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

Docket No:	50-243
License No:	R-106
Report No:	50-243/99-201
Licensee:	Oregon State University
Facility:	TRIGA Mark-II Reactor Facility
Location:	Radiation Center, Oregon State University Corvallis, Oregon
Dates:	May 10-13, 1999
Inspector:	Craig Bassett, Senior Non-Power Reactor Inspector
Approved by:	Ledyard B. Marsh, Chief Events Assessment, Generic Communications and Non-Power Reactors Branch Division of Regulatory Improvement Programs Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

This routine, announced inspection included onsite review of selected aspects of the following: organizational structure, review and audit program, radiation protection program, safeguards program, security program, and transportation program since the last NRC inspection of these areas.

The licensee's programs were acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements.

ORGANIZATIONAL STRUCTURE AND FUNCTIONS

The organizational structure and functions were consistent with Technical Specification requirements.

REVIEW AND AUDIT

The review and audit program satisfied Technical Specification requirements.

RADIATION PROTECTION

The radiation protection program satisfied NRC requirements.

ENVIRONMENTAL PROTECTION

The environmental protection program satisfied NRC requirements.

PROCEDURES

The procedural control and implementation program satisfied Technical Specification requirements.

SAFEGUARDS

Special Nuclear Materials were acceptably controlled and inventoried.

SECURITY

Security activities and systems satisfied Physical Security Plan requirements.

TRANSPORTATION

The program for transportation of radioactive materials satisfied NRC requirements.

YEAR 2000 CONCERNS

No problems had been identified concerning reactor operations but Y2K concerns in the area of spectroscopy were being addressed.

Report Details

Summary of Plant Status

During the inspection the reactor was operated several days a week to support experiments, education, operator training, and surveillance activities.

1. ORGANIZATIONAL STRUCTURE AND FUNCTIONS (69001)

a. Scope

The inspector reviewed selected aspects of:

- organization and staffing
- qualifications
- management responsibilities
- administrative controls

b. Observations and Findings

The organizational structure and staffing with respect to the health physics organization had changed since the last inspection. A new Assistant Health Physicist had been hired because the previous person filling that position had retired.

The organizational structure and staffing as a whole at the facility, and as reported in the Annual Report, was as required by Technical Specification. Qualifications of the staff met Technical Specification requirements. Review of records verified that management responsibilities were administered as required by Technical Specifications and applicable procedures.

c. Conclusions

The organizational structure and functions were consistent with Technical Specification requirements.

2. REVIEW AND AUDIT (69001)

a. Scope

The inspector reviewed selected aspects of:

- Reactor Operations Committee (ROC) meeting minutes/records
- ROC safety review and audit records
- responses to safety reviews and audits

b. Observations and Findings

Records showed that the safety reviews were conducted at the Technical Specification required frequency. Topics of these reviews were also consistent with Technical Specification requirements to provide guidance, direction, and oversight, and to ensure acceptable use of the reactor.

The audit records showed that audits had been completed in those areas outlined in the Technical Specifications and at the required frequency.

The inspector noted that the safety reviews and audits and the associated findings were acceptably detailed and that the licensee responded and took corrective actions as needed.

c. Conclusions

The review and audit program satisfied Technical Specification requirements.

3. RADIATION PROTECTION (69001)

a. Scope

The inspector reviewed selected aspects of:

- the Radiation Protection Program
- radiological signs and posting
- routine surveys and monitoring
- dosimetry records
- maintenance and calibration of radiation monitoring equipment
- As Low As Reasonably Achievable (ALARA) reviews

b. Observations and Findings

The radiation protection program had not changed since the last inspection. The licensee reviewed the radiation protection program at least annually in accordance with 10 CFR 20.1101(c). The review included all areas and no weaknesses were reported. The licensee showed that the air emissions of radioactive material to the environment met the 10 millirem constraint specified in 10 CFR 20.1101(d).

Copies of NRC Form 3, "Notice to Employees," were posted in accordance with 10 CFR 19.11. Caution signs, postings, and controls for radiation areas were as required in 10 CFR 20, Subpart J. Licensee personnel observed the indicated precautions for access to radiation areas.

The use of dosimeters and exit frisking practices were in accordance with radiation protection requirements. The licensee used a National Voluntary Laboratory Accreditation Program (NVLAP)-accredited vendor to process dosimetry. Radiological exposure records showed that occupational doses and doses to the public were within 10 CFR Part 20 limitations. Training records showed that personnel were acceptably trained in radiation protection practices.

Radiation monitoring and survey activities were as required. Equipment used for these activities were maintained, calibrated, and used acceptably.

ALARA reviews were acceptably performed as required.

The licensee did not require a respiratory protection program or planned special exposure program.

c. Conclusions

The radiation protection program satisfied NRC requirements.

4. ENVIRONMENTAL PROTECTION (69001)

a. Scope

The inspector reviewed selected aspects of:

- the environmental monitoring program
- annual reports
- release records
- counting and analysis program

b. Observations and Findings

Environmental samples were collected, prepared, and analyzed consistently with the Technical Specification requirements. Laboratory equipment was maintained and calibrated acceptably. Data indicated that there were no measurable dose above background. This was acceptably documented in the Annual Reports. Observation of the facility found no new potential release paths.

The program for the monitoring and storage of radioactive liquid, gases, and solids was consistent with applicable regulatory requirements. Radioactive material was monitored and released when below acceptable limits or was acceptably transferred to the broad-scope license for disposition. The principles of ALARA were acceptably implemented to minimize radioactive releases. Monitoring equipment was acceptably maintained and calibrated. Records were current and acceptably maintained.

c. Conclusions

The environmental protection program satisfied NRC requirements.

5. PROCEDURES (69001)

a. Scope

The inspector reviewed selected aspects of:

- administrative controls
- records for changes and temporary changes
- procedural implementation
- logs and records

b. Observations and Findings

Administrative controls of changes and associated review and approval processes were as required. Training of personnel on procedures and changes was acceptable. Personnel conducted activities in accordance with applicable procedures. Records showed that procedures for potential malfunctions (e.g., radioactive releases and contaminations) were implemented as required.

c. Conclusions

The procedural control and implementation program satisfied Technical Specification requirements.

6. SAFEGUARDS (85102)

a. Scope

The inspector reviewed selected aspects of:

- nuclear material inventory and locations
- accountability records

b. Observations and Findings

The inventory of material was verified. The material control and accountability program tracked locations and content of fuel and fission detectors under the research reactor license. The possession and use of special nuclear material (SNM) was limited to the locations and purposes authorized under the license. The material control and accountability forms (DOE/NRC Forms 741 and 742) were generally prepared and transmitted as required. It was noted that, on two

occasions, the licensee had not submitted the DOE/NRC Forms 741 and 742 within thirty days following the end of the periods covered by the reports as required by 10 CFR 74.13(a)(1). However, the licensee had identified these problems and had notified the NRC of the violations accordingly. The licensee was informed that these licensee-identified and corrected violations were being treated as a Non-Cited Violation (NCV), consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-243/99-201-01).

c. Conclusions

Special Nuclear Materials were acceptably controlled and inventoried.

7. SECURITY (81401, 81402, and 81431)

a. Scope

The inspector reviewed selected aspects of:

- the Physical Security Plan and submitted chan
- security systems, equipment, and instrumentat[illegible]s
- implementation of the Physical Security Plan (r[illegible])

b. Observations and Findings

The PSP was the same as the latest revision approved by the NRC. It was noted that the licensee had submitted two changes to the PSP in 1997, two in 1998, and one change thus far in 1999. The licensee had determined that the changes did not decrease the effectiveness of the PSP. The NRC had screened one of the 1997 changes and the 1998 changes to date. The inspector screened the remaining open 1997 change while on site. The NRC Headquarters staff is currently screening the 1999 change. The results of this inspection indicated that the 1997 and 1998 changes did not appear to decrease the effectiveness of the PSP.

Physical protection systems (barriers and alarms), equipment, and instrumentation were as required by the PSP. Access control was as required. Implementing procedures were consistent with the PSP. Acceptable security response and training was demonstrated through alarm response and drill response in accordance with procedures.

c. Conclusions

Security activities and systems satisfied Physical Security Plan requirements.

8. TRANSPORTATION (86740)

a. Scope

The inspector reviewed selected aspects of:

- radioactive materials shipping procedures
- radioactive materials transportation and transfer records

b. Observations and Findings

Records showed that the radioactive material for disposal was transferred to the broad scope license in accordance with licensee requirements. This program for radioactive material transfer was consistent with license requirements.

The transport of radiological samples was also reviewed. Records showed that the radioisotope type and quantities were calculated and dose rates were measured. These records also showed that transportation of the radioactive materials were in accordance with applicable DOT and NRC requirements.

c. Conclusions

The program for transportation of radioactive materials satisfied NRC requirements.

9. YEAR 2000 CONCERNS

a. Scope

To determine the status of the licensee's preparations to deal with the potential problems caused by the Year 2000 (Y2K), the inspector reviewed:

- the licensee's operating system
- the licensee's security system
- the spectroscopy system used at the facility
- the Oregon State University (OSU) approach to the problem

b. Observations and Findings

The licensee had reviewed their operations, security, and spectroscopy systems and had concluded that the only problem concerning Y2K might exist in the spectroscopy or counting system used at the facility. In order to correct the problem, the licensee had purchased new counting software from a vendor. Nothing had been identified that would pose a problem to reactor operations and no instances were identified that could pose a threat to public health and safety.

The security system at the facility was maintained jointly by the licensee and the OSU Security Services group on campus. The way the system was configured, no problems were anticipated with the approaching Y2K. OSU had also analyzed the Y2K status campus-wide and was taking actions as needed.

c. Conclusions

No problems had been identified concerning reactor operations but Y2K concerns in the area of spectroscopy were being addressed.

10. EXIT INTERVIEW

The inspection scope and results were summarized on May 13, 1999, 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.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

S. Binney, Director, Radiation Center
K. Brock, Health Physicist
B. Brown, OSU Security Services Supervisor
R. Brown, OSU Security Services Manager
A. Hall, Reactor Supervisor
J. Higginbotham, Chairman of Reactor Operations Committee
D. Pratt, Senior Health Physicist
S. Reese, Reactor Administrator
S. Smith, Scientific Instrument Technician
G. Wachs, Senior Reactor Operator

INSPECTION PROCEDURES USED

IP 69001:	Class II Non-Power Reactors
IP 81401:	Plans, Procedures, and Reviews
IP 81402:	Reports of Safeguards Events
IP 81431:	Fixed Site Physical Protection of Special Nuclear Material of Low Strategic Significance
IP 85102:	Material Control and Accounting - Reactors
IP 86740:	Inspection of Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-243/99-201-01	NCV	Failure to submit Material Balance Reports within 30 days following the end of the period covered by the reports on two occasions.

Closed

50-243/99-201-01	NCV	Failure to submit Material Balance Reports within 30 days following the end of the period covered by the reports on two occasions.

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
IP	Inspection Procedure
LCO	Limiting Condition for Operations
Mw	Megawatt
NCV	Non-Cited Violation
NPR	Non-Power Reactor
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OSU	Oregon State University
PSP	Physical Security Plan
ROC	Reactor Operations Committee
SNM	Special Nuclear Material
TS	Technical Specifications
TRTR	Test, Research, and Training Reactor