January 25, 2007

Mr. Stephen Frantz, Director
Reed Reactor Facility
Reed College
3203 S.E. Woodstock Boulevard
Portland, OR 97202-8199

SUBJECT: NRC INSPECTION REPORT NO. 50-288/2006-201

Dear Mr. Frantz:

On January 8-11, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your TRIGA Mark-I Research Reactor facility. The enclosed report documents the inspection results, which were discussed on January 11, 2007, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the NRC's rules and regulations and with the conditions of your license. The inspector reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified.

In accordance with Section 2.390, "Public inspections, exemptions, and requests for withholding," of Title 10 of the *Code of Federal Regulations*, a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Craig Bassett at 404-358-6515.

Sincerely,

/RA/

Johnny H. Eads, Jr., Branch Chief
Research and Test Reactors Branch B
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-288
License No. R-112

Enclosure: NRC Inspection Report No. 50-288/2006-201

cc w/enclosure: Please see next page

Reed College Docket No. 50-288

cc:

Mayor of City of Portland
1220 Southwest 5th Avenue
Portland, OR 97204

Reed College
ATTN: Dr. Peter Steinberger
Dean of the Faculty
3203 S.E. Woodstock Boulevard
Portland, OR 97202-8199

Reed College
ATTN: Dr. Colin Diver
President
3203 S.E. Woodstock Boulevard
Portland, OR 97202-8199

Oregon Department of Energy
ATTN: David Stewart-Smith, Director
Division of Radiation Control
625 Marion Street, N.E.
Salem, OR 97310

Test, Research, and Training
Reactor Newsletter
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

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U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Docket No:	50-288
License No:	R-112
Report No:	50-288/2006-201
Licensee:	Reed College
Facility:	Reed Reactor Facility
Location:	3203 S.E. Woodstock Boulevard Portland, Oregon
Dates:	January 8-11, 2007
Inspector:	Craig Bassett
Approved by:	Johnny H. Eads, Branch Chief Research and Test Reactors Branch B Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Reed College
Reed Reactor Facility
Report No.: 50-288/2006-201

The primary focus of this routine, announced inspection included onsite review of selected aspects of the licensee's Class II research reactor's safety programs including: organization and staffing, review and audit and design change functions, procedures, operator requalification program, fuel handling, maintenance and surveillance, conduct of operations, experiments, and emergency preparedness. The licensee's programs were acceptably directed toward the protection of public health and safety and were in compliance with NRC requirements. No safety concerns, deviations, or violations of regulatory requirements were identified.

Organization and Staffing

- The organization and staffing remain in compliance with the requirements specified in Technical Specification Sections I and K.

Review, Audit, and Design Change Functions

- Review and oversight functions required by Technical Specification Sections I.2 - I.4 were acceptably completed by the Reactor Operations Committee and the Radiation Safety Committee.

- Audits were being completed as required.

- 10 CFR 50.59 changes had been reviewed and approved by the Committee as required and none were determined to constitute a safety concern or question.

Procedures and Procedural Compliance

- Facility procedures and document reviews satisfied Technical Specification Section I.5 requirements. Procedural compliance was acceptable.

Operator Licenses, Requalification, and Medical Activities

- The operator requalification/training program was up-to-date and being acceptably implemented. Documentation of the program was acceptable.

- Medical examinations were being completed as required.

Fuel Handling and Movement

- Reactor fuel movements and inspections were made and documented in accordance with procedure.

- One-fifth of the fuel elements were being inspected on a biennial basis as allowed by Technical Specification Section E.3.

- A problem that arose during one fuel move was dealt with in an effective manner.

Maintenance and Surveillance

- Maintenance was being completed as needed.

- The surveillance program, including calibration of equipment, was being implemented in accordance with Technical Specification requirements specified in Sections D-G.

Conduct of Operations

- Operations were being conducted in accordance with Technical Specification and procedural requirements.

Experiments

- The program for the control of experiments satisfied Technical Specification Section J and regulatory requirements.

Emergency Preparedness

- The Emergency Plan and Emergency Implementation Procedures were being audited and reviewed annually as required.

- Letters of Agreements documenting emergency support to be provided by offsite agencies were being maintained and updated as required.

- Annual drills were being held and documentation was maintained concerning the follow-up critiques. Subsequent corrective actions were taken as needed.

- Emergency preparedness training for staff and offsite personnel was generally being conducted as stipulated in the Emergency Plan.

REPORT DETAILS

Summary of Plant Status

The Reed College two hundred and fifty-kilowatt (250 kW) TRIGA Mark I research and test reactor (RTR) continued normal, routine operations. A review of the applicable records indicated that the reactor was typically operated in support of undergraduate instruction, laboratory experiments, reactor system testing, reactor surveillances, and operator training. Throughout the inspection, the reactor was not operated due the annual Reed College "Paideia." At Reed College, paideia is the week before classes start in January of each year. The faculty, staff, and students at Reed offer and participate in various non curricular classes and events. The Reactor Paideia is two weeks long. This requires the reactor operators and trainees to return to Reed a week before any other students. During the two-week Reactor Paideia, annual and semiannual maintenance and surveillance items are completed. In addition, there are field trips and emergency drills. Other maintenance and training are also conducted.

1. Organization and Staffing

a. Inspection Scope (Inspection Procedure [IP] 69001)

To verify organization and staffing requirements specified in Technical Specifications (TS) Sections I and K, Amendment Number (No.) 7, dated December 13, 2003, were being met, the inspector reviewed:

- Main (reactor console) Log Numbers (Nos.) 66 through 68
- organization and staffing for the Reed Reactor Facility (RRF)
- administrative controls and management responsibilities specified in the TS
- Reed Reactor Facility Annual Report for September 1, 2004 - August 31, 2005
- Reed Reactor Facility Annual Report for September 1, 2005 - August 31, 2006
- RRF Administrative Procedures, Section II, "Personnel and Programmatic Responsibilities," latest revision dated August 2006
- RRF Administrative Procedures, Section III, "Reactor Operations," latest revision dated August 2006
- RRF Standard Operating Procedure (SOP) 10, "Writing in Log Books," latest revision dated February 2006

b. Observations and Findings

Through discussions with licensee representatives the inspector determined that management responsibilities and the organization at the Reed Reactor Facility had not changed since the previous NRC inspection in October 2005 (Inspection Report No. 50-288/2005-202). The inspector determined that the Facility Director retained direct control and overall responsibility for management of the facility as specified in the TS. The Facility Director reported to the President of Reed College through the Dean of the Faculty.

The licensee's current operational organization consisted of the Facility Director, an Associate Director, an Operations/Reactor Supervisor, and a Training Supervisor. All of these individuals were Senior Reactor Operators (SROs). In addition, there were

also 17 other SROs and 29 Reactor Operators (ROs) qualified to operate the facility RTR. (The positions of Facility Director and Associate Director are full-time positions while the others are part-time.) This organization was consistent with that specified in the TS.

c. Conclusions

Organization and staffing met the requirements specified in TS Sections I and K.

2. Review, Audit, and Design Change Functions

a. Inspection Scope (IP 69001)

In order to verify that the licensee had established and conducted reviews and audits as required and to determine whether modifications to the facility were consistent with 10 CFR 50.59 and TS Sections I.2 - I.4, the inspector reviewed:

- completed audits and reviews for 2005 through 2006
- design changes reviewed under 10 CFR 50.59 for 2005 and 2006
- Radiation Safety Committee meeting minutes from May 2005 through the present
- Reactor Review Committee meeting minutes from October 2005 through the present
- Reactor Operations Committee meeting minutes from April 2005 through the present
- RRF Facility Administrative Procedures, Section II, “Personnel and Programmatic Responsibilities,” latest revision dated August 2006
- RRF SOP 16, “Changes, Tests, and Experiments Approval,” latest revision dated December 2006

b. Observations and Findings

(1) Review and Audit Functions

The inspector reviewed the Reactor Operations Committee (ROC), the Radiation Safety Committee (RSC), and the Reactor Review Committee (RRC) meeting minutes from April, May, and October 2005 respectively to the present. These meeting minutes showed that the committees were meeting at the required frequency and were considering the types of topics outlined by the TS.

The inspector noted that, since the last NRC inspection, the appropriate audits had been completed by the ROC and the RSC in those areas outlined in the TS. The audits were designed so that most aspects of the licensee's operations and safety programs were reviewed every year. Standard Operating Procedures were reviewed every two years while other major facility documents, such as the facility license and Technical Specifications, were reviewed every four years. The inspector noted that the audits and the resulting findings were detailed and that the licensee responded and took corrective actions as needed.

During this inspection, the inspector observed that a member of the Radiation Safety Committee was on site conducting an audit. The RSC member was thorough in his audit of radiation monitor calibrations and various documents maintained at the facility. He observed work in progress, reviewed the applicable documentation, and reviewed assigned procedures.

(2) Design Changes

Through review of applicable records and interviews with licensee personnel, the inspector determined that each design or equipment change (10 CFR 50.59 Review) that had been initiated and/or completed at the RRF since the last NRC operations inspection had undergone a review by the ROC as required. Following the review, the changes were approved in accordance with the TS requirements. It was noted that none of the changes was determined to constitute a safety question or concern and none required a TS change or license amendment.

c. Conclusions

Review and oversight functions required by TS Sections I.2 - I.4 were acceptably completed by the ROC and the RSC. Audits were being completed as required. 10 CFR 50.59 changes had been reviewed and approved by the ROC as required and none were determined to constitute a safety concern.

3. Procedures and Procedural Compliance

a. Inspection Scope (IP 69001)

To determine whether facility procedures met the requirements outlined in TS Section I.5, the inspector reviewed:

- procedural reviews and updates documented in the RRC meeting minutes
- RRF Administrative Procedures, Section VII, “Adoption of Operating Procedures,” latest revision dated August 2006
- RRF SOP 01, “Startup Checklist,” latest revision dated October 2006
- RRF SOP 03, “Reactor Operations,” latest revision dated November 2006
- RRF SOP 04, “Same Day Startup,” latest revision dated January 2007
- RRF SOP 05, “Shutdown,” latest revision dated September 2006
- RRF SOP 14, “Fire Protection,” latest revision dated December 2006
- RRF SOP 15, “Procedure Writing,” latest revision dated December 2006
- RRF SOP 16, “Changes, Tests, and Experiments Approval,” latest revision dated December 2006
- RRF SOP 23, “Wipe Tests,” latest revision dated January 2007
- RRF SOP 52, “Lazy Susan Irradiations,” latest revision dated December 2006
- RRF SOP 70, “Weekly Checklist,” latest revision dated November 2006
- RRF SOP 71, “Bimonthly Checklist,” latest revision dated November 2006
- RRF SOP 85, “Control Rod Maintenance,” latest revision dated December 2006

b. Observations and Findings

RRF SOPs were found to be acceptable for the current facility status and staffing level. The SOPs specified the responsibilities of the various members of the staff. The procedures were being audited and reviewed biennially as required and updated as needed. It was also noted that revisions to procedures were routinely presented to the RRC for review and approval. The inspector verified that the latest revisions to various SOPs had been through this review and approval process as required.

The inspector observed various activities during this inspection including calibration of monitoring equipment and completion of various maintenance items. It was noted that these activities were completed in accordance with the applicable procedures.

c. Conclusions

Facility procedures and document reviews satisfied TS Section I.5 requirements. Procedural compliance was acceptable.

4. Operator Licenses, Requalification, and Medical Activities

a. Inspection Scope (IP 69001)

To determine that operator requalification activities and training were conducted as required by the Reed Reactor Facility Requalification Plan and that medical requirements were met, the inspector reviewed:

- active license status of all current operators
- medical examination records for selected operators
- training lectures and records for the current training cycle
- Reed Reactor Facility Requalification Plan dated October 2000
- written examinations given during 2005 and 2006 for selected operators
- logs and records of reactivity manipulations for 2005 through the present for selected operators
- Procedure Change Notice forms maintained for review by all licensed operators and dated from December 2005 to the present
- RRF SOP 13, “Requalification,” latest revision dated October 2006

b. Observations and Findings

As noted above, there are currently 21 qualified SROs and 29 qualified ROs at the RRF. The inspector reviewed selected operators’ licenses and noted that they were current.

A review of the logs and records showed that training had been conducted in accordance with the licensee’s requalification and training program. Training reviews and examinations had been documented as required. During the inspection the inspector attended an operator requalification/training session. The training session was held for SROs, ROs, and trainees. The subjects addressed during the session were appropriate and relevant to safety and as required in the requalification program.

Records of quarterly reactor operations, reactivity manipulations, other operations-related activities, and Reactor Supervisor activities were being maintained. Records indicating the completion of the annual operations tests and supervisory observations were also maintained. Biennial written examinations were being completed as required or credit was taken by the licensee for the SRO exams administered by the NRC to satisfy the requalification cycle exam requirements when applicable. The inspector noted that operators were receiving the required biennial medical examinations within the required time frame as well.

c. Conclusions

The requalification/training program was up-to-date and being acceptably maintained. Medical examinations were being completed as required.

5. Fuel Handling and Movement

a. Inspection Scope (IP 69001)

In order to verify adherence to fuel handling and inspection requirements specified in TS Section E, the inspector reviewed:

- Maintenance Logbook No. VI
- Main Log Nos. 66 through 68
- Fuel Element information contained in the licensee's computer database
- RRF SOP 40, "Fuel Element Inspection," latest revision dated August 2005
- RRF SOP 40: Appendix A, "Fuel Handling Checklist," latest revision dated July 2003
- RRF SOP 40: Appendix B, "Qualification Checklist for SRO in Reactor Room During Fuel Movement," latest revision dated April 2004
- RRF SOP 40: Appendix C, "Fuel Handling Tool Use," latest revision dated August 2005
- RRF SOP 41, "Control Rod Inspection," latest revision dated March 2005

b. Observations and Findings

During the inspection, the inspector was able to observe licensed personnel and trainees conducting fuel movements and control rod inspections. The inspector verified that the movements were conducted in compliance with procedure. The inspector also determined that the licensee was maintaining the required records of fuel movements as they were completed. Through records review, it was also noted that thee reactor fuel was being inspected upon initial receipt and one-fifth of the fuel elements in the core were being inspected biennially as allowed by TS Section E.3.

During one fuel movement, conducted for training and qualification purposes, a problem occurred with the fuel tool and the fuel element was dropped. (The fuel element was a "leaker" and had been removed from the core several years ago because it was damaged and could not be used for operation. The element was subsequently used only for training.) The inspector noted that the licensee stopped the operation, evacuated the Reactor Room, conducted surveys, and analyzed the

appropriate air filters. No release of radioactivity was detected. The licensee then reviewed the situation and developed a plan of action. Records of past fuel drops and fuel recovery actions were reviewed as well. Mockup training was conducted for those who were to be involved with the fuel recovery to familiarize them with the method to be used. The recovery actions then proceeded and the problem was resolved without incident.

c. Conclusions

Reactor fuel movements and inspections were completed and documented in accordance with procedure and the fuel was being inspected as specified by TS Section E.3. A problem that arose during one fuel move was dealt with in an effective manner.

6. Maintenance and Surveillance

a. Inspection Scope (IP 69001)

To verify that operations were conducted in accordance with TS Sections I and K, and to determine that surveillance activities and calibrations were being completed as required by TS Sections D - G, the inspector reviewed:

- Maintenance Logbook No. VI
- Main (reactor console) Log Nos. 64 through 68
- associated surveillance and calibration data and records for 2005-2006
- Reed Reactor Facility Annual Report for September 1, 2004 - August 31, 2005
- Reed Reactor Facility Annual Report for September 1, 2005 - August 31, 2006
- RRF Administrative Procedures, Section III, “Reactor Operations,” latest revision dated August 2006
- RRF SOP 10, “Writing in Log Books,” latest revision dated February 2006
- RRF SOP 41, “Control Rod Inspection,” latest revision dated March 2005
- RRF SOP 41: Appendix A, “Control Rod Inspection Checklist,” latest revision dated June 2006
- RRF SOP 42, “Control Rod Drop Times,” latest revision dated July 2003
- RRF SOP 43, “Control Rod Calibrations,” latest revision dated April 2006
- RRF SOP 70, “Weekly Checklist,” latest revision dated November 2006
- RRF SOP 70: Appendix A, “Reed Research Reactor Weekly Checklist,” latest revision dated September 2006
- RRF SOP 71, “Bimonthly Checklist,” latest revision dated November 2006
- RRF SOP 71: Appendix A, “Reed Research Reactor Bimonthly Checklist,” latest revision dated November 2006
- RRF SOP 72, “Semiannual Checklist,” latest revision dated July 2006
- RRF SOP 72: Appendix A, “Reed Research Reactor Semiannual Checklist,” latest revision dated October 2006
- RRF SOP 73, “Annual Checklist,” latest revision dated March 2005
- RRF SOP 73: Appendix A, “Reed Research Reactor Annual Checklist,” latest revision dated October 2006
- RRF SOP 85, “Control Rod Maintenance,” latest revision dated December 2006

b. Observations and Findings

As noted previously, during the week of the inspection the licensee conducted various daily, weekly, bimonthly, semiannual, and annual maintenance and surveillance items. The inspector verified that these activities were conducted during the time frame required and according to procedure. All the recorded results reviewed were within the TS and procedurally prescribed parameters. The records and logs reviewed were accurate, complete, and being maintained as required

A review of the RRF Main Logs and current Maintenance Logbook showed that the records were being completed as required and problems, if any, were being documented. The inspector's observations and this review also confirmed that maintenance was being conducted as needed, consistent with the TS. The inspector noted that the systems or components that were affected by maintenance activities were verified to be operable before being placed back into operation as well.

c. Conclusions

Maintenance was being completed as required. The program for surveillance was being carried out in accordance with TS requirements.

7. Conduct of Operations

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify operation of the reactor in accordance with TS Sections A-I:

- Maintenance Logbook No. VI
- Main (reactor console) Log Nos. 66 through 68
- Reed Reactor Facility Annual Report for September 1, 2004 - August 31, 2005
- Reed Reactor Facility Annual Report for September 1, 2005 - August 31, 2006
- RRF Administrative Procedures, Section III, "Reactor Operations," latest revision dated August 2006
- RRF SOP 01, "Startup Checklist," latest revision dated October 2006
- RRF SOP 01: Appendix A, "Reed Research Reactor Startup Checklist," latest revision dated October 2006
- RRF SOP 03, "Reactor Operations," latest revision dated November 2006
- RRF SOP 04, "Same Day Startup," latest revision dated January 2007
- RRF SOP 04: Appendix A, "Reed Research Reactor Same-Day Startup Checklist," latest revision dated January 2007
- RRF SOP 05, "Shutdown," latest revision dated September 2006
- RRF SOP 05: Appendix A, "Reed Research Reactor Shutdown Checklist," latest revision dated October 2006
- RRF SOP 10, "Writing in Log Books," latest revision dated February 2006
- RRF SOP 70, "Weekly Checklist," latest revision dated November 2006
- RRF SOP 70: Appendix A, "Reed Research Reactor Weekly Checklist," latest revision dated September 2006
- RRF SOP 71, "Bimonthly Checklist," latest revision dated November 2006

- RRF SOP 71: Appendix A, “Reed Research Reactor Bimonthly Checklist,” latest revision dated November 2006
- RRF SOP 72, “Semiannual Checklist,” latest revision dated July 2006
- RRF SOP 72: Appendix A, “Reed Research Reactor Semiannual Checklist,” latest revision dated October 2006
- RRF SOP 73, “Annual Checklist,” latest revision dated March 2005
- RRF SOP 73: Appendix A, “Reed Research Reactor Annual Checklist,” latest revision dated October 2006

b. Observations and Findings

(1) Activities Reviewed During the Inspection

The inspector reviewed selected reactor operating records from January 2006 through the present. These records included daily Startup Checklists, Shutdown Checklists, Experimental Startup and Shutdown Checklists, associated forms, Weekly Checklists, and the Main (reactor console) Logs. Additionally, the inspector observed maintenance and surveillance activities in progress during the inspection. These activities were carried out in accordance with written procedures as required by TS Section I.

Information on the operational status of the facility was recorded accurately on the log sheets and/or checklists as required by procedure. Scrams were identified in the logs and were reported and resolved as required before the resumption of operations. Through interviews with operators and review of logs and records, the inspector confirmed that shift staffing met the minimum requirements for duty and on-call personnel as required by SOP 1 and SOP 3.

(2) Licensee Reported TS Violation

TS Section A.1, “Shutdown,” includes three conditions under which the reactor shall be considered shut down. TS Section A.1.(a) states that “the console key switch is in the ‘off’ position and the key is removed from the console and under the control of a licensed operator (or stored in a locked storage area).”

On April 5, 2005, from 2:48 until 3:37 p.m. the key was in the console, and for approximately 30 minutes of that time, there was no operator at the controls. During that time, a licensed operator had inserted the key as a demonstration for training purposes for an SRO candidate. Following the demonstration the licensed operator forgot to remove the key from the console. At all times during the entire period of time, the control room was locked and there were no visitors at the facility. Also, the reactor was subcritical.

When the situation was discovered, the key was removed from the console and placed in the locked storage location. Subsequently the licensed operator was given a verbal warning by the Reactor Supervisor and the Reactor Operations Committee was made aware of the event during their meeting on April 11, 2005.

The licensee was informed that this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A.8 of the NRC Enforcement Policy (NCV 50-288/2006-201-01).

c. Conclusions

Based on the procedures and records reviewed and observations made during the inspection, the inspector determined that reactor operations and logs were acceptable and in accordance with procedural and TS requirements. One licensee-identified NCV was noted for failure to remove the key from the console following a training demonstration.

8. Experiments

a. Inspection Scope (IP 69001)

In order to verify that experiments were being conducted within approved guidelines specified in TS Section J, the inspector reviewed:

- experiment review and approval by the ROC
- selected Irradiation Request Forms for 2005 and 2006
- selected Routine, Modified Routine, and Special Experiments
- RRF Administrative Procedures, Section IV, “Reactor Experiments,” latest revision dated August 2006
- RRF SOP 50, “Irradiation Requests,” latest revision dated October 2003
- RRF SOP 50: Appendix A, “Irradiation Request Form,” latest revision dated October 2003
- RRF SOP 50: Appendix B, “Reed Reactor Facility Rabbit Irradiation Form,” latest revision dated October 2003
- RRF SOP 50: Appendix C, “Sample Activity Estimation,” latest revision dated August 1998
- RRF SOP 50: Appendix D, “Reed Reactor Facility Sample Preparation,” latest revision dated September 2006
- RRF SOP 50: Appendix E, “Sample Transfer,” latest revision dated October 2003
- RRF SOP 50: Appendix F, “Neutron Activation Analysis,” latest revision dated May 2005
- RRF SOP 50: Appendix G, “Qualification Checklist for Performing Neutron Activation Analysis,” latest revision dated December 2002
- RRF SOP 50: Appendix H, “Irradiation Request List,” latest revision dated June 2006
- RRF SOP 51, “Rabbit Irradiations,” latest revision dated September 2005
- RRF SOP 51: Appendix A, “Qualification Checklist for Performing Rabbit Irradiations,” latest revision dated December 2002
- RRF SOP 52, “Lazy Susan Irradiations,” latest revision dated December 2006
- RRF SOP 53, “Central Thimble Irradiations,” latest revision dated October 2006
- RRF SOP 55, “Beam Irradiations,” latest revision dated June 2006
- RRF SOP 55: Appendix A, “Beam Irradiations Checklist,” latest revision dated June 2006

b. Observations and Findings

The inspector noted that all the experiments conducted at the facility were well-established procedures that had been in place for several years. There were 17 Routine and/or Modified Routine experiments and 23 Special experiments that have been reviewed and approved by the ROC. The last routine experiment to be revised and approved was Experiment No. 3, "Routine Irradiation Utilizing an Evacuated Central Thimble," dated February 26, 2001. The last special experiment to be revised and/or approved was Special Experiment No. 25, "Antimony-Beryllium Source," dated November 2006.

The inspector noted that irradiations were conducted under the cognizance of the Facility Director and the Reactor Supervisor as required. The irradiations were documented in the Main Log and the results of the experiments were documented on the Irradiation Request Forms as required. The resulting radioactive material was being transferred to an authorized user or disposed of as stipulated by procedure.

c. Conclusions

The license's program for the control of experiments satisfied regulatory and TS Section J requirements.

9. Emergency Preparedness

a. Inspection Scope (IP 69001)

To verify compliance with the Reed Reactor Facility Emergency Plan, the inspector reviewed selected aspects of:

- training records for the past two years
- emergency drills and exercises held during 2005 and 2006
- Reed Reactor Facility Emergency Plan last revised January 2003
- emergency response facilities, supplies, equipment and instrumentation
- Reed Reactor Facility Emergency Plan, Appendix A, Agreement Letters with off-site support organizations last updated in 2005
- the Reed Reactor Facility Emergency Plan, Appendix B, Emergency Implementation Procedures (EIPs), dated March 2004

b. Observations and Findings

The Emergency Plan (E-Plan) in use at the reactor was the same as the version most recently approved by the NRC. The E-Plan and Emergency Implementation Procedures were being audited and reviewed annually as required. Facilities, supplies, instrumentation, and equipment were being maintained, controlled, and inventoried as required in the E-Plan.

Through records review and interviews with licensee personnel, emergency responders were determined to be knowledgeable of the proper actions to take in case of an emergency. The inspector reviewed the Agreement Letters that had been signed with

the City of Portland Police Bureau, the City of Portland Fire and Rescue, American Medical Response (AMR) Ambulance Service, Legacy Health System, and Oregon Department of Energy. These agreements with the various emergency support organizations were being maintained and had been updated as required. It was noted that the agreements would need to be renewed in 2007. Communications capabilities were acceptable and had been tested and emergency information updated as stipulated in the E-Plan.

Emergency drills had been conducted annually as required by the E-Plan. Off-site support organization participation was also as required by the E-Plan. Critiques were held following the drills to discuss the strengths and weaknesses identified during the exercise and to develop possible solutions to any problems identified. The results of these critiques were documented and reported to the RSC. Emergency preparedness and response training for off-site and reactor staff personnel was being conducted annually and documented as stipulated by the E-Plan.

The inspector also visited the City of Portland Fire and Rescue, Station No. 20, which was the facility that would respond to the RRF if needed. The fire station was noted to be well equipped to handle fire emergencies, the personnel were knowledgeable of the correct actions to take at the facility, and there was a good working relationship between the Fire Bureau staff and the licensee staff.

c. Conclusions

The emergency preparedness program was conducted in accordance with the Emergency Plan.

10. Follow-up on Previous Open Items

a. Inspection Scope

The inspector reviewed the licensee's actions taken in response to a previously identified Inspector Follow-up Item (IFI).

b. Observation and Findings

(Closed) IFI 50-288/2004-201-01 - Follow-up on the issue of the licensee or RRC completing all required audits in a timely manner.

During a previous inspection it was noted that most, but not all, of the required facility audits had been completed by the ROC and the RSC in those areas outlined in the TS. When questioned about the audits that had not been completed, the licensee indicated that they were considering various options to ensure that all audits were completed in a timely manner and as required. These options included making the subject of “Audits” a permanent item and placing it first on the RRC meeting agenda; assigning shorter completion dates so that audits could be reassigned if needed; and, having the facility audit program reviewed/audited by a member of the RRC. The licensee was informed that the issue of completing all required audits in a timely manner was identified as an area for improvement and would be followed by the NRC as an IFI.

During this inspection, the inspector reviewed the status of this issue. It was determined that the licensee had initiated several practices to ensure the timely completion of the audits. These measures included: 1) the Facility Director sending out electronic (E-mail) reminders to the various assigned individuals encouraging them to complete the audits, 2) reviewing the audit status during ROC and RSC committee meetings, and 3) assigning any audits that might be late to a "backup" person so that the audit could be completed as required. As of the date of the inspection, these actions appeared to be adequate and this issue is considered closed.

c. Conclusions

One previously identified IFI was closed.

11. Exit Interview

The inspection scope and results were summarized on January 11, 2007, with the Facility Director. The inspector discussed the findings for each area reviewed. The licensee acknowledged the findings and did not identify as proprietary any of the material provided to or reviewed by the inspector during the inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Arrighi, Senior Reactor Operator and Training Supervisor
S. Beaver, Associate Director, Reed Reactor Facility
S. Frantz, Facility Director
C. Wagner, Senior Reactor Operator and Operations/Reactor Supervisor

Other Personnel

K. Fisher, Radiation Safety Officer and Campus Environmental Director
E. Janssens, Battalion Chief, City of Portland Fire and Rescue
B. Knotts, Captain, City of Portland Fire and Rescue, Station No. 20
W. Lei, Voting Member, Radiation Safety Committee

INSPECTION PROCEDURE USED

IP 69001 Class II Non-Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-288/2006-201-01	NCV	Failure to remove the key from the console following a training demonstration.

Closed

50-288/2004-201-01	IFI	Follow-up on the issue of the licensee or RRC completing all required audits in a timely manner.
50-288/2006-201-01	NCV	Failure to remove the key from the console following a training demonstration.
50-288/2004-201-02	NCV	Failure to inspect all fuel elements every ten years as required by TS Section E.3. (Closed in Inspection 50-288/2004-201.)
50-288/2004-201-03	NCV	Failure to follow procedures by not completing the appropriate Shutdown Checklists as required by TS Section I.5. (Closed in Inspection 50-288/2004-201.)

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
EIPs	Emergency Implementation Procedures
E-Plan	Emergency Plan
IFI	Inspector Follow-up Item
IP	Inspection Procedure
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
RO	Reactor operator
ROC	Reactor Operations Committee
RRC	Reactor Review Committee
RRF	Reed Reactor Facility
RSC	Radiation Safety Committee
RTR	Research and Test Reactor
SOP	Standard Operating Procedure
SRO	Senior reactor operator
TS	Technical Specifications