March 27, 2001

Dr. David B. Ashley, Director
Engineering Experiment Station
Ohio State University
167 Hitchcock Hall
Columbus, OH 43210

SUBJECT: NRC INSPECTION REPORT NO. 50-150/2001-201

Dear Dr. Ashley:

This refers to the inspection conducted on March 12 - 15, 2001, at the Ohio State University Research Reactor facility. The inspection included a review of activities authorized for your facility. The enclosed report presents the results of that inspection.

Various aspects of your safety program were inspected including selective examinations of procedures and representative records, and interviews with personnel. Based on the results of this inspection, no safety concerns or noncompliances of NRC requirements were identified. No response to this letter is required.

In accordance with 10 CFR 2.790 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/NRC/ADAMS/index.html.

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

Sincerely,

/RA/

Ledyard B. Marsh, Chief
Events Assessment, Generic Communications
and Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-150
License No. R-75

Enclosure: NRC Inspection Report No. 50-150/2001-201
cc w/encl: Please see next page

cc w/encl:

Ohio Department of Health
ATTN: Radiological Health Program Director
P. O. Box 118
Colombus, OH 43216

Ohio Environmental Protection Agency
Division of Planning
Environmental Assessment Section
P. O. Box 1049
Columbus, OH 43216

Mr. Richard D. Myser
Reactor Operations Manager
Engineering Experiment Station
Ohio State University
142 Hitchcock Hall
Columbus, OH 43210

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

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U. S. NUCLEAR REGULATORY COMMISSION

Docket No:	50-150
License No:	R-75
Report No:	50-150/2001-201
Licensee:	Ohio State University
Facility:	Ohio State University Research Reactor
Location:	Columbus, Ohio
Dates:	March 12-15, 2001
Inspector:	Craig Bassett
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 various aspects of the licensee's programs concerning the conduct of operations and emergency preparedness as they relate to the licensee's five-hundred kilowatt (500 kW) Class II research reactor. The licensee's programs were directed toward the protection of public health and safety and were in compliance with NRC requirements.

Conduct of Operations

- Staffing, reporting, and record keeping met requirements specified in Technical Specifications (TS) Section 6.1.
- Review and oversight functions required by TS Section 6.2 were acceptably completed by the Reactor Operations Committee (ROC).
- Design changes had been reviewed with respect to 10 CFR 50.59 and approved by the ROC as required.
- The requalification/training program was up-to-date and acceptably maintained. Medical examinations were being completed as required.
- Facility procedures and document reviews satisfied TS Section 6.3 requirements. Procedural compliance was acceptable.
- Reactor fuel movements were made and documented in accordance with procedure and the fuel was being inspected biennially as required by TS Section 4.1.
- The program for surveillance and Limiting Conditions for Operation confirmations was being carried out in accordance with TS requirements.
- The program for the control of experiments satisfied regulatory requirements and license commitments.

Emergency Preparedness

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

Report Details

Summary of Plant Status

The licensee's five-hundred kilowatt (500 kW) Class II research reactor continues to be operated in support of undergraduate instruction, laboratory experiments, reactor operator training, and various types of irradiation projects. During the inspection, the reactor was started-up, operated, and shutdown, as required, to support experiments and research.

1. Organization, Operations, and Maintenance Activities (Inspection Procedure [IP] 69001)

a. Inspection Scope

To verify staffing, reporting, and record keeping requirements specified in Technical Specifications (TS) Section 6.1 were being met, the inspector reviewed:

- organization and staffing for the facility
- administrative controls
- reactor operations logs
- annual reports

b. Observations and Findings

The organizational structure and staffing have not changed since the last inspection. The organizational structure and staffing at the facility, and as reported in the Annual Report, are as required by TS. Qualifications of the staff met applicable requirements. Review of records verified that management responsibilities were administered as required by TS and applicable procedures.

A review of the reactor console logs showed that they were being maintained as required and problems, if any, were being documented. Corrective actions were taken as warranted. The annual reports summarized the required information and were issued at the frequency specified in the Technical Specifications.

c. Conclusions

Staffing, reporting, and record keeping met the requirements specified in TS Section 6.1.

2. Review, Audit, and Design Change Functions (IP 69001)

a. Inspection Scope

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 and TS Section 6.2, the inspector reviewed:

- Reactor Operations Committee meeting minutes
- Nuclear Reactor Laboratory (NRL) Procedures

- audits and reviews
- design changes reviewed under 10 CFR 50.59

b. Observations and Findings

Records showed that the safety reviews were conducted at the TS required frequency. Topics of these reviews were also consistent with TS 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.

Through review of applicable records and interviews with licensee personnel, the inspector determined that all design changes that had been initiated and/or completed at the facility, since the last NRC operations inspection, had undergone the prescribed review and approval process. The inspector also noted that the proper functioning of the equipment or item that had been changed was verified by tests or verifications as needed before being placed in service. The appropriate changes were also documented in procedures and/or were pending to be updated in the affected portion of the Final Safety Analysis Report (FSAR), TS, and/or drawing. The changes were consistent with the requirements of 10 CFR 50.59.

c. Conclusions

Audits were being conducted by the ROC according to the requirements specified in the TS Section 6.2. Design changes had been reviewed with respect to 10 CFR 50.59 and approved by the ROC as required.

3. Operator Licenses, Requalification, and Medical Activities (IP 69001)

a. Inspection Scope

To determine that operator requalification activities and training were conducted as required and that medical requirements were met, the inspector reviewed:

- active license status
- logs and records of reactivity manipulations
- training records
- medical examination records

b. Observations and Findings

The licensee currently has two qualified senior reactor operators (SROs) and one person ready to take the SRO examination in April. The operators' licenses were current and the earliest that one is scheduled to expire is in July of the year 2005.

The Requalification Program was maintained up to date. Records showed that operator training was consistent with the Requalification Program requirements. Records of quarterly reactivity manipulations, other operations activities, and SRO activities were being maintained. Records of the annual oral and demonstrated reactor proficiency, and written examination results were also on file. The operators had successfully completed the various tasks outlined and were current in their training and requalification program. The inspector also verified that the operators were receiving the required medical examinations at the required frequency.

c. Conclusions

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

4. Procedures (IP 69001)

a. Inspection Scope

To determine whether facility procedures met the requirements outlined in TS Section 6.3, the inspector reviewed:

- selected NRL procedures
- procedural reviews and updates

b. Observations and Findings

NRL procedures reviewed were acceptable for the facility and the current staffing level. The procedures specified the responsibilities of the various members of the staff and provided them instructions for performing their duties. The procedures were required to be reviewed biennially and updated as needed. The inspector noted that the procedures were due or overdue for this review. (This had also been noted during the most recent ROC audit.) The licensee had begun to review the procedures and most procedures did not require any changes. The entire review was scheduled to be completed by the end of March. The licensee was informed that the completion of the biennial review and required updates of the facility procedures would be followed by the NRC as an Inspector Follow-up Item (IFI) and would be reviewed during a subsequent inspection (IFI 50-150/2001-201-01).

c. Conclusions

Facility procedures and document reviews satisfied TS Section 6.3 requirements.

5. Fuel Movement (IP 69001)

   a. Inspection Scope

      In order to verify adherence to fuel handling and inspection requirements specified in TS Section 4.1, the inspector reviewed:

      - Fuel Handling procedure
      - Surveillance requirements
      - applicable logs and records

   b. Observations and Findings

      The licensee was maintaining the required records of fuel movements that were completed. One-fifth of the reactor fuel was typically inspected annually as required by TS. However, during the past year, all the fuel had been inspected because the licensee had to drain the reactor pool for other work and decided it was a good opportunity to inspect all the elements. The procedures used and the controls established were acceptable. Fuel movements, inspection, and log keeping followed facility procedures.

   c. Conclusions

      Reactor fuel movements were made and documented in accordance with procedure and the fuel was being inspected annually as required by TS Section 4.1.

6. Surveillance (IP 69001)

   a. Inspection Scope

      To determine that surveillance and Limiting Conditions for Operation (LCO) verifications were being completed as required by TS Section 4, the inspector reviewed:

      - selected procedures
      - selected data and records
      - Limiting Conditions for Operation
      - associated logs and reports

   b. Observations and Findings

      The inspector noted that selected daily, monthly, quarterly, semiannual, and annual checks, tests, and/or calibrations for TS-required surveillance and LCO verifications were completed as stipulated. The 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 were noted to be generally complete and were being maintained as required.

c. Conclusions

The program for surveillance and LCO confirmations was being carried out in accordance with TS Section 4 requirements.

7. Experiments (IP 69001)

a. Inspection Scope

In order to verify that experiments were being conducted within approved guidelines, the inspector reviewed:

- Experiment initiation, review, and approval procedures
- NRL Request for Reactor Operation Run Sheets
- experiment review and approval by the ROC
- potential hazards identification

b. Observations and Findings

The inspector noted that all the experimental projects conducted at the facility were well-established, “tried” projects that had been in place for several years. These experiments were listed in the licensee’s procedure, AP-04, “Approval of Requests for Reactor Operation,” Revision (Rev) No. 2, dated March 21, 1996. These experiments had also been submitted to the Associate Director of the NRL and had been reviewed and approved by him or another SRO as required. The inspector verified that the experiments had been conducted as specified and the results documented in the Reactor Operations Logbook. It was noted that the engineering controls used to limit exposure to radiation and the methods used to control the resulting radioactive material were adequate.

Although no new, “untried” experiments had been approved since the last inspection, the licensee was in the process of formalizing a new procedure to test in-core sensors. The ROC had reviewed the preliminary proposal and a final version was being developed. The new experiment will not be conducted until the Associate Director has reviewed the procedure and the ROC has reviewed the outlined approach and safety analysis and approved the project.

c. Conclusions

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

8. Emergency Preparedness (IP 69001)

   a. Inspection Scope

      The inspector reviewed selected aspects of:

      - the NRL Emergency Plan
      - implementing procedures
      - emergency response supplies, equipment, and instrumentation
      - training records
      - offsite support
      - emergency drills and exercises

   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 was audited and reviewed as required. Implementing procedures were reviewed and revised as needed to implement the E-Plan effectively. 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. Communications capabilities were acceptable and had been tested. Emergency drills had been conducted as required by the E-Plan. Critiques following the drills were documented to determine the strengths and weaknesses brought out during the exercise and to develop possible solutions to any problems identified. Emergency preparedness and response training was being completed as required.

   c. Conclusions

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

9. Exit Interview

   The inspection scope and results were summarized on March 15, 2001, 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

A. Kauffman, Senior Reactor Operator-in-training
R. Myser, Associate Director, Nuclear Reactor Laboratory
J. Talnagi, Senior Reactor Operator

Other Personnel

R. Peterson, Director, Office of Radiation Safety, OSU Office of EH & S

INSPECTION PROCEDURE USED

IP 69001 Class II Non-Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-150/2001-01-01	IFI	Follow-up on the licensee's completion of the biennial review and required updates of the facility procedures as required by TS.

Closed

None

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
E-Plan	Emergency Plan
FSAR	Final Safety Analysis Report
IFI	Inspector Follow-up Item
IP	Inspection Procedure
LCO	Limiting Conditions for Operation
Mw	Megawatt
OSU	The Ohio State University
NPR	Non-Power Reactor
NRC	Nuclear Regulatory Commission
NRL	Nuclear Reactor Laboratory
RO	Reactor operator
ROC	Reactor Operations Committee
SRO	Senior reactor operator
TS	Technical Specifications
TRTR	Test, Research, and Training Reactor