

R.P.I. TECHNICAL SPECIFICATIONS

NRC License CX-22

Docket 50-225

Section 6 Revision

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## 6.0 Administrative Controls

### 6.1 Organization

#### 6.1.1 Structure

The organization for the management and operation of the reactor facility shall include the structure indicated in Figure 6.1.

Level 1: The Facility Director is responsible for the facility license and site administration.

Level 2: The Facility Supervisor is responsible for the reactor facility operation and management.

Level 3: Licensed senior operators are responsible for daily reactor operations.

Level 4: Licensed operators are the operating staff.

A health physicist who is organizationally independent of the RPI operations group shall provide advice as required by the RPI Facility Supervisor in matters concerning radiological safety.

#### 6.1.2 Responsibility

The Facility Supervisor of the Rensselaer Polytechnic Institute Critical Experiment Facility shall be responsible for the safe operation of the facility. He shall be responsible for assuring that all operations are conducted in a safe manner and within the limits prescribed by the facility license, including these technical specifications.

In all matters pertaining to the operation of the reactor and these technical specifications, the Facility Supervisor shall report to and be directly responsible to the Facility Director.

#### 6.1.3 Staffing

a) The minimal staffing when the reactor is not shutdown as described in these specifications shall be:

1) An operator or senior operator licensed pursuant to 10CFR55 present at the controls.

- 2) A licensed senior operator shall be present or readily available on call.
  - 3) The identity of and method for rapidly contacting the licensed Senior Operator on duty shall be known to the operator.
- b) A list of reactor facility personnel by name and telephone number shall be readily available in the control room for use by the operator. The list must include:
- 1) Management personnel
  - 2) Radiation safety personnel
  - 3) Other operations personnel
- c) Events requiring the direction of the Facility Supervisor:
- 1) All fuel or control rod relocations within the reactor core.
  - 2) Recovery from unplanned or unscheduled shutdown.

#### 6.1.4 Selection and Training of Personnel

The selection, training, and requalification of operations personnel shall meet or exceed the requirements of American National Standard for Selection and Training of Personnel for Research Reactors, ANSI/ANS-15.4-1977, Sections 4-6.

Additionally, the minimum requirements for the Facility Supervisor are at least four years of reactor operating experience and possession of a Senior Operator License for the RPI Critical Facility. Years spent in baccalaureate or graduate study may be substituted for operating experience on a one-for-one basis up to a maximum of two years.

#### 6.1.5 Review and Audit

A Nuclear Safety Review Board (NSRB) shall review and audit reactor operations and advise the Facility Director in matters relating to the health and safety of the public and the safety of facility operations.

##### 6.1.5.1 Composition and Qualification

The NSRB shall have at least four members of whom no more than the minority shall be from the line organization shown in Figure 6.1. The board shall be made up of senior personnel who shall collectively provide a broad spectrum of expertise in reactor technology. Qualified and approved alternates may serve in the absence of regular members.

#### 6.1.5.2 Charter and Rules

The Review Board shall function under the following rules:

- a) The Chairman of the NSRB shall be approved by the Facility Director.
- b) The Board shall meet at least semiannually.
- c) The quorum shall consist of not less than a majority of the full Board and shall include the Chairman or his designated alternate.
- d) Minutes of each Board meeting shall be distributed to the Director, NSRB members, and such others as the Chairman may designate.

#### 6.1.5.3 Review Function

The following items shall be reviewed:

- a) Proposed experiments and tests utilizing the reactor facility which are significantly different from tests and experiments previously performed at the facility.
- b) Reportable occurrences.
- c) Proposed changes to the Technical Specifications and proposed amendments to facility license.

#### 6.1.5.4 Audit Function

The audit function shall include selective (but comprehensive) examination of operating records, logs, and other documents. Where necessary, discussions with cognizant personnel shall take place. In no case shall the individual immediately responsible for the area audit in the area. The following areas shall be audited:

- a) Reactor operations and reactor operational records for compliance with internal rules, regulations, procedures, and with licensed provisions, procedures, and with licensed provisions, including technical specifications.
- b) Existing operating procedures for adequacy and to assure that they achieve their intended purpose in light of any changes since their implementation.
- c) Plant equipment performance with particular attention to operating anomalies, abnormal occurrences, and the steps taken to identify and correct their causes.

## 6.2 Procedures

Written procedures shall be prepared, reviewed and approved prior to initiating any of the activities listed in this section. The procedures, including applicable check lists, shall be reviewed by the NSRB and followed for the following operations:

- a) Startup, operation, and shutdown of the reactor.
- b) Installation and removal of fuel elements, control rods, experiments and experimental facilities.
- c) Corrective actions to be taken to correct specific and foreseen malfunctions such as for power failures, reactor scrams, radiation emergency, responses to alarms, moderator leaks and abnormal reactivity changes.
- d) Periodical surveillance of reactor instrumentation and safety systems, area monitors, and continuous air monitors.
- e) Implementation of the facility security plan.
- f) Implementation of facility emergency plan in accordance with 10CFR50 Appendix E.
- g) Maintenance procedures which could have an effect on reactor safety.

Substantive changes to the above procedures shall be made only with the approval of the NSRB. Temporary changes to the procedures that do not change their original intent may be made with the approval of the Facility Supervisor. All such temporary changes to the procedures shall be documented and subsequently reviewed by the Nuclear Safety Review Board.

## 6.3 Experiment Review and Approval

- a) All new experiments or classes of experiments that raise an unreviewed safety question shall be reviewed by the Nuclear Safety Review Board. This review shall assure that compliance to the requirements of the license technical specifications shall be documented.
- b) Substantive changes to previously approved experiments shall be made only after review and approval in writing by NSRB. Minor changes that do not significantly alter the experiment may be approved by the Facility Supervisor.

- c) Approved experiments shall be carried out in accordance with established approved procedures.
- d) Prior to review, an experiment plan or proposal shall be prepared describing the experiment including any safety considerations.
- e) Review comments of the NSRB setting forth any conditions and/or limitations shall be documented in committee minutes and submitted to the Facility Supervisor.

#### 6.4 Required Actions

##### 6.4.1 Action to be taken in Case of Safety Limit Violations

- a) The reactor shall be shut down, and reactor operations shall not be resumed until authorized by the Nuclear Regulatory Commission.
- b) The safety limit violation shall be promptly reported to the Facility Director.
- c) The safety limit violation shall be reported to the Nuclear Regulatory Commission in accordance with Section 6.5.3.
- d) A safety limit violation report shall be prepared. The report shall describe the following:
  - (1) Applicable circumstances leading to the violation including, when known, the cause and contributing factors.
  - (2) Effect of the violation upon reactor facility components, systems, or structures and on the health and safety of personnel and the public.
  - (3) Corrective action to be taken to prevent recurrence.

The report shall be reviewed by the NSRB and any follow-up report shall be submitted to the Commission when authorization is sought to resume operation of the reactor.

##### 6.4.2 Action to be Taken in the Event of an Occurrence of the Type Identified in Section 3.0

- a) Reactor conditions shall be returned to normal or the reactor shall be shutdown. If it is necessary to shutdown the reactor to correct the occurrence, operations shall not be resumed unless authorized by Facility Supervisor or designated alternate.



- b) Occurrence shall be reported to Facility Supervisor or designated alternates and to the Commission as required.
- c) All such conditions including action taken to prevent or reduce the probability of a recurrence shall be reviewed by the NSRB.

## 6.5 Reports

In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following identified reports shall be submitted to the director of the appropriate Regional Office of Inspection and Enforcement unless otherwise noted.

### 6.5.1 Operating Reports

A report covering the previous year shall be submitted by March 1 of each year. It shall include the following:

- a) Operations Summary - A summary of operating experience occurring during the reporting period that relate to the safe operation of the facility including:
  - 1. Changes in facility design,
  - 2. Performance characteristics (e.g., equipment and fuel performance),
  - 3. Changes in operating procedures which relate to the safety of facility operations,
  - 4. Results of surveillance tests and inspections required by these Technical Specifications,
  - 5. A brief summary of those changes, tests, and experiments which required authorization from the Commission pursuant to 10CFR50.59(a), and
  - 6. Changes in the plant operating staff serving in the following positions:
    - a) Facility Director
    - b) Facility Supervisor
    - c) Health Physicist
    - d) Nuclear Safety Review Board Members
- b) Power Generation - a tabulation of the integrated thermal power during the reporting period.

- c) Shutdowns - A listing of unscheduled shutdowns which have occurred during the reporting period, tabulated according to cause, and a brief discussion of the preventive action taken to prevent recurrence.
- d) Maintenance - A tabulation of corrective maintenance (excluding preventative maintenance) performed during the reporting period on safety related systems and components.
- e) Changes, Tests, and Experiments - A brief description and a summary of the safety evaluation for all changes, tests, and experiments which were carried out without prior Commission approval pursuant to the requirements of 10CFR Part 50.59(b).
- f) A summary of the nature, amount and maximum concentrations of radioactive effluents released or discharged to the environs beyond the effective control of the licensee as measured at or prior to the point of such release or discharge.
- g) Radioactive monitoring - A summary of the TLD dose rates taken at the exclusion area boundary and the site boundary during the reporting period.
- h) Occupational Personnel Radiation Exposure - A summary of radiation exposures greater than 500 mRem (50 mRem for persons under 18 years of age) received during the reporting period by facility personnel (faculty, students, or experimenters).

#### 6.5.2 Non-Routine Reports

- a) Reportable Operational Occurrence Reports  
Notification shall be made within 24 hours by telephone and telegraph to the Director of the appropriate Regional Office followed by a written report within 10 days to the Director of the Regional Office in the event of a reportable operational occurrence as defined in Section 1.0. The written report on these reportable operational occurrences, and to the extent possible, the preliminary telephone and telegraph\* notification shall: (a) describe, analyze, and evaluate safety implications, (b) outline the measures taken to assure that the cause of the condition is determined, (c) indicate the corrective action (including any changes made to the procedures and to the quality assurance program) taken to prevent repetition

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\*Telegraph notification may be sent on the next working day in the event of a reportable operational occurrence during a weekend or holiday period.



of the occurrence and of similar occurrences involving similar components or systems, and (d) evaluate the safety implications of the incident in light of the cumulative experience obtained from the record of previous failures and malfunctions of similar systems and components.

b) Unusual Events

A written report shall be forwarded within 30 days to the Director of the appropriate Regional Office in the event of:

1. Discovery of any substantial errors in the transient or accident analyses or in the methods used for such analyses, as described in the Safety Analysis Report or in the bases for the Technical Specifications.

6.6 Operating Records

6.6.1 The following records and logs shall be maintained at the Facility or at Rensselaer for at least five years.

- a. Normal facility operation and maintenance.
- b. Reportable operational occurrences.
- c. Tests, checks, and measurements documenting compliance with surveillance requirements.
- d. Records of experiments performed.
- e. Records of radioactive shipments.

6.6.2 The following records and logs shall be maintained at the Facility or at Rensselaer for the life of the Facility.

- a. Gaseous and liquid radioactive releases from the facility.
- b. TLD environmental monitoring surveys.
- c. Radiation exposures for all RPI Critical Facility personnel (students, experimenters).
- d. Fuel inventories, offsite transfers and inhouse transfers if they are not returned to their original core or vault location during the experimental program in which the original transfer was made.
- e. Facility radiation and contamination surveys.
- f. The present as-built facility drawings and new updated or corrected versions.
- g. Minutes of Nuclear Safety Review Board meetings.