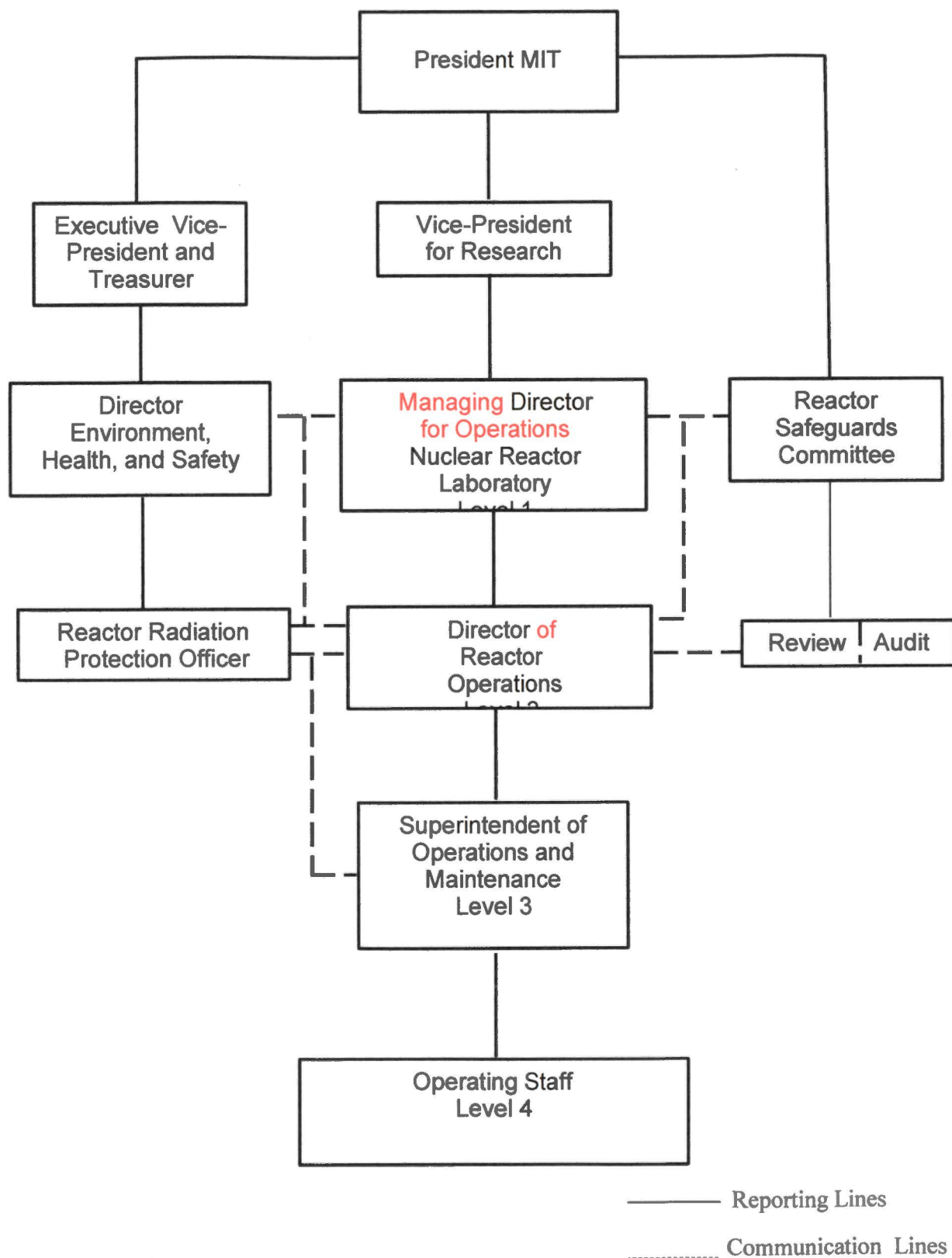


Figure 7.1-1: Management Organization for Reactor Operations



6. In the event of disagreement between the recommendations of the MIT Reactor Radiation Protection Officer and the Director of Reactor Operations or their alternates, on matters pertaining to radiation protection, the course determined by the Director of Reactor Operations or his designated alternate to be the more conservative shall be followed. Records of the disagreement shall be sent for review and possible reconsideration to the Director of MIT Environment, Health, and Safety Office, the Managing Director for Operations at the Nuclear Reactor Laboratory, and the Chairman of the MIT Reactor Safeguards Committee.
7. The responsibilities of any given level in the management organization chart may be assumed by designated alternates conditional upon appropriate qualifications. Such delegation of authority shall be documented in writing by the regularly assigned individual or that person's immediate supervisor.

#### 7.1.3 Staffing

The minimum reactor staff organization shall be as follows:

1. When the reactor is not shut down, the minimum crew complement for a shift shall be two licensed operators including at least one licensed senior reactor operator, one of whom shall be in the control room. In addition, the MITR-II Radiation Protection Officer or a designated alternate shall be onsite or on call. If on call, one of the licensed operators will have responsibility for implementing radiation protection procedures.
2. Whenever the reactor is not secured, two persons shall be onsite, one of whom shall be a licensed senior reactor operator. An operator or senior operator

## 7.2 Review and Audit

### 7.2.1 MIT Reactor Safeguards Committee

Overall direction on matters of reactor safety rests with the MIT Reactor Safeguards Committee or MITRSC. Approval of the MITRSC is necessary for all new operating plans and policies and all significant modifications thereto which may involve questions of nuclear safety. The MITRSC is also responsible for auditing operation of the reactor. The Chairman of the MITRSC reports directly to the President of MIT. The MITRSC communicates directly with the Managing Director for Operations at the Nuclear Reactor Laboratory and with the Director of Reactor Operations, both of whom are members of the MITRSC.

1. Composition and Qualifications: The MITRSC shall be composed of a minimum of nine persons with not more than one-third of the total membership chosen from the reactor staff organization and a minimum of three members from outside MIT. All members and the Chairman shall be selected by the President of MIT. At least four voting members including participating alternates shall have a minimum of a Bachelor's Degree in Engineering or the Physical Sciences and have a minimum of three years of professional level experience in nuclear services, nuclear plant operation, or nuclear engineering, and the necessary overall nuclear background to determine when to contact consultants for analyses beyond the scope of the MITRSC's expertise. Ex-officio members shall include the MIT Radiation Protection Officer and a representative of the MIT Environment, Health, and Safety Office.
2. Charter and Rules
  - a) Meeting Frequency: Meetings shall be held at least annually.
  - b) Quorum: A quorum shall consist of at least a majority of the Committee's voting membership. In addition, either the Chairman or a

### 7.2.3

#### MITRSC Audit Function

1. The MITRSC audit function may be performed by members of the MITRSC who do not have line responsibility for the reactor or by a consultant who has qualifications equivalent to those listed in Specification 7.2.1.1.
2. Audits shall be performed at least annually.
3. The scope of the audit shall include, as a minimum, the following:
  - a) Facility operations for conformance to the technical specifications and license conditions.
  - b) The requalification program for the operating staff.
  - c) The results of action taken to correct those deficiencies that may occur in the reactor facility equipment, systems, structures, or methods of operation that affect reactor safety.
  - d) The reactor facility emergency plan and implementing procedures.
  - e) The physical security plan.

Deficiencies uncovered that affect reactor safety shall immediately be reported to the Managing Director for Operations at the Nuclear Reactor Laboratory. A written report of the findings of the audit shall be submitted to the Managing Director for Operations at the Nuclear Reactor Laboratory and to all MITRSC members within three months after the audit has been completed.

## 7.6 Required Action

### 7.6.1 Action to be Taken in Case of Safety Limit Violation

The following action shall be taken in the event of a safety limit violation:

- a) The reactor shall be shut down, and reactor operation shall not be resumed until authorized by the U.S. Nuclear Regulatory Commission.
- b) The safety limit violation shall be promptly reported to the Superintendent of Operations and Maintenance, the Director of Reactor Operations, the Managing Director for Operations at the Nuclear Reactor Laboratory, and the Chairman of the MITRSC.
- c) The safety limit violation shall be reported to the U.S. Nuclear Regulatory Commission.
- d) A safety limit violation report shall be prepared. The report shall describe the following:
  - (i) The time and date of the violation, reactor status at the time of the violation, and a description of the violation.
  - (ii) Applicable circumstances leading to the violation including, when known, the cause and contributing factors.
  - (iii) Effect of the violation upon reactor facility components, systems, or structures, and on the health and safety of personnel and the public.
  - (iv) Corrective action to be taken to prevent recurrence.

This report shall be reviewed by the MITRSC and submitted to the U.S. Nuclear Regulatory Commission. Any follow-up report shall also be submitted to the U. S. Nuclear Regulatory Commission before authorization is sought to resume operation of the reactor.

### 7.6.2 Action to be Taken in the Event of a Reportable Occurrence

The following actions shall be taken in the event of a reportable occurrence:

- a) The reactor shall be shut down unless the cause for the occurrence has been identified and rectified immediately upon discovery or unless the occurrence has no immediate safety significance to the reactor, to the safety of reactor personnel, and to the safety of the public.



- (i) The review shall be performed by the Director of the MIT Radiation Protection Program or his designate.
  - (ii) The review shall be performed annually.
  - (iii) Patient administrations selected for review shall be audited to determine compliance with each of the requirements listed in paragraph (3) above.
  - (iv) The review shall be written and any items that require further action shall be so designated. Copies of the review shall be provided to the NRL Managing Director for Operations and to the MIT Reactor Safeguards Committee who will evaluate each review and, if required, recommend modifications in this quality management program to meet the requirements of paragraph (3) above. A copy of these reviews will also be provided to each medical use licensee.
- b) Records of each review, including the evaluations and findings of the review, shall be retained in an auditable form for three years.
- c) The licensee (MIT) shall reevaluate the Quality Management Program's policies and procedures after each annual review to determine whether the program is still effective or to identify actions required to make the program more effective.
2. Response to Recordable Event: Within thirty days after the discovery of a recordable event, the event shall be evaluated and a response made that includes:
- a) Assembling the relevant facts, including the cause;
  - b) Identifying what, if any, corrective action is required to prevent recurrence; and
  - c) Retaining a record, in an auditable form, for three years, of the relevant facts and what corrective action, if any, was taken.
- A copy of any recordable event shall be provided to the affected medical use licensee.
3. Records Retention: The following records shall be retained:
- a) Each written directive for three years; and
  - b) A record of each administered radiation therapy where a written directive is required in paragraph (3(a)) above, in an auditable form, for three years after the date of administration.
4. Program Modification: Modifications may be made to this quality management program to increase the program's efficiency provided that the program's effectiveness is not decreased. All medical use licensees shall be notified of any modifications and provided with a copy of the revised program. The licensee (MIT) shall furnish the modification to the NRC (Region I) within 30 days after the modification has been made.

## 7.1 Organization

### 7.1.1 Structure

The organization for the management and operation of the reactor facility is shown in Figure 7.1-1.

### 7.1.2 Responsibility

1. The Director of Reactor Operations is directly responsible for the safe operation of the facility.
2. In all matters pertaining to safe operation of the MIT Reactor (MITR-II) and to these Technical Specifications, the Director of Reactor Operations shall report to and be directly responsible to the Managing Director for Operations at the Nuclear Reactor Laboratory. The management organization is shown in Figure 7.1-1.
3. The MIT Reactor Radiation Protection Officer shall be responsible for radiation protection at the MITR-II. He shall advise the Director of Reactor Operations on all matters pertaining to radiation protection.
4. The MIT Reactor Radiation Protection Officer shall report to and be directly responsible to the Director of MIT Environment, Health, and Safety Office.
5. The MIT Reactor Radiation Protection Officer shall be a member of the MIT Reactor Safeguards Committee.

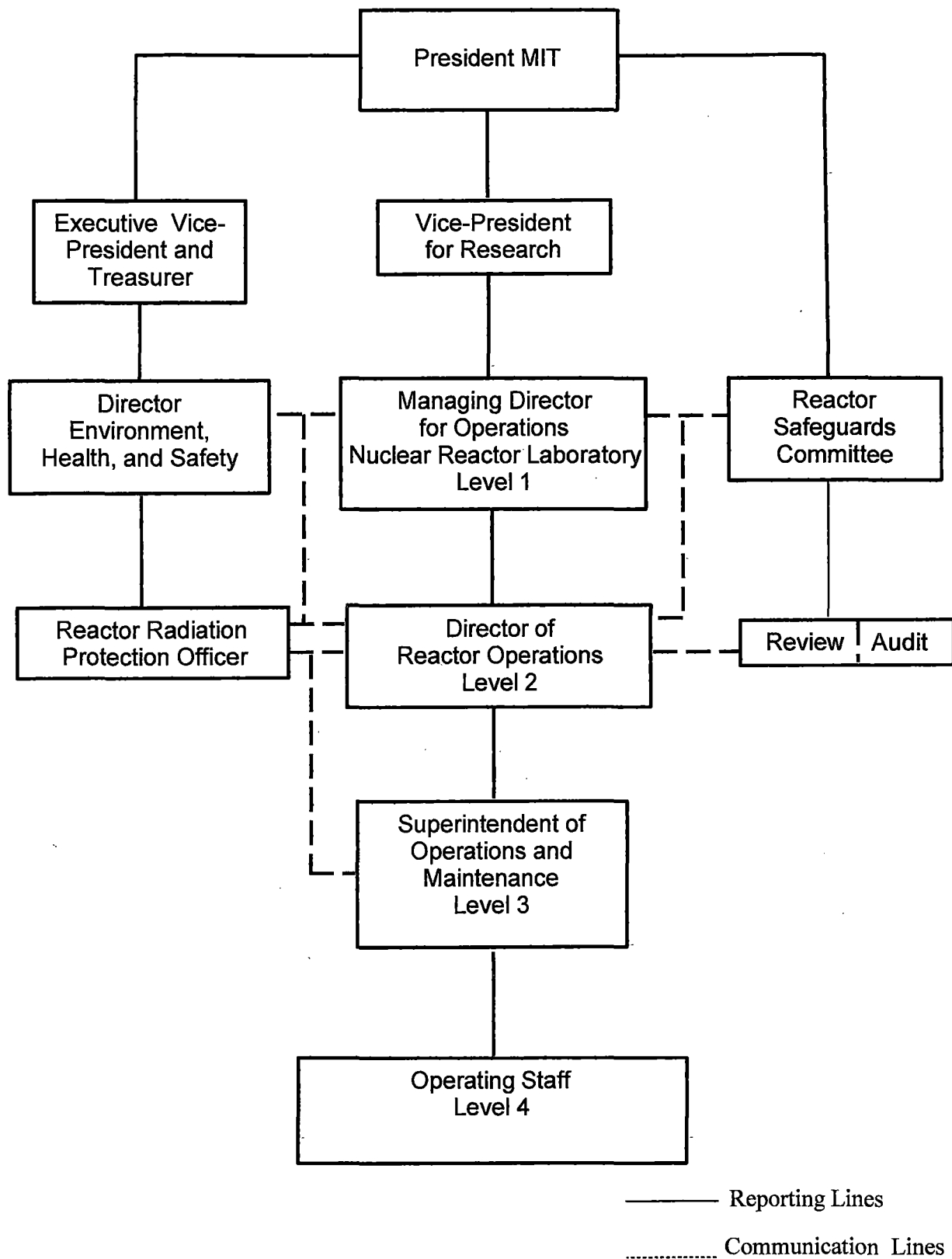


Figure 7.1-1: Management Organization for Reactor Operations

6. In the event of disagreement between the recommendations of the MIT Reactor Radiation Protection Officer and the Director of Reactor Operations or their alternates, on matters pertaining to radiation protection, the course determined by the Director of Reactor Operations or his designated alternate to be the more conservative shall be followed. Records of the disagreement shall be sent for review and possible reconsideration to the Director of MIT Environment, Health, and Safety Office, the Managing Director for Operations at the Nuclear Reactor Laboratory, and the Chairman of the MIT Reactor Safeguards Committee.
7. The responsibilities of any given level in the management organization chart may be assumed by designated alternates conditional upon appropriate qualifications. Such delegation of authority shall be documented in writing by the regularly assigned individual or that person's immediate supervisor.

#### 7.1.3 Staffing

The minimum reactor staff organization shall be as follows:

1. When the reactor is not shut down, the minimum crew complement for a shift shall be two licensed operators including at least one licensed senior reactor operator, one of whom shall be in the control room. In addition, the MITR-II Radiation Protection Officer or a designated alternate shall be onsite or on call. If on call, one of the licensed operators will have responsibility for implementing radiation protection procedures.
2. Whenever the reactor is not secured, two persons shall be onsite, one of whom shall be a licensed senior reactor operator. An operator or senior operator

## 7.2 Review and Audit

### 7.2.1 MIT Reactor Safeguards Committee

Overall direction on matters of reactor safety rests with the MIT Reactor Safeguards Committee or MITRSC. Approval of the MITRSC is necessary for all new operating plans and policies and all significant modifications thereto which may involve questions of nuclear safety. The MITRSC is also responsible for auditing operation of the reactor. The Chairman of the MITRSC reports directly to the President of MIT. The MITRSC communicates directly with the Managing Director for Operations at the Nuclear Reactor Laboratory and with the Director of Reactor Operations, both of whom are members of the MITRSC.

1. Composition and Qualifications: The MITRSC shall be composed of a minimum of nine persons with not more than one-third of the total membership chosen from the reactor staff organization and a minimum of three members from outside MIT. All members and the Chairman shall be selected by the President of MIT. At least four voting members including participating alternates shall have a minimum of a Bachelor's Degree in Engineering or the Physical Sciences and have a minimum of three years of professional level experience in nuclear services, nuclear plant operation, or nuclear engineering, and the necessary overall nuclear background to determine when to contact consultants for analyses beyond the scope of the MITRSC's expertise. Ex-officio members shall include the MIT Radiation Protection Officer and a representative of the MIT Environment, Health, and Safety Office.
2. Charter and Rules
  - a) Meeting Frequency: Meetings shall be held at least annually.
  - b) Quorum: A quorum shall consist of at least a majority of the Committee's voting membership. In addition, either the Chairman or a

### 7.2.3 MITRSC Audit Function

1. The MITRSC audit function may be performed by members of the MITRSC who do not have line responsibility for the reactor or by a consultant who has qualifications equivalent to those listed in Specification 7.2.1.1.
2. Audits shall be performed at least annually.
3. The scope of the audit shall include, as a minimum, the following:
  - a) Facility operations for conformance to the technical specifications and license conditions.
  - b) The requalification program for the operating staff.
  - c) The results of action taken to correct those deficiencies that may occur in the reactor facility equipment, systems, structures, or methods of operation that affect reactor safety.
  - d) The reactor facility emergency plan and implementing procedures.
  - e) The physical security plan.

Deficiencies uncovered that affect reactor safety shall immediately be reported to the Managing Director for Operations at the Nuclear Reactor Laboratory. A written report of the findings of the audit shall be submitted to the Managing Director for Operations at the Nuclear Reactor Laboratory and to all MITRSC members within three months after the audit has been completed.

## 7.6 Required Action

### 7.6.1 Action to be Taken in Case of Safety Limit Violation

The following action shall be taken in the event of a safety limit violation:

- a) The reactor shall be shut down, and reactor operation shall not be resumed until authorized by the U.S. Nuclear Regulatory Commission.
- b) The safety limit violation shall be promptly reported to the Superintendent of Operations and Maintenance, the Director of Reactor Operations, the Managing Director for Operations at the Nuclear Reactor Laboratory, and the Chairman of the MITRSC.
- c) The safety limit violation shall be reported to the U.S. Nuclear Regulatory Commission.
- d) A safety limit violation report shall be prepared. The report shall describe the following:
  - (i) The time and date of the violation, reactor status at the time of the violation, and a description of the violation.
  - (ii) Applicable circumstances leading to the violation including, when known, the cause and contributing factors.
  - (iii) Effect of the violation upon reactor facility components, systems, or structures, and on the health and safety of personnel and the public.
  - (iv) Corrective action to be taken to prevent recurrence.

This report shall be reviewed by the MITRSC and submitted to the U.S. Nuclear Regulatory Commission. Any follow-up report shall also be submitted to the U. S. Nuclear Regulatory Commission before authorization is sought to resume operation of the reactor.

### 7.6.2 Action to be Taken in the Event of a Reportable Occurrence

The following actions shall be taken in the event of a reportable occurrence:

- a) The reactor shall be shut down unless the cause for the occurrence has been identified and rectified immediately upon discovery or unless the occurrence has no immediate safety significance to the reactor, to the safety of reactor personnel, and to the safety of the public.