

January 19, 2000

Dr. T. Tehan, Director
Rhode Island Nuclear Science Center
Rhode Island Atomic Energy Commission
Reactor Road
Narragansett, RI 02882-1197

SUBJECT: NRC INSPECTION REPORT NO. 50-193/99-202

Dear Dr. Tehan:

This refers to the inspection conducted on November 29 - December 2, 1999, at your Rhode Island Nuclear Science Center (RINSC) Research 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, no safety concerns or violations 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 placed in the NRC Public Document Room on the ADAMS System.

Should you have any questions concerning this inspection, please contact Mr. 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.: 50-193
License No.: R-95

Enclosure: NRC Inspection Report No. 50-193/99-202

cc w/enclosure:
See next page

cc:

Dr. Vincent C. Rose, Chairman, RIAEC
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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: 50-193
License No: R-95
Report No: 50-193/99-202
Licensee: Rhode Island Atomic Energy Commission
Facility: Rhode Island Nuclear Science Center
University of Rhode Island (URI)
Location: Reactor Road
Narragansett, Rhode Island
Dates: November 29 - December 2, 1999
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 operations and emergency preparedness as they relate to the licensee's two Megawatt (Mw) Class 1 research reactor. The licensee's programs were directed toward the protection of public health and safety and were in compliance with NRC requirements. No safety concerns or violations of regulatory requirements were identified.

Organization and Staffing

The organization structure and functions met the requirements specified in Technical Specifications Section 6.0.

Operations

The operations program satisfied License and Technical Specification requirements.

Design Control

The design change program satisfied 10 CFR 50.59 requirements.

Review and Audit Functions

Review and oversight functions required by Technical Specifications Section 6.4 were acceptably completed by the Nuclear and Radiation Safety Committee.

Operator Requalification Program

Operator requalification was conducted as required by the Requalification Program.

Procedures

The procedural control and implementation program satisfied Technical Specification requirements.

Fuel Movement and Handling

The fuel handling and examination program satisfied Technical Specification and licensee procedural requirements.

Maintenance and Surveillance

The maintenance and surveillance program satisfied Technical Specification requirements.

Experiments

The program for experiments satisfied Technical Specification and procedural requirements.

Emergency Preparedness

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

REPORT DETAILS

Summary of Plant Status

The licensee's two megawatt (2 Mw) non-power reactor (NPR) continues to be operated in support of laboratory experiments, reactor operator training, and various types of research. During the inspection, the reactor was started-up, operated, and shut down as required to support training and a tour by high school students.

1. Organizational Structure and Functions (IP 39745)

a. Inspection Scope

To verify that staffing, reporting, and record keeping requirements specified in Technical Specifications (TS) 6.0 were being met, the inspector reviewed:

- organization and staffing
- administrative controls
- qualifications and management responsibilities
- facility annual reports

b. Observations and Findings

The licensee's current operational organization consisted of a Director, an Assistant Director for Reactor Operations (a licensed Senior Reactor Operator), an Assistant Director for Radiation and Reactor Safety (also referred to as the Radiation Safety Officer), a Reactor Supervisor (in training), a Facility Engineer, a Health Physicist, a licensed Reactor Operator/Health Physics technician, and support staff personnel. This organization was consistent with the one specified in the TS as revised and as reported in the Annual Report.

Only the positions of Director, the Radiation Safety Officer, and the reactor operators had qualification requirements outlined in the TS. The inspector reviewed the qualifications of those individuals and determined that they met the requirements in the TS. A review of various records also verified that management responsibilities were administered as required by TS and applicable procedures.

c. Conclusions

The organization structure and functions met the requirements specified in TS 6.0.

2. Operations (IP 39745)

a. Inspection Scope

The inspector reviewed selected aspects of:

- operational logs and records
- staffing for operations
- selected operational, startup, and shut down activities

b. Observations and Findings

The operating logs and records were clear and provided an indication of operational activities. This included documentation of events and/or problems at the facility and tracking or resolution of the problems. The logs and records indicated that shift staffing including on-call personnel was as required by TSs. Logs and records also showed that operational conditions and parameters were consistent with license and TSs requirements. Observation of operational activities further confirmed that these conditions and requirements were satisfied.

c. Conclusions

The operations program satisfied TS requirements.

3. Design Control (IP 40745)

a. Inspection Scope

The inspector reviewed selected aspects of:

- facility design changes and records
- facility configuration

b. Observations and Findings

Records and observations showed that changes at the facility were acceptably reviewed in accordance with 10 CFR 50.59 and applicable licensee administrative controls. None of the changes constituted an unreviewed safety question or required a change to the facility TS.

c. Conclusions

The design change program satisfied 10 CFR 50.59 requirements.

4. Review and Audit Functions (IP 40745)

a. Inspection Scope

In order to verify that the licensee had established and conducted reviews and audits as required in TS 6.4, the inspector reviewed:

- Nuclear and Radiation Safety Committee meeting minutes
- Nuclear and Radiation Safety Subcommittee meeting minutes
- safety reviews and audits

b. Observations and Findings

Minutes of the Nuclear and Radiation Safety Committee (NRSC) showed that the committee met at the required frequency and that a quorum was present. The topics considered during the meetings were consistent with TS requirements to provide guidance, direction, and oversight, and to ensure acceptable use of the reactor.

A subcommittee of the NRSC and/or persons from other institutions conducted audits and reviews as required and the full NRSC reviewed the results. Problems noted during audits were discussed and recommendations for improvements were made. The licensee implemented the improvements as necessary.

c. Conclusions

Review and oversight functions required by TS 6.4 were acceptably completed by the NRSC.

5. **Operator Requalification Program (IP 41745)**

a. Inspection Scope

The inspector reviewed selected aspects of:

- the Requalification Program
- operators licenses
- operator training records
- operator physical examination records
- operator examination records
- operator active duty status

b. Observations and Findings

The Requalification Program was maintained up-to-date. Operator licenses were also current. Records showed that operator training was consistent with the Requalification Program requirements. Physical examinations of the operators were conducted as required. Records showed that written and operating examinations of the operators were acceptably implemented. Logs showed that operators maintained active duty status as required.

c. Conclusions

Operator requalification was conducted as required by the Requalification Program.

6. **Procedures (IP 42745)**

a. Inspection Scope

To verify that facility procedures were being maintained and implemented as required, the inspector reviewed selected aspects of:

- administrative controls
- procedural implementation
- logs and records

b. Observations and Findings

Administrative controls of changes and temporary changes to procedures, and associated review and approval processes were as required. Training of personnel on procedures and changes was acceptable. Through observation of various activities at the facility, the inspector determined that personnel were conducting activities in accordance with applicable procedures. Records showed that procedures for potential malfunctions (e.g., radioactive releases and contaminations, and reactor equipment problems) were implemented as required.

c. Conclusions

The procedural control and implementation program satisfied TS requirements.

7. Fuel Movement and Handling (IP 60745)

a. Inspection Scope

The inspector reviewed selected aspects of:

- fuel handling procedures
- fuel handling equipment and instrumentation
- fuel examination records

b. Observations and Findings

Fuel handling procedures provided a prescribed method to move and handle fuel consistent with the provisions of the TS and the licensee safety analyses. Fuel movement and fuel examination records showed that the fuel was moved and examined as required. Records also showed that fuel handling, monitoring equipment, and instrumentation were operable prior to use. Personnel were knowledgeable of the procedural and equipment requirements for criticality control and assurance of fuel integrity.

c. Conclusions

The fuel handling and examination program satisfied TS and licensee procedural requirements.

8. Maintenance and Surveillance (IP 61745)

a. Inspection Scope

The inspector reviewed selected aspects of the following to verify that the licensee's maintenance and surveillance program was being acceptably implemented:

- equipment maintenance records
- surveillance and calibration procedures
- surveillance, calibration and test data sheets, and records

b. Observations and Findings

Logs indicated that corrective maintenance activities and problems were addressed as required by procedure. Records showed that routine maintenance activities were conducted at the required frequency and in accordance with the TS, applicable procedure, or equipment manual. Maintenance activities ensured that equipment remained consistent with the SAR and TS requirements. Further, maintenance activities were consistent with the requirements of 10 CFR 50.59.

Surveillance, test, and limiting conditions for operation (LCO) verifications and calibrations for shutdown margin and excess reactivity were completed on schedule and in accordance with licensee procedures. All the recorded results were within the TS and procedurally prescribed parameters. Associated records and logs were complete and were being maintained as required.

c. Conclusions

The maintenance and surveillance program satisfied TS requirements.

9. Experiments (IP 69745)

a. Inspection Scope

The inspector reviewed selected aspects of:

- experimental program requirements
- procedures
- logs and records
- experimental administrative controls and precautions

b. Observations and Findings

The experiments at the facility were routine procedures that had been in place for several years. No new or unknown-type experiments had been approved since the last inspection. The experiments were completed with the cognizance of the Reactor Supervisor and a Senior Reactor Operator and in accordance with TS requirements (e.g., reactivity limitations). The results of the experiments were documented in appropriate experimental logs, data sheets, or records. Engineering and radiation protection controls were implemented as required to limit exposure to radiation.

c. Conclusions

The program for experiments satisfied TS and procedural requirements

10. Emergency Preparedness (IP 82745)

a. Inspection Scope

The inspector reviewed selected aspects of:

- the Emergency Plan
- implementing procedures
- emergency response facilities, 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 and emergency facilities 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 employ the E-Plan effectively.

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. Agreements with outside response organizations had been updated and maintained as necessary. Communications capabilities were acceptable with these support groups and had been tested.

Emergency drills had been conducted 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 filed. Emergency preparedness and response training was being completed as required.

c. Conclusions

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

11. Follow-up on Previously Identified Items

a. Inspection Scope

The inspector followed up on four Inspector Follow-up Items that had been noted in Inspection Report No. 50-193/99-201 and Inspection Report No. 50-193/98-202. The inspector reviewed the licensee's response to, evaluation of, and corrective actions for the problems or issues noted, as needed.

b. Observations and Findings

- 1) IFI 50-193/99-201-05 (Closed): Follow-up on the issue of the licensee obtaining verification of Year 2000 (Y2K) compliance from the security vendor.

The inspector verified that the licensee had obtained verification from the security vendor that the equipment installed at the facility was Y2K compliant.

- 2) IFI 50-193/98-202-01 (Closed): Follow-up on the timely documentation of required requalification and emergency preparedness training.

The inspector verified that the licensee had completed the required requalification and emergency preparedness training and that documentation of the training was being maintained as required.

- 3) IFI 50-193/98-202-02 (Closed): Follow-up on the availability of supplies and instruments that are required to be stored in the Emergency Storage Cabinet.

The inspector verified that the licensee had taken corrective actions to have the required supplies and instruments stored in the appropriate cabinet. It was noted that one Appendix to the implementing procedure for Emergency Preparedness needed to be revised because it still required that specific instruments be kept in the cabinet. Two of the instruments specified were neither kept in the cabinet nor maintained on site.

- 4) IFI 50-193/98-202-03 (Closed): Follow-up on the issues of conducting appropriate emergency preparedness drills that are sufficiently challenging and of properly documenting each drill.

The inspector verified that the licensee had conducted a drill in 1999 that was challenging and that it had been properly documented as required by the Emergency Plan.

c. Conclusions

Four Inspector Follow-up Items identified during previous NRC inspections were closed during this inspection.

12. Exit Interview

The inspection scope and results were summarized on December 2, 1999, with members of licensee management. The inspector described the areas inspected and discussed in detail the inspection findings.

No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

H. Bicehouse, Assistant Director for Radiation and Reactor Safety/Radiation Safety Officer
J. Cunningham, Reactor Operator/Health Physics Technician
J. Davis, Reactor Supervisor-In-Training
B. MacGregor, Facility Engineer
W. Simoneau, Assistant Director for Reactor Operations
T. Tehan, Director, Rhode Island Nuclear Science Center

Other Personnel

V. Rose, Chairman, Rhode Island Atomic Energy Commission

INSPECTION PROCEDURES USED

IP 39745: Class 1 Non-Power Reactors Organization, Operations, and Maintenance Activities
IP 40745: Class 1 Non-Power Reactors Review and Audit and Design Change Functions
IP 41745: Class 1 Non-Power Reactors Operator Requalification
IP 42745: Class 1 Non-Power Reactor Procedures
IP 60745: Class 1 Non-Power Reactors Fuel Handling
IP 61745: Class 1 Non-Power Reactors Surveillance
IP 69745: Class 1 Non-Power Reactors Experiments
IP 82745: Class 1 Non-Power Reactors Emergency Preparedness

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

50-193/99-201-05	IFI	Follow-up on the issue of the licensee obtaining verification of Y2K compliance from the security vendor.
50-193/98-202-01	IFI	Follow-up on the timely documentation of required requalification and emergency preparedness training.
50-193/98-202-02	IFI	Follow-up on the availability of required supplies and instrumentation that are required to be in the Emergency Storage Cabinets.
50-193/98-202-03	IFI	Follow-up on the issues of conducting appropriate emergency preparedness drills that are sufficiently challenging and of properly documenting each drill.

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
E-Plan	Emergency Plan
IFI	Inspector Follow-up Item
IP	Inspection Procedure
LCO	Limiting Conditions for Operation
Mw	Megawatt
NPR	Non-Power Reactor
NRC	Nuclear Regulatory Commission
NRSC	Nuclear and Radiation Safety Committee
RIAEC	Rhode Island Atomic Energy Commission
RINSC	Rhode Island Nuclear Science Center
TS	Technical Specification
URI	University of Rhode Island
Y2K	Year 2000 (Concerns)