

SAFETY RELATED DOCUMENT

Draft

**Reed Reactor Facility  
Administrative Procedures**

Docket Number 50-288

License Number R-112

Adopted by Reactor Operations Committee  
and Radiation Safety Committee: 10/87  
(Revised ~~8/94~~ to include amendments approved  
10/88, 12/89, 1/91, 10/92, ~~8/94~~)

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## I. INTRODUCTION

The Reed Reactor is a TRIGA Mark I nuclear reactor which can function as a neutron source for experiments in neutron activation analysis, for the production of radioactive materials, and for experiments in nuclear physics. It is intended that the Reed Reactor Facility serve as an educational and research instrument. The Administrative procedures set forth below will permit The Reed Institute (Reed College) to discharge its responsibilities under its Nuclear Regulatory Commission (NRC) License, and at the same time facilitate the use of the Reactor by qualified individuals and organizations in the Greater Portland Area.

### 1.1 Reed Reactor Facility (Amended 12/89)

The Reed Reactor Facility (RRF) is located in a specially designed and constructed addition to the Reed College ~~Chemistry~~ **Psychology** Building, and is composed of the reactor bay, mechanical room, control room, ventilation loft, and exit corridor. The Operations Boundary consists of the perimeter of the RRF plus the perimeter of all of the other rooms shown in Figure 1.

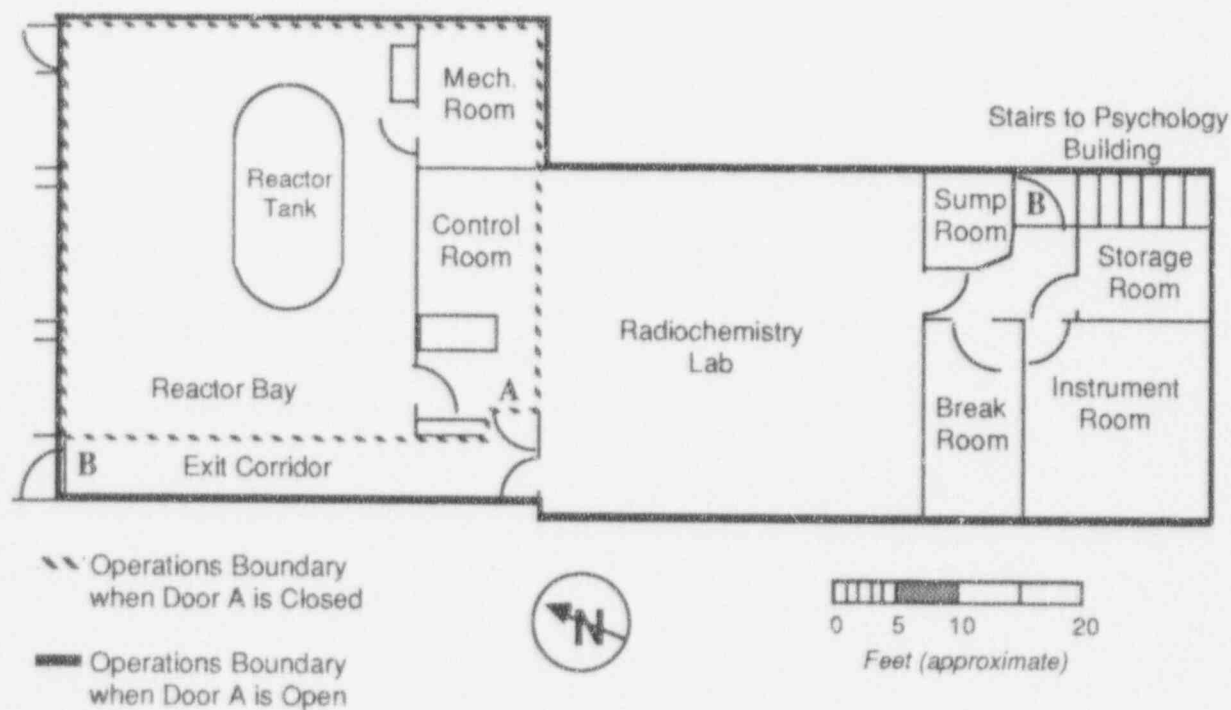


Figure 1  
Reed Reactor Facility Floor Plan

## II. PERSONNEL AND PROGRAMMATIC RESPONSIBILITIES

### 2.1 Administrative Organization of the Reed Reactor Facility

The organization for management and operation is illustrated in Figure 2, Reed Reactor Facility Organization Chart. Responsibility for the safe operation shall be within the chain of command given in Figure 2. Individuals of the various management levels, in addition to having responsibility for the policies and operation, shall be responsible for safeguarding the public and facility personnel from undue radiation exposures and for adhering to all requirements of the Facility License and Technical Specifications.

### 2.2 Personnel Responsibilities

The responsibilities of the different facility staff members indicated in the organizational chart (Figure 2) are given below.

#### 2.2.1 Reed College Administration

The Reed College Administration is responsible for establishing the budget of the Facility and for appointing the Director, Associate Director, Health Physicist, and all members of the Reactor Review Committee, except for the Reactor Supervisor.

#### 2.2.2 Director, Reed Reactor Facility

The Director is the chief administrator and is the individual with the ultimate responsibility for the safe and competent operation of the Reed Reactor Facility. This responsibility manifests itself in:

- 1) The initial approval authority with regard to all reactor experiments.
- 2) The selection of responsible and competent personnel as Reactor Supervisor, Reactor Operators, and Reactor Assistants.
- 3) The establishment of administrative controls consistent with the NRC and other (College, State, or Local government) licenses and regulations.
- 4) The naming of individuals to Entry List A as described below.
- 5) The enforcement of controls and regulations.
- 6) Serving as a non-voting member of the Reactor Review Committee.
- 7) Authorizing all reactor operation.
- 8) Interacting with Federal, State, and local officials at the operational level.
- 9) Interacting with reactor users and with other interested parties regarding the program of the reactor.
- 10) Authorizing all transfers of radioactive materials in and out of the facility.

#### 2.2.3 Associate Director, Reed Reactor Facility

The Associate Director, if such a position is filled, acts as assistant to the Director, and acts on behalf of the latter in some instances. Specifically, the Associate Director is responsible for:

- 1) Assisting the Director in manners designated by the latter.
- 2) Acting for the Director, in the absence of the latter, in carrying out 1) and 5) through 10) under 2.2.1 above.
- 3) Serving as a non-voting member of the Reactor Review Committee.

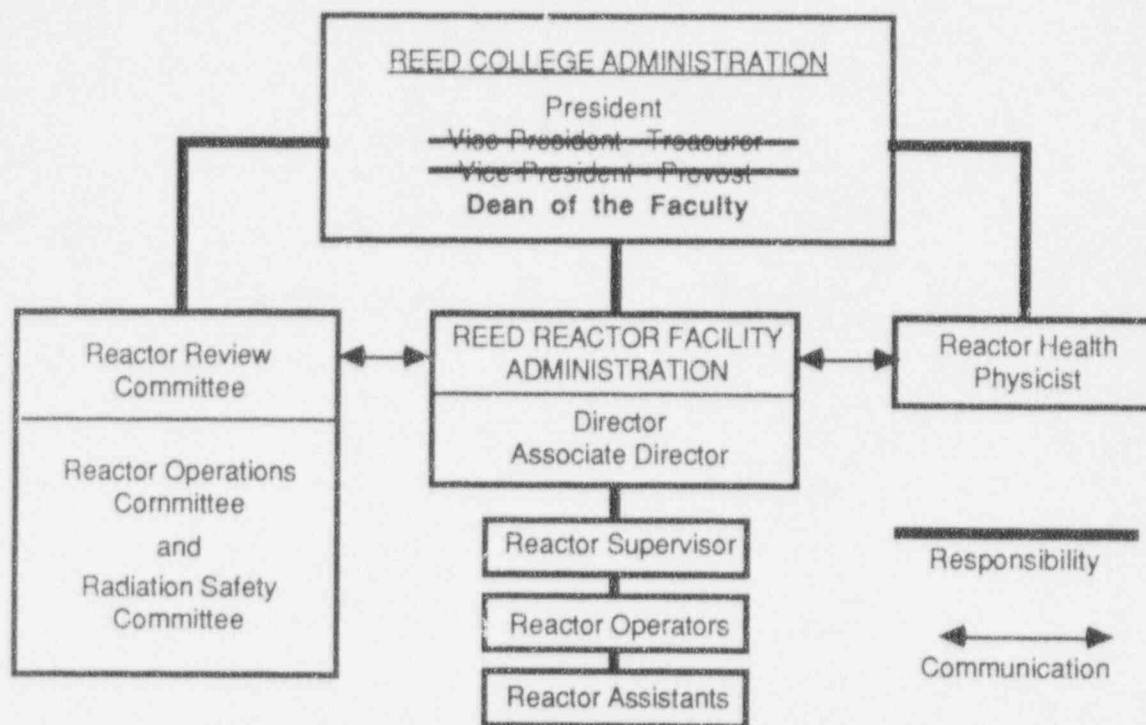


Figure 2  
Reed Reactor Facility Organization Chart

#### 2.2.4 Reactor Supervisor

The Reactor Supervisor has responsibility for the operation of the facility and of the reactor. The Supervisor is directly responsible to the Director. Specifically, the Reactor Supervisor is responsible for:

- 1) Assigning Operators and Assistants to, and scheduling of, previously authorized reactor operations.
- 2) Compliance with facility licenses and applicable regulations.
- 3) Limiting exposure of personnel and dispersal of radioactive material to the limits set forth in the NRC regulations contained in Title 10, Chapter 1, Part 20, Code of Federal Regulations (10CFR20), "Standards for Protection Against Radiation."
- 4) Supervising console instruction of reactor operator trainees.
- 5) Maintaining all logs and records involving the reactor.
- 6) Maintaining all Standard Operation Procedures and other administrative directives involving the reactor.
- 7) Maintaining reactor supplies and blank forms.
- 8) Maintaining a list of authorized receivers of radioactive materials.
- 9) Maintaining a record of all radioactive sources.
- 10) Assignment of operators and assistants to perform all periodic inspections and surveys of the facility.
- 11) Serving as a non-voting member of the Reactor Review Committee.
- 12) **Developing and conducting an annual emergency drill.**

The Reactor Supervisor shall be an NRC-licensed Senior Operator for the facility. When the Reactor Supervisor is absent, a designated Senior Reactor Operator shall assume the duties of the Reactor Supervisor. During the performance of Special Experiments (defined below), the Reactor Supervisor shall be present in the facility.



#### 2.2.5 Reactor Health Physicist

The Reactor Health Physicist has the responsibility to **supervise or** assist personnel with radiation and contamination control problems. The Reactor Health Physicist shall notify the Reactor Supervisor, the Reactor Review Committee, and the Director of any unsafe conditions and departures from the approved procedures, licenses, and policies. The Reactor Health Physicist shall be responsible for:

- 1) Making periodic radiation surveys and reviews of operating practices. Any hazardous conditions are to be reported as above.
- 2) Instructing the operating staff in the use of personnel and area monitoring instrumentation and equipment.
- 3) Supervising decontamination operations when necessary.
- 4) Supervising the periodic reading, calibration, and evaluation of radiation-measuring devices, including personnel dosimetry devices.
- 5) Recommending the availability of protective clothing and other safety devices, as required for the protection of personnel working at facility and instructing personnel in their use.
- 6) Serving as a non-voting member of the Reactor Review Committee.
- 7) Reviewing personnel exposure records and recommending procedural modifications to reduce exposures. Investigating any overexposures.
- 8) Reviewing and advising on emergency procedures. Recommending the availability of protective clothing and other safety devices for use in emergencies and instructing operators in their use. **Reviewing the annual emergency drill. Developing and conducting an annual facility emergency drill.**
- 9) Reviewing any unusual levels of radioactivity released or discharged to the environment.
- 10) Reviewing and advising on environmental impacts and calculations of off-site dose rates from standard operations and emergencies.
- 11) Supervising the radiation safety aspects of special experiments as required by the Radiation Safety Committee.

#### 2.2.6 Licensed Reactor Operators

Senior Reactor Operators and Reactor Operators for the reactor are appointed by the Director and shall hold the corresponding license issued by the Nuclear Regulatory Commission. Specifically, each Licensed Reactor Operator is responsible for:

- 1) Operating the reactor in accordance with the pertaining administrative and operating procedures approved by the Reactor **Review Safety** Committee and within the limitations of the appropriate Facility License and Technical Specifications.
- 2) Preparing the logs and records of reactor operations.
- 3) Reporting all unusual conditions and events pertaining to reactor and its operation to the Reactor Supervisor.
- 4) The radiation safety of all personnel inside the facility during operation of the reactor in accordance with 10CFR20 and Oregon Regulations for Control of Radiation.
- 5) Insertion and removal of experiments as instructed by the Reactor Supervisor.
- 6) Proper shielding and storage of radioactive materials removed from the reactor, until they are turned over to a person authorized by the Reactor Director to receive them.
- 7) Participation in a required requalification program.

The Licensed Reactor Operators may direct the activities of Assistants. If assigned to a reactor operation, an Assistant shall work under a Licensed Reactor Operator's direct supervision.

### 2.2.7 Reactor Assistants

Reactor Assistants are appointed by the Director to work at the Facility under the supervision of the latter, the Health Physicist, or as directed by the Reactor Supervisor. Training for Assistants shall include radiation safety and emergency procedures.

### 2.3 Reactor Review Committee (Review and Audit)

The Reactor Review Committee is established to provide for the independent review and audit of reactor facility operations and to advise the President of Reed College regarding these matters. The Reactor Review Committee may meet either as a single committee or as subcommittees to be known as the Reactor Operations Committee (ROC) and the Radiation Safety Committee (RSC). For ex-officio members, committee members and chairperson(s) are appointed by the President of Reed College. The Reactor Director and Associate Director serve as non-voting members of all committees and subcommittees. No limit shall exist on the overlap of personnel, including chairperson(s), between the subcommittees except as provided in the Technical Specifications and described below. Terms of office will normally run from September 1st through August 31st.

An informal subcommittee is established consisting of the Chairs of the Reactor Operations and Radiation Safety Committees and the Chair of the Reactor Review Committee, if this individual is not one of those two. This small group's purpose is to:

a) Consult with the director on a more frequent basis than the entire committees to insure that any items requiring committee consideration are appropriately addressed.

b) Concur or disagree with the Director's recommendations for procedure changes as described in Part VII.

c) Establish dates and agendas for committee meetings. (amended 1/91)

The Committee and any subcommittees shall, at their first meeting of each year, establish a set of bylaws, including meeting frequency and quorum, conduct meetings, other committee procedures and an agenda for the conduct of audits. Minutes shall be prepared and decisions of the committee communicated to the Reed College President with a copy to the Director. Each subcommittee shall meet at least twice each year.

The Reactor Operations Committee shall deal with the day-to-day operations of the reactor, reactor maintenance, reactor safety, and operator training and requalification. Members of the ROC are expected to have a background in reactor, mechanical, or electrical engineering, nuclear physics, nuclear chemistry, or other similar technical fields. The ROC is expected to guide the operations of the reactor from a technical standpoint, making certain that the technical concerns of Federal, State, and private insurance agencies are responded to in a timely and technically correct manner. The ROC shall be composed of at least 4 members of the faculty and facility staff, including the Reactor Supervisor and the Health Physicist. **Other members may be assigned according to their experience.**

The Radiation Safety Committee shall be concerned with emergency preparedness, health physics, radiation safety, physical security, environmental impact, and the interface between the Reed Reactor Facility and the Reed College Campus and the surrounding Community. In addition, the RSC will be responsible for ~~developing and conducting a~~ **evaluating the** yearly emergency drill. The members of the RSC are expected to have a background in emergency planning, health care, environmental issues, health physics, or be concerned with community issues. The RSC shall be composed, aside from ex-officio members, of faculty members and individuals not connected with operation of the reactor.

#### 2.3.1 Review

The following items shall be reviewed by the Reactor Operations Committee:

- 1) Determinations that proposed changes in equipment, systems, tests, experiments, or procedures do not involve an unreviewed safety question as defined in 10CFR50.59.
- 2) New and modified Standard Operating Procedures as specified in Part VII of these Administrative Procedures.(Amended 1/91)
- 3) All new experiments.
- 4) Proposed changes in the Facility License or Technical Specifications.
- 5) Violations of the Facility License or Technical Specifications.
- 6) Violations of internal procedures or instructions.
- 7) Fuel movement or Core Configuration Changes.
- 8) Any Reportable Occurrences to Federal or State Regulatory Agencies.
- 9) Operator Training Program
- 10) Operator Requalification Program
- 11) Unexplained SCRAMS prior to restart of the reactor and the written procedures to be followed for the restart.

The following items shall be reviewed by the Radiation Safety Committee:

- 1) Radiation Exposure Records.
- 2) Radiation Safety and ALARA (As Low As Reasonably Achievable) Program.
- 3) Physical Security.
- 4) Personnel Safety.
- 5) Emergency Drills and Scenarios.
- 6) RRF Emergency Planning, Implementation, and Preparedness.
- 7) Radioactive Waste Disposal.
- 8) Radioactive Material Releases (Actual or Potential).
- 9) Community Affairs.
- 10) Interface between the facility and Portland Police Bureau, Portland Fire Department, Oregon Energy Facilities Siting Council, and the Multnomah County Emergency Management Plan.
- 11) Proposed changes in the License or Technical Specifications.
- 12) Violations of the License or Technical Specifications.
- 13) Violations of internal procedures or instructions.

### 2.3.2 Audits

Members of the Reactor Review Committee who are assigned responsibility for audits shall perform or arrange for examination of operating records, logs, and other documents. Discussions with cognizant personnel and observation of operations shall be used as appropriate. In no case shall the individual immediately responsible for an aspect of facility operation audit that area.

The following items shall be audited by the Reactor Review Committee on the schedule given:

- 1) Facility License (every four years)
- 2) Technical Specifications (every four years)
- 3) Administrative Procedures (every year).

The following items shall be audited at least once each academic year (except as noted) by the Radiation Safety Committee:

- 1) Major facility documents relating to reactor safety including the emergency plan and security plan to identify changes which need to be initiated by facility staff.
- 2) Standard Operating Procedures relating to health physics, environmental monitoring, calibration of monitoring equipment, and security. Each procedure shall be audited at least once every two years.
- 3) Emergency Procedures.
- 4) Facility operations and logs relating to safety and security.



### 5) The Radiation Protection Plan

The following items shall be audited at least once each academic year (except as noted) by the Reactor Operations Committee:

- 1) Major facility documents relating to facility operations including the Requalification Plan to identify changes which need to be initiated by facility staff.
- 2) Standard Operating Procedures, except for those assigned to the RSC above. Each procedure shall be audited at least once every two years.
- 3) Facility operations and logs other than those assigned to the RSC above.

The status of the reviews and audits shall be a standing agenda item for all committee meetings. Deficiencies uncovered in audits that affect reactor safety shall immediately be reported to the President of Reed College by the chairperson of the Committee. A written report of the findings of the audit shall be submitted to the President of Reed College and the Director after the audit has been completed.

### III. REACTOR OPERATIONS

#### 3.1 Administrative Operating Procedures

The operation of the reactor is subject to the following procedural and administrative limitations:

- 1) No experiment shall be performed that is in violation of the applicable utilization-facility license and its amendments.
- 2) No special experiment shall be performed until the proposed experimental procedure has been reviewed and approved by:
  - a) The Director
  - b) The Reactor Operations Committee
  - c) The Reactor Supervisor.
- 3) At least two (2) persons shall be present within the Operations Boundary whenever the reactor is not shutdown as defined in the Technical Specifications. At least one of the persons present must be an NRC-licensed Operator. The Senior Reactor Operator of record must either be present within the Operations Boundary, or must be located on the Reed campus in such a way that he or she is able to get to the facility within 5 minutes or less, is easily reachable at all times (such as by telephone or pager), and such that the Operator on duty knows his/her location prior to beginning operation. All reactivity changes shall be made by, or in the presence and under the direction of, an NRC-licensed Operator. (Amended 12/89; 10/92)
- 4) The reactor operator must certify, except during continuous runs, the completion of the Reactor Startup Checklist before each day's reactor operations are begun. Completion of this checklist ensures that:
  - a) The mechanical and electrical components of the reactor have been tested and found to be in satisfactory working condition;
  - b) The radiological safety devices positioned around the reactor have been calibrated and tested for proper operation;
  - c) The limits on operating conditions, e.g., scram circuits, interlocks, and alarms, have been tested and accurately set.
- 5) At the end of each operating day, except during continuous runs, the Reactor Shutdown Checklist shall be completed. This checklist constitutes a status report on the condition of the reactor at the end of each operating day. It shall be signed by the Senior Operator before the reactor operator leaves the facility.
- 6) During continuous, round-the-clock reactor operations, the Startup and Shutdown Checklists for the reactor are augmented by the Shift Transfer Stamp which serves to alert the incoming shift operators to any changes in operations. The Shift Transfer Stamp must be filled out completely by each relieving shift as it comes on duty.
- 7) The periodic surveillance checklists shall be completed weekly, bimonthly (every two (2) months), semi-annually (every six (6) months), or annually as appropriate. It is not required, however, that each item indicated on each checklist be done at one time; they may be spread out over several days.
- 8) The format for the various reactor checklists may be changed at the discretion of the Director with the concurrence of the ROC.
- 9) The reactor operating logs and all checklists are to be considered official records and must be kept on file.
- 10) Nuclear control instrumentation shall be in operation and under observation at all times by an NRC-licensed Operator during operations that could involve changes in core reactivity (e.g., insertion of experiments, etc.). This includes shutdown core changes. In addition, changes in core loading or insertion of modified routine experiments shall be made only under the supervision of an NRC-licensed Senior Operator. The Reactor Supervisor shall be present for special experiments. If necessary, the fuel loading will be altered to keep the excess core reactivity within the allowable limits.

- 11) Only persons whose presence is necessary for the performance of an experiment will be admitted to the Reactor Bay during reactor operation unless previous performance establishes that the results and effects of the experiment are reproducible with substantial certainty.
- 12) No radioactive material shall be transferred to any person who has not been approved by the Director to receive such material.
- 13) The reactor shall not be operated for routine operations or special experiments with fuel elements that are known to be damaged. If any evidence of fuel element damage exists, the Reactor Supervisor shall propose a program for locating the damage, which may include operating the reactor to locate the damage.
- 14) Fuel elements shall be examined as required by the technical specifications to ensure that no damaged elements, as defined in the Facility License and Technical Specifications, are present in the reactor.
- 15) An NRC-licensed Operator shall be present during routine maintenance. At least two (2) persons, one of whom holds an NRC Senior Operator License, shall be present whenever maintenance is performed on a reactor control system.
- 16) Before maintenance work can be started involving manual movement of control rod drives or control rods, the core excess reactivity must be reduced so that the worth of any two (2) remaining control rods is greater than three (3) times the remaining core excess, and that the reactor remains subcritical with all but one (1) control rod removed. This can be accomplished by removing two (2) elements from the C ring of the reactor core. Maintenance work cannot be carried out on more than one (1) rod at a time. During maintenance work on a control rod, the magnet power to the remaining two (2) control rods must be disconnected. If maintenance is to be performed on a control rod drive motor only, leaving the control rod and control rod barrel in place, the control rod may be mechanically separate from the control rod drive motor assembly. Under the direction of the Reactor Supervisor the control rod drive motor assembly may then be removed for maintenance.
- 17) The reactivity worth of samples containing fissionable material must be determined in position by operating the reactor at 5 W power and the result compared with the Technical Specifications before the sample can be activated in the reactor operating at higher power levels. The only exception shall be for pneumatic tube irradiations of naturally occurring fissionable nuclides to produce at most  $2 \times 10^{10}$  fissions. All such experiments shall be treated as special experiments each time they are performed.
- 18) The pressure in ~~lake water in~~ the secondary water system of the heat exchanger must at ~~all times~~ exceed the pressure of the reactor pool water in the heat exchanger **except during testing of the heat exchanger**. Before maintenance work on the secondary system can be started, the pool water circulating pump shall be turned off and the heat exchanger system shall be isolated from the reactor tank by closing the appropriate valves.

### 3.2 Overhead Crane Operation

The crane trolley shall not be operated over the reactor when the reactor is in operation. The crane bridge, however, may be moved over the reactor while the reactor is operating. Permission to operate the crane must be obtained from the Director for each operation.

## IV. REACTOR EXPERIMENTS

### 4.1 Experimental Facilities

The reactor has two (2) major experimental areas:

- 1) In-core: Pneumatic transfer system  
Central Thimble  
Fuel Element Replacement (Empty Source Holder)
- 2) Near-core: Rotating specimen rack (Lazy Susan)  
Pool irradiations near core

### 4.2 Classes of Experiments

There are three (3) classes of experiments (routine, modified routine, and special) performed with the RRF TRIGA reactor:

- 1) Routine experiments are those which involve operations under conditions which have been extensively examined in the course of the reactor test programs. Under the Facility Licenses for the reactor, routine operation within the limits of the Technical Specifications applicable to the reactor is permissible at the discretion of the Director and no further review is necessary.
- 2) Modified routine experiments are those which have not previously been performed but are similar to routine experiments in that the hazards are neither significantly different nor greater than those for the corresponding routine experiment and are permitted under the Technical Specifications. These modified experiments may be performed at the discretion of the Director without further review, provided that the hazards associated with the modified routine experiments are reviewed and the determination made and documented that they are neither significantly different nor greater than those involved with the corresponding routine experiment which shall be referenced.
- 3) Special experiments are those which may be performed under the Technical Specifications and are not routine or modified routine experiments. Special experiments shall be authorized by the review procedure given below.

### 4.3 Procedure for Review of Special Experiments

Proposals for the performance of special experiments and associated changes in operating procedures, administrative procedures, or reactor instrumentation are subject to the following review procedure in advance of reactor operation:

- 1) A complete written description of the proposed action must be submitted by the Director to the Reactor Operations Committee.
- 2) The Reactor Operations Committee must review and approve the proposal. If approved, the experiment may be performed at the discretion to the Director.
- 3) If an experiment involves radiation safety questions, the ROC may request concurrent approval by the RSC.

A flow sheet for this review procedure is given in Figure 4. It is the responsibility of the Director to prepare or have prepared a written description of a proposed experiment or any proposed change in procedure.

The description of the proposed experiment or change must contain sufficient detail to enable the Reactor Operations Committee to evaluate the safety of the experiment.

The following data must be included in the description:

- 1) Object of the experiment.
- 2) Description of the experiment. This will include a discussion of both the equipment and the experimental methods to be used. If the experiment involves making a change in the existing core, the maximum change in reactivity that can be introduced with this experiment should be estimated and should be stated in the proposal. The experiment shall be considered for its effect on reactor operation, and the possibility and

consequences of its failure including any significant consideration of interaction with core components.

- 3) Equipment required. This is for the information of the operating staff.
- 4) Time required for the experiment (including setup and take down time).
- 5) Date on which the equipment and experiment will be ready.
- 6) Names of individuals who will perform the experiment.

A copy of the description of the special experiment, as finally approved, shall be filed in the Control Room of the Reactor Facility.

#### 4.4 Radionuclide Production for Campus and Off-Campus Users (Amended 10/88)

- 1) Radionuclide production for other State or NRC licensees shall be limited by the terms of their specific NRC or State License. A request for the production of any radioactive materials must be accompanied by a copy of the license covering the particular radionuclide requested.
- 2) Proper transportation of all radioactive materials from the facility shall be the sole responsibility of the requestor. Part of the approval for production of radioactive materials shall be the certification by the requestor that arrangements have been made which ensure that the transportation complies with all applicable regulations (NRC, Department of Transportation, State of Oregon, and if applicable, State of Final Destination of Shipment).
- 3) The Director may authorize the Reactor Staff to transport radioactive materials to a common carrier who is qualified to accept such materials for shipment.
- 4) The Director may lease to a qualified recipient of radioactive materials, a DOT-approved shipping container to be used by the recipient and a common carrier, or only by the recipient, for the transportation of such materials.

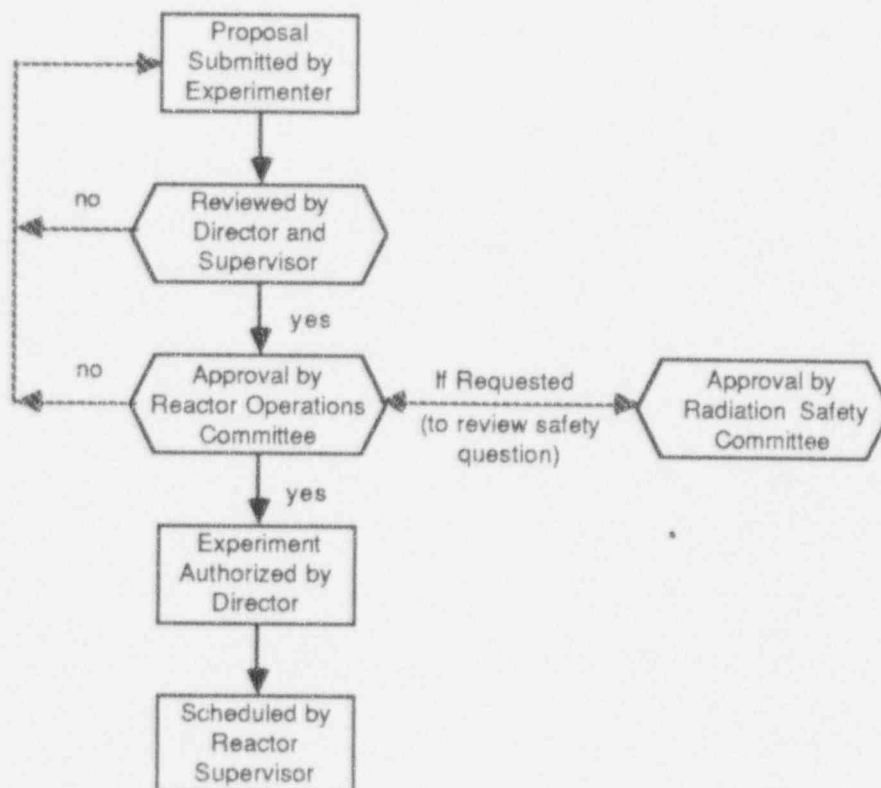


Figure 4:  
Flow Chart for Special Experiment Approval



## V. HANDLING, STORAGE, AND DISPOSAL OF RADIOACTIVE MATERIAL

### 5.1 Administrative Procedures

- 1) The Operator has the responsibility of removing all experimental materials (radioactive samples or apparatus) from the reactor pool. The Reactor Operator is also responsible for proper shielding and containment of the radioactivity as well as proper labeling of the radioactive materials in accordance with the pertaining regulations and the Standard Operating Procedures. The radioactive material remains the responsibility of the Reactor Operator until it is transferred to a person authorized by the Director to receive it.
- 2) The Reactor Operator shall keep a record of the experiment, the time when it was removed from the reactor, the amount of radioactivity produced, and the radiation level of the specimen when removed from the reactor. The record must be continued to include the storage positions and shielding used for the sample(s) and the dose rate on the outside of the shielding containers.
- 3) The Reactor Operator shall record the transfer to an authorized person, the name of such person, the time of the transfer, and a description of the container as well as the dose rate at the surface and one (1) meter from the surface of the shipping container at the time of the transfer. A copy of the record after disposal of the specimen will be kept by the office of the Reactor Facility.
- 4) Radioactive material remaining at the facility shall be stored either in the storage cave, or in a properly shielded area roped off and labeled in accordance with 10CFR20. There shall be no area in the Facility that is not roped off and labeled where the radiation level exceeds 5 mrem/hr or ~~100 mR in a 40 hour work week~~.
- 5) No radioactive sample or specimen shall be stored in the Facility in excess of one (1) year, unless it is to be used at a later time. If the sample or specimen has not decayed to negligible levels within six (6) months, it should not be kept at the Facility.
- 6) All radioactive waste will be disposed of by the Health Physicist by shipment to a waste disposal area in accordance with all applicable regulations for such shipments. The waste disposal area now being utilized by the facility is the Hanford Site (U.S. Ecology, Inc.).

### 5.2 Fuel and Special Nuclear Material

- 1) Special nuclear material is at all times the property of the United States Department of Energy (DOE). It is on lease to The Reed Institute (Reed College) which is accountable to DOE for its location and proper handling. Primary accountability as far as the DOE is concerned thus rests with the Director of The Reed Reactor Facility.
- 2) The Director is responsible for all fissile and fertile material in the Facility.
- 3) The Director is accountable to the Reactor Operations Committee for any changes in the fuel configuration in the reactor core and for proper storage of used and spare fuel elements.

## VI. ACCESS TO THE REED REACTOR FACILITY

- 6.1 The only entrance to the Reactor Bay when the reactor is in operation shall be through the Control Room. The Register for visitors (Entry List B described below) and storage racks for personal ionization chambers (PIC's or dosimeters) will be located in this room.
- 6.2 Access to the Reactor Room will be permitted only to persons who have been given the necessary authorization as set forth below. Attention is called to the fact that individuals under the age of 18 years will require special authorization as spelled out at the end of this section.
- 6.3 Persons who can be admitted to the Reactor Room are divided into two categories as described below under Entry List A and Entry List B.
- a) Entry List A: individuals are placed on this list only by the Director of the Reed Reactor Facility. Individuals who are eligible for naming to this list are
    - i) Members of the Reed Reactor Facility Staff.
    - ii) Other persons requiring such access and meeting the requirements of the Reed Reactor Facility Security Plan for unescorted access to RRF.Entry List A shall be posted in the Control Room and maintained current by the Director. Persons on Entry List A do not need to be accompanied while in the Reactor Control Room or Reactor Bay. They may accompany other individuals with whom they have specific business provided their entry has been authorized as described below for Entry List B. Individuals on the Reed Reactor Facility Staff need not sign in and out upon entering and leaving the Control Room or Reactor Bay. RRF Staff members will be assigned individual thermoluminescent dosimetry badges (TLD badges) and shall follow normal badge procedure with respect to wearing and storing them. Any individual on Entry List A not having a permanent badge shall check out a personal ionization chamber and sign Entry List B prior to entering the Reactor Bay.
  - b) Entry List B: This list comprises visitors to RRF. Their entry to the Reactor Bay can be authorized by those individuals whose names appear on Entry List A. The person authorizing the access shall be responsible to assure that the individual's name and other pertinent data have been entered properly on Entry List B. The person authorizing an individual's access to the Reactor Bay shall also be responsible to assure:
    - i) Proper accompaniment for the individual has been arranged.
    - ii) The individual has been issued (and returns) the appropriate dosimeter, the number of which has been recorded. **For a group, dosimetry may be issued to only some members of the group, however at least 2 dosimeters shall be issued.**
- 6.4 Only the Director may authorize entry into the Reactor Bay by visitors under 18 years of age. It is understood that the Director will not grant such an authorization unless he is confident that the total radiation dose to which the visitors will be exposed does not exceed ten (10) mrem. In the event that circumstances will not permit authorization under the conditions specified, the young visitors will be restricted to viewing the Reactor Bay through the windows ~~in the Corridor~~.

## VII. ADOPTION OF OPERATING PROCEDURES (Adopted 1/91)

- 7.1 Any changes to standard and emergency operating procedures which directly affect safety of the facility and/or personnel, and any major new procedures shall be approved in advance by one or both of the reactor committees, as designated in the Technical Specifications and dictated by the expertise of the committee members.
- a) Those items which directly affect safety, and hence constitute safety standards as referred to in the Technical Specifications, include, but are not limited to:
    - i) Emergency Implementation Procedures
    - ii) Establishment of radiation dose limits for employees, students, and visitors to the facility, including ALARA policies
    - iii) Establishment of limits for operation including SCRAM and interlock set points, area and release radiation levels and warning set points
    - iv) Fuel handling, loading, or unloading procedures
    - v) Control Rod removal and replacement
    - vi) Elimination, modification, or replacement of reactor monitoring systems
  - b) Major new procedures include those procedures required by the Technical Specifications (Section I.5.) and procedures which contain safety items.
  - c) Procedures which may be considered to be non-major new procedures include any procedures which simply formalize operations which have been conducted routinely at the facility but which have never been formalized.
- 7.2 Changes in existing procedures (including procedures which may contain safety standards) and adoption of new non-major Standard Operating Procedures may be instituted by the Director without prior committee approval provided the change itself does not fall into any of the categories described in paragraph 7.1.a. the Director shall submit to the committee chairs, copies of the Procedure Change Notice for any such change implemented and shall delay implementation if any objection is raised.
- 7.3 Changes which are of a purely editorial nature, such as corrections of spelling errors, grammar, **formatting**, or wording clarifications, may be made by the Reactor Supervisor with notification to the Director.
- 7.4 Any reactor operator or staff member who believes that a proposed change constitutes a major action or affects facility or personnel safety may notify the Director and the Chair of the Reactor Review Committee. Such change shall then not take effect until committee has considered and taken action on the change.