August 19, 2004

Dr. Andrew C. Klein, Director
Radiation Center and TRIGA Reactor
Oregon State University
Radiation Center, A100
Corvallis, OR 97331-5903

SUBJECT: NRC INSPECTION REPORT NO. 50-243/2004-201 AND NOTICE OF VIOLATION

Dear Dr. Klein:

This letter refers to the inspection conducted on August 2-5, 2004, at your Radiation Center TRIGA Mark-II Reactor Facility. The inspection included a review of activities authorized for your facility. The enclosed report presents the results of that inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. Based on the results of this inspection, the NRC has identified a violation of NRC requirements. The violation is cited in the enclosed Notice of Violation (Notice). The circumstances surrounding it are described in detail in the subject inspection report. The violation is of concern because: 1) it should have been prevented by your corrective action for a problem you noted three years ago, and 2) it was identified by the NRC and not through your own review.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response in accordance with its policies to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) http://www.nrc.gov/reading-rm/adams.html.

Should you have any questions concerning this inspection, please contact Craig Bassett at 404-562-4712.

Sincerely,

/RA/

William D. Beckner, Program Director
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 50-243
License No.: R-106

Enclosures: 1. Notice of Violation
2. NRC Inspection Report
cc w/encl: Please see next page

cc:

Mayor of the City of Corvallis
Corvallis, OR 97331

David Stewart-Smith, Administrator
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Office of Energy, Suite 1
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Dr. John Ringle, Chairman
Reactor Operations Committee
Oregon State University
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Corvallis, OR 97331-5904

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

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NOTICE OF VIOLATION

Oregon State University
TRIGA Mark-II Reactor Facility

Docket No.: 50-243
License No.: R-106

During an NRC inspection conducted on August 2-5, 2004, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

Section 6.5 of the Technical Specifications requires that the licensee have written operating procedures for the safe operation of the reactor.

Oregon State University TRIGA Reactor Operating Procedure (OSTROP) 16, "Annual Surveillance and Maintenance Procedures," Rev 8, dated July 2004, requires in Part 20 that, in order for a reactor operator to maintain an active NRC license, each reactor operator must have a satisfactory medical examination every two years.

Contrary to the above, one operator had a medical examination in January of 2002 but had not had one since that time, a period greater than two years.

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, the Oregon State University is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001 with a copy to the responsible inspector, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at (the Public Electronic

Reading Room) http://www.nrc.gov/reading-rm/adams.html. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in10 CFR 73.21.

In accordance with10 CFR 19.11, you may be required to post this Notice within two working days.

Dated at Rockville, Maryland
this day of .

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

Docket No:	50-243
License No:	R-106
Report No:	50-243/2004-201
Licensee:	Oregon State University
Facility:	TRIGA Mark-II Reactor Facility
Location:	Radiation Center, Oregon State University Corvallis, Oregon
Dates:	August 2-5, 2004
Inspector:	Craig Bassett
Approved by:	William D. Beckner, Program Director New, Research and Test Reactors Program Division of Regulatory Improvement Programs Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Oregon State University
Report No: 50-243/2004-201

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the licensee's Class II research reactor safety programs including: organization and staffing, review and audit and design change functions, operator requalification, procedures, fuel movement, maintenance and surveillance, reactor operations, experiments, and emergency preparedness since the last NRC inspection of these areas. The licensee's programs were determined to be directed toward the protection of public and facility worker health and safety and were in compliance with NRC requirements. One apparent violation was noted in the area of operator requalification.

Organization and Staffing

- The licensee's organization and staffing were in compliance with the requirements specified in the Technical Specifications.

Review and Audit Functions and Design Control

- Review, audit, and oversight functions required by Technical Specification Section 6.2 were acceptably completed by the Reactor Operations Committee.

- The 50.59 change review process at the facility was in place and was being followed when changes were initiated.

Operator Licenses, Requalification, and Medical Activities

- Operator requalification was conducted as required by the Operator Requalification Program.

- One violation was noted for failure to have a reactor operator with an active license complete a medical examination every two years as required.

Procedures

- Facility procedures were acceptable and satisfied Technical Specification requirements for being revised by the licensee and reviewed and approved by the Reactor Operations Committee.

- Procedural compliance was observed and found to be acceptable.

Fuel Movement

- Fuel handling activities were as required by Technical Specification and fuel inspections were documented as required by facility procedures.

Maintenance and Surveillance

- Maintenance was being completed in accordance with Technical Specification and procedural requirements.

- The program for surveillance verifications and calibrations was being implemented in accordance with Technical Specification requirements.

Experiments

- The program for the control of experiments satisfied regulatory and Technical Specification Sections 3.8 and 4.3 requirements.

Reactor Operations

- Reactor operations were conducted in accordance with Technical Specification requirements and applicable procedures.

Emergency Preparedness

- Emergency response facilities and equipment were being maintained as required and responders were knowledgeable of proper actions to take in case of an emergency.

- The licensee maintained current Emergency Support Agreements with offsite agencies which indicated that support would be available in case of an emergency.

- Annual drills were being held and documentation was maintained concerning the follow-up critiques and subsequent corrective actions.

- Emergency preparedness training for staff and off-site personnel was being conducted as required.

REPORT DETAILS

Summary of Plant Status

The licensee's 1.1 megawatt TRIGA Mark-II research reactor continued normal, routine operations. Observation of reactor operation and a review of the applicable records indicated that the reactor was typically operated approximately six hours per day, five days per week, in support of laboratory testing, reactor system testing, reactor surveillances, and sample irradiations. During this inspection, the reactor was started up and operated several hours a day at varying power levels for training and sample irradiation.

1. Organizational Structure and Staffing

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

The inspector reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of Section 6 of the Technical Specifications (TS), Amendment No. 18, dated November 4, 1999, were being met:

- Oregon State University (OSU) Radiation Center facility organizational structure and staffing
- selected portions of the Reactor Console Logbooks for the past two years
- OSU TRIGA Reactor Annual Reports for the periods July 1, 2002 through June 30, 2003, and July 1, 2003 through June 30, 2004
- administrative controls outlined in Oregon State University TRIGA Reactor Operating Procedure (OSTROP) 6, "Administrative and Personnel Procedures," Revision (Rev) 10, dated July 2004
- American National Standard ANSI/ANS 15.4-1977 (N380), "Selection and Training of Personnel for Research Reactors," dated 1977

b. Observations and Findings

The Radiation Center organizational structure and the responsibilities of the reactor staff had not changed since the last inspection. Staffing levels remained consistent with those noted during the last inspection of this facility. The current operational organization consisted of the Director of the Radiation Center, a Reactor Administrator, a Reactor Supervisor, a Senior Reactor Operator (SRO), a Scientific Instrument Technician, a Senior Health Physicist, and a Health Physicist. It was noted that the Reactor Administrator, Reactor Supervisor, and Scientific Instrument Technician were also qualified SROs. This organization was consistent with that specified in the TS.

The reactor operations staff satisfied the training and experience requirements stated in ANSI/ANS 15.4, "Standard for the Selection and Training of Personnel for Research Reactors," as stipulated in the TS. A review of the Reactor Console Logbooks showed that the logs were being maintained as required and problems were being documented acceptably. The logs and associated records confirmed that shift staffing met the minimum requirements for duty and on-call personnel. The annual reports summarized the required information and were issued at the frequency specified in the TS.

The Reactor Supervisor maintained a schedule for reactor operations and tracked the completion of maintenance and surveillance activities. This practice ensured that the staff was aware of upcoming activities and helped ensure good administrative control over operational aspects of the facility.

c. Conclusions

Organizational structure and staffing were in compliance with the requirements specified in TS Section 6.

2. Review and 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 by TS Section 6.2 and to determine whether modifications to the facility were consistent with 10 CFR 50.59, the inspector reviewed:

- Charter of the Reactor Operations Committee (ROC) that had been incorporated into OSTROP 6
- ROC meeting minutes from August 2002 through the date of the inspection
- responsibilities of the ROC and design change functions outlined in OSTROP 6
- safety audit and review records for the past two years
- responses to the safety audits and reviews
- design/facility change evaluations conducted under and documented in accordance with OSTROP 6, Figure 6.2 entitled, “OSU TRIGA Reactor (OSTR) Changes, Tests, and Experiments Evaluated Under the Provisions of 10 CFR 50.59,” Numbers 03-06, -07, -08, -09, and -10; 04-01, -02, -03, -04, -05, -06, and -07
- Forms which documented approval of procedure revisions by the ROC between scheduled meetings entitled “Reactor Operations Committee Approval Sheet (ROCAS),” Numbers 03-03; 04-01, and -02

b. Observations and Findings

(1) Review and Audit Functions

The inspector reviewed the Reactor Operations Committee meeting minutes from August 2002 to the present. These meeting minutes showed that the committee met as required by the TS with a quorum being present. The inspector also noted that the ROC had considered the types of topics outlined by the TS Section 6.2. Review of the committee meeting minutes also indicated that the ROC provided appropriate guidance and direction for reactor operations, and ensured suitable use and oversight of the reactor.

It was noted that ROC members completed audits of reactor operations and related records, as well as, the radiation protection, emergency preparedness, and other programs. The inspector noted that the audits and the resulting findings were acceptable and were generally completed within the time frame stipulated by the TS. If the findings contained recommendations for possible changes, the licensee responded and took corrective actions as necessary.

(2) Design Control

The inspector reviewed recent 10 CFR 50.59 evaluations and interviewed licensee personnel concerning facility changes. As a result, the inspector determined that all changes that had been initiated at the facility since the last NRC operations inspection had undergone a review by the licensee staff who then wrote a proposal outlining the changes. These were presented to the ROC for review and approval in accordance with OSTROP 6. It was noted that none of the changes constituted a safety question or required an amendment to the license or a change to the facility TS.

c. Conclusions

Review, audit, and oversight functions required by TS Section 6.2 were acceptably completed by the ROC. 10 CFR 50.59 changes were being reviewed and approved by the ROC as required and none was determined to constitute a safety question.

3. Operator Licenses, Requalification, and Medical Activities

a. Inspection Scope (IP 69001)

The inspector reviewed the following in order to determine that operator training and requalification activities were conducted as required and that medical requirements were met:

- OSU TRIGA Reactor Initial Licensing Program
- OSU Radiation Center Operator Requalification Program dated May 3, 1988
- effective dates of current operator licenses
- logs and records of reactivity manipulations maintained in the Operator Time Log and associated manual
- biennial written examination records
- operator training records documented in the Operator Requalification Manual
- medical examination records
- active duty status and Annual Reactor Operating Test results noted and maintained in the Operator Time Log and associated manual
- operations records documented in the Reactor Console Logbook, Nos. 135-141
- OSTROP 16, “Annual Surveillance and Maintenance Procedures,” Rev 8, dated July 2004 and related log sheets

b. Observations and Findings

(1) Requalification Program Completion

At the time of the inspection, there were four qualified SROs working at the facility. The inspector verified that all the operators’ licenses were current.

A review of the logs and records showed that training had been conducted in the areas outlined in the licensee’s requalification and training program such that all the material was covered within a two-year period. It was noted that lectures had been given as stipulated, that training reviews had been documented, and that written

examinations had been completed. An annual operating test had been conducted for each SRO by the Reactor Supervisor as required by the program as well. It was also verified that each operator had completed the required number of hours of reactor operations each calendar quarter as required. Records of these reactor manipulations, other operational activities, and/or Reactor Supervisor activities were being maintained, as were records of the Annual Operations Tests. The program was up-to-date and training was current.

(2) Medical Examination Requirement

TS Section 6.5 requires that the licensee have written procedures for the safe operation of the reactor.

OSTROP 16, "Annual Surveillance and Maintenance Procedures," Rev 8, dated July 2004, requires in Part 20 that, in order for a reactor operator to maintain an active NRC license, each reactor operator must have a satisfactory medical examination every two years.

The inspector reviewed the medical examinations conducted for each operator. Each operator was typically scheduled to have a medical examination biennially in accordance with procedures. On August 3, 2004, the inspector noted that all operators but one had received the required medical examinations at the frequency specified in the requalification program. One operator had a medical examination in January of 2002 but had not had one since that time. When the licensee was made aware of this situation, the individual was administratively suspended from performing reactor operations until he passed the required examination. The licensee was able to schedule an examination immediately, which was completed on August 4, 2004. However, the paperwork documenting the results was not going to be available until the following week.

The inspector noted that this same type of a problem had occurred in April 2001 but the problem had been detected and subsequently corrected by the licensee. A non-cited violation (NCV) was issued in that instance.

The licensee was informed that failure to have an operator with an active license complete a medical examination every two years was an apparent violation (VIO) of TS Section 6.5 (VIO 50-243/2004-201-01).

c. Conclusions

The requalification and training program was up-to-date and acceptably maintained. One violation was noted for failure to conduct a medical examination for each operator biennially as required.

4. Procedures

a. Inspection Scope (IP 69001)

To determine whether facility procedures were being audited annually and met the requirements outlined in TS Section 6.5, the inspector reviewed:

- procedural reviews and updates documented in ROC meeting minutes.
- selected operating procedures including: OSTROP 2, "Reactor Startup Checklist Procedures," Rev 7, dated July 2004; OSTROP 3, "Reactor Shutdown Checklist Procedures," Rev 6, dated July 2004; and OSTROP 4, "Reactor Operation Procedures," Rev 5, dated May 2002
- administrative procedures including: OSTROP 5, "Procedures for Maintaining Reactor Operational Procedures," Rev 4, dated February 2004, and OSTROP 6

b. Observations and Findings

The licensee's procedures were found to be acceptable for the facility's current operating status and staffing level. It was noted that the procedures specified the responsibilities of the various members of the staff. The inspector determined that the procedures were being audited and reviewed annually and revised as needed. Substantive changes to procedures, checklists, and forms were presented to the ROC for review and approval as required by TS. The operations observed by the inspector during this inspection were completed in accordance with the applicable procedures.

c. Conclusions

Facility procedures were being reviewed and audited annually as required by TS Section 6 and procedure revisions were reviewed and approved by the ROC. Procedural compliance was acceptable.

5. Fuel Movement

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify adherence to fuel handling, positioning, and inspection requirements specified in TS Sections 4.4 and 5.2:

- fuel handling equipment and instrumentation
- operations records documented in the Reactor Console Logbook, Nos. 135-141
- fuel handling and examination records for the past two years documented on "Oregon State University TRIGA Reactor Fuel Element History File" cards maintained in the FLIP Fuel Element History Logbook and on "Fuel Element Transfer Sheet" forms
- OSTROP 11, "Fuel Element Handling Procedures," Rev 3, dated January 2003
- OSTROP 16, "Annual Surveillance and Maintenance Procedures," Rev 8, dated July 2004 and related log sheets
- OSTROP 20, "Special Nuclear Material Control and Accounting Procedures," Rev 6, dated July 2004

b. Observations and Findings

The inspector noted that the licensee was operating with FLIP Core No.10. It was also noted that the reactor could be operated in different configurations depending upon what equipment was installed in the B-1 position of the core. The actual configuration is tracked in the Reactor Console Logbook via colored markers used to mark the edge of each applicable logbook page.

The inspector determined that the licensee was maintaining the required records of the various fuel movements that were completed and verified that the movements were conducted in compliance with procedure. The reactor fuel was being inspected upon initial receipt and on an as needed basis as required by TS Section 4.4. It was also noted that the specific elements located adjacent to the transient rod were inspected annually as a quality control measure because occasional swelling of those elements had been noted in the past due to reactor operation.

The procedures used for fuel movement and inspection were acceptable and the precautions that were required to be established during such movements and inspections were acceptable. Fuel element locations were being tracked by log book and on a Fuel Status Board maintained in the Reactor Control Room.

c. Conclusions

Reactor fuel movements were made and documented in accordance with procedure. The fuel was being inspected on an as-needed basis as allowed by TS Section 4.4.

6. Maintenance and Surveillance

a. Inspection Scope (IP 69001)

To determine that surveillance requirements and Limiting Conditions for Operation (LCO) verifications were being completed as required by TS Sections 3 and 4 and that maintenance activities were conducted when required, the inspector reviewed:

- selected surveillance and calibration test data sheets and records maintained in the Surveillance and Maintenance Logbook
- operations records documented in the Reactor Console Logbook, Nos. 135-141
- selected portions of the Reactor Supervisor Log Nos. 12 & 14
- OSTROP 8, “Reactor Power Calibration Procedures,” Rev 3, dated September 2002
- OSTROP 9, “Control Rod Calibration Procedures,” Rev 8, dated July 2004
- OSTROP 12, “Control Rod Maintenance, Removal, and Replacement Procedures,” Rev 2, dated May 2002
- OSTROP 13, “Monthly Surveillance and Maintenance Procedures,” Rev 9, dated July 2004 and related log sheets
- OSTROP 14, “Quarterly Surveillance and Maintenance Procedures,” Rev 6, dated June 2003 and related log sheets
- OSTROP 15, “Semi-Annual Surveillance and Maintenance Procedures,” Rev 10, dated July 2004 and related log sheets
- OSTROP 16, “Annual Surveillance and Maintenance Procedures,” Rev 8, dated July 2004 and related log sheets
- OSTROP 19, “Equipment Maintenance and Calibration Procedures,” Rev 1, dated July 2004

b. Observations and Findings

The inspector noted that selected monthly, quarterly, semiannual, and annual checks, tests, verifications, and/or calibrations for TS-required surveillances and LCO verifications were being completed as stipulated. All the surveillances and LCO

verifications reviewed were completed on schedule and in accordance with licensee procedures. All the recorded results were within the TS and procedurally prescribed parameters. The records and logs reviewed were accurate, complete, and being maintained as required.

The maintenance logs and records indicated that problems were addressed and preventive maintenance operations completed as required by procedure. Records showed that routine maintenance activities were conducted at the required frequency and in accordance with the TS and/or the applicable procedure. Maintenance activities ensured that equipment remained consistent with the Safety Analysis Report and TS requirements.

c. Conclusions

The program for surveillance and LCO confirmations was being carried out in accordance with TS and procedural requirements. Maintenance was also being completed as required.

7. Experiments

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify that experiments were being conducted within approved guidelines specified in TS Sections 3.8 and 4.3:

- selected OSU TRIGA Reactor Irradiation Request forms for the past two years
- selected Standard Form Irradiation Request forms for the past two years
- selected Pneumatic Transfer Irradiation Request forms for the past two years
- documentation of experiment review and approval by the ROC
- potential hazards identification and control of irradiated items
- OSU Radiation Center TRIGA User's Certification Form
- operations records documented in the Reactor Console Logbook, Nos. 135-141
- General Limitations of Experiments Performed Using the OSU TRIGA Reactor
- Approved Experiments No. A-1, "Normal TRIGA Operations," Rev 1, dated July 1992; No. B-3, "Irradiation of Materials in the Standard OSTR Irradiation Facilities," Rev 4, dated December 1999; No. B-32, "Argon Production Facility," Rev 0, dated January 1999; and No. B-33, "Irradiation of Combustible Liquids in the Rotating Rack," Rev 0, dated May 2003
- OSTROP 10, "Operating Procedures for Reactor Experimental Facilities," Rev 9, dated July 2004
- OSTROP 18, "Procedures for the Approval and Use of Reactor Experiments," Rev 7, dated February 2004

b. Observations and Findings

It was noted that most of the experiments conducted were well-established procedures that have been in place for many years. However, one new experiment had been initiated since the last inspection. It dealt with irradiation of combustible liquids in the rotating rack (Lazy Susan). The inspector verified that the experiment had been reviewed and approved by the ROC as required.

A review of the records maintained by the licensee indicated that experiments were completed under the cognizance of the Reactor Supervisor as required. The results of the experiments were documented in the reactor operations log book. Irradiation Request forms, required for reactor use, were also reviewed. The forms were being completed as required. The forms documented the individual users, the required approvals and licenses, the length of the irradiations, the expected resulting radionuclides that would be produced, and the ultimate disposition of the material following the irradiations.

The inspector observed the removal of samples from and the insertion of samples into the reactor Thermal Column Irradiation Facility. It was noted that licensee personnel followed procedure and established protocol. Accepted health physics controls were used to maintain exposures ALARA. Contamination controls were used effectively as well.

c. Conclusions

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

8. Operations

a. Inspection Scope (IP 69001)

The inspector reviewed selected portions and/or aspects of:

- start-up activities documented on OSTROP 2 forms entitled "OSU TRIGA Reactor Startup Checklists"
- shut down activities documented on OSTROP 3 forms entitled "Reactor Shutdown Checklists"
- operations records documented in the Reactor Console Logbook, Nos. 135-141
- observation of startup, operations, and shutdown activities on August 3 and 4, 2004
- staffing during routine reactor operations
- selected OSU TRIGA Reactor Daily Power Log Sheets for the past two years
- selected records of console instrumentation readings documented on Control Room Log Sheets for the past two years
- Licensed Operator Time Log Sheets for the past two years
- OSTROP 4, "Reactor Operation Procedures," Rev 5, dated May 2002

b. Observations and Findings

The inspector conducted observations of the reactor staff on August 3 and 4, 2004, and reviewed Reactor Console Logbooks and associated records. The inspector noted that the licensed reactor operators were knowledgeable and competent. Observation of operational activities also confirmed that reactor operations, including start-up, routine operation, and shut down, were carried out in accordance with written procedures and TS requirements. Adherence to procedures was acceptable.

These observations and reviews also confirmed that shift staffing during reactor operation met the TS requirements for duty and on-call personnel. The inspector noted

that the logs were being maintained as required by procedure, were clear and concise, and provided an acceptable indication of operational activities. The records showed that operational conditions and parameters were consistent with license and TS requirements. The Reactor Console Logbooks, as well as other supplemental records, documented abnormal events that occurred and measures that had been taken to resolve or track the events.

c. Conclusions

Reactor operations were being completed in accordance with TS and procedural requirements.

9. Emergency Preparedness

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of:

- emergency response facilities, supplies, equipment, and instrumentation
- training and emergency drill records for the past two years
- offsite support as documented in Emergency Support Agreements.
- Oregon State University TRIGA Reactor (OSAR) Emergency Response Plan and Emergency Response Implementing Procedures, dated May 17, 1984
- OSTROP 1, “Emergency Operating Procedures,” Rev 7, July 2004

b. Observations and Findings

The Emergency Plan (E-Plan) in use at the facility was the same as the version approved by the NRC and was last revised November 2003. The E-Plan was audited and reviewed annually by the ROC as required. Implementing procedures were also reviewed annually and revised by the licensee as needed to implement the E-Plan effectively.

Through records review and through interviews with licensee personnel, emergency responders were determined to be knowledgeable of the proper actions to take in case of an emergency. Emergency response facilities and equipment were being maintained as required. An Emergency Support Agreement with the Good Samaritan Hospital in Corvallis, to treat potential victims of a radiological event, had been updated and maintained as necessary. Agreements were also being maintained with the City of Corvallis Fire and Police Departments as required. Communications capabilities were acceptable with the support groups and were tested periodically, generally daily. Personnel from these off-site support organizations visited the facility periodically and were familiar with the facility and what would be required during a response.

The inspector visited the Good Samaritan Regional Medical Center and observed the equipment staged in that location for response to an emergency at the Radiation Center. From this observation and as a result of reviewing the licensee’s records documenting drills and training, the inspector verified that medical support personnel were well trained, properly equipped, and knowledgeable of the actions to take in case

of an emergency at the reactor facility. The inspector determined that the licensee was maintaining a good working relationship with this support group.

Emergency preparedness and response training for staff and specific support group personnel was being completed annually as required. Evacuation drills had been conducted each year as well. The licensee was also conducting drills annually as stipulated in the E-Plan in order to test communications procedures and check on the response of facility personnel to simulated radiological, industrial hazards, or security problems. The inspector verified that every two years the drills were structured to involve and require the participation of off-site support agencies and personnel. Critiques were conducted following the drills to discuss and identify any strengths or weaknesses noted.

Emergency response equipment was being maintained and inventoried at the licensee's facility, as well as at Good Samaritan Regional Medical Center, as required. Some minor problems were noted by the inspector with documentation of inventories and functional testing of some equipment. The licensee acknowledged these minor discrepancies and indicated that the forms documenting inventories and functional testing would be revised to provide better documentation of these activities. The revisions were to be presented to the ROC for approval during the next scheduled meeting (which was to occur on August 10, 2004).

c. Conclusions

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

10. Exit Interview

The inspection scope and results were summarized on August 5, 2004, with licensee representatives. 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 of these program areas.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

T. Keller, Senior Reactor Operator
S. Reese, Reactor Administrator
G. Wachs, Reactor Supervisor

Other Personnel

E. Shiner, Radiation Safety Officer, Good Samaritan Regional Medical Center
J. Ringle, Chairman, Reactor Operations Committee

INSPECTION PROCEDURE USED

IP 69001 Class II Non-Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

VIO	50-243/2004-201-01	Failure to follow procedure and complete a medical examination for each operator biennially as required.

Closed

None

LIST OF ACRONYMS USED

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
IP	Inspection Procedure
LCO	Limiting Condition for Operations
NRC	Nuclear Regulatory Commission
NCV	Non-cited Violation
OSU	Oregon State University
OSTR	Oregon State University TRIGA Reactor
OSTROP	Oregon State University TRIGA Reactor Operating Procedure
ROC	Reactor Operations Committee
ROCAS	Reactor Operations Committee Approval Sheets
SRO	Senior reactor operator
TS	Technical Specifications
VIO	Violation