UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 6, 2021

Dr. William Charlton, Director
Nuclear Engineering Teaching Laboratory
The University of Texas at Austin
Pickle Research Campus, Building 159
10100 Burnet Road
Austin, TX 78758

SUBJECT: UNIVERSITY OF TEXAS AT AUSTIN - NUCLEAR REGULATORY COMMISSION ROUTINE INSPECTION REPORT NO. 05000602/2020202

Dear Dr. Charlton:

From November 16-18, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at The University of Texas at Austin, Nuclear Engineering Teaching Laboratory. The enclosed report presents the results of that inspection, which were discussed on November 18, 2020, with you and members of your staff.

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

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 2.390, "Public inspections, exemptions, requests for withholding," 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 NRC's document system (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).

If you have any questions concerning this inspection, please contact Kevin Roche at (301) 415-1554, or by electronic mail at Kevin.Roche@nrc.gov.

Sincerely,

/RA/

Travis L. Tate, Chief
Non-Power Production and Utilization Facility
Oversight Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Docket No. 50-602
License No. R-129

Enclosure:
As stated

cc: w/enclosure: See next page

cc:

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Test, Research and Training
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SUBJECT: UNIVERSITY OF TEXAS AT AUSTIN - NUCLEAR REGULATORY COMMISSION ROUTINE INSPECTION REPORT NO. 05000602/2020202 DATED: JANUARY 06, 2021

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

Docket No.:	50-602
License No.:	R-129
Report No.:	05000602/2020202
Licensee:	The University of Texas at Austin
Facility:	Nuclear Engineering Teaching Laboratory
Location:	Austin, TX
Dates:	November 16-18, 2020
Inspector:	Kevin Roche
Approved by:	Travis L. Tate, Chief Non-Power Production and Utilization Facility Oversight Branch Division of Advanced Reactors and Non-Power Production and Utilization Facilities Office of Nuclear Reactor Regulation

Enclosure

EXECUTIVE SUMMARY

The University of Texas at Austin
Nuclear Engineering Teaching Laboratory
Inspection Report No. 05000602/2020202

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the University of Texas at Austin (UTA, the licensee's) Nuclear Engineering Teaching Laboratory (NETL) safety program, including: (1) procedures, (2) experiments, (3) health physics, (4) design changes, (5) committees, audits and reviews, and (6) transportation activities, since the last U.S. Nuclear Regulatory Commission (NRC) inspection of these areas. The NRC staff determined the licensee's program was acceptably directed toward the protection of public health and safety and was in compliance with NRC requirements.

Procedures

- Facility procedures were reviewed, approved, and implemented in accordance with technical specification (TS) requirements.

Experiments

- Conduct and control of experiments and irradiations in accordance with TSs, the applicable experiment irradiation authorizations, and associated procedures

Health Physics

- Surveys were completed and documented to permit evaluation of the radiation hazards present in accordance with the radiation protection program.

- Postings met the regulatory requirements specified in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," and 10 CFR Part 20, "Standards for Protection against Radiation."

- Personnel dosimetry was worn, and doses were within the licensee's procedural action levels and NRC's regulatory limits.

- Radiation monitoring equipment was maintained and calibrated as required by TS requirements.

- Radiation protection training was provided to staff personnel in accordance with the radiation protection program.

- The radiation protection program was implemented by the licensee and satisfied regulatory requirements.

- Effluent monitoring satisfied licensee and regulatory requirements.

- Releases were within the specified regulatory and TS limits.

Design Change Functions

- The latest changes completed by the licensee were reviewed using the criteria specified in 10 CFR 50.59, “Changes, tests and experiments,” determined to be acceptable, and reviewed and approved by the UTA Reactor Oversight Committee (ROC).

Committees, Audits and Reviews

- The review and audit program were conducted by the ROC as required by TSs.
- The ROC composition and meeting frequency satisfied requirements specified in the TSs.

Transportation Activities

- The program for shipping radioactive material satisfied regulatory requirements.

REPORT DETAILS

Summary of Facility Status

The UTA's 1.1 megawatt Training, Research, Isotopes, General Atomics (TRIGA) Mark II research reactor continued routine operations. During the inspection, the reactor was operated to support laboratory experiments and operator training.

1. Procedures

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

The inspector reviewed the following to verify compliance with TS Section 6.4:

- records of changes to NETL procedures
- records of UTA ROC procedure review and approval for 2019 and 2020
- NETL procedure ADMN-1, "NETL Procedure Control," Version 3.00, approval dated April 14, 2010
- selected NETL procedures dealing with, administrative controls, experiments, and radiation protection

b. Observations and Findings

The licensee stipulated administrative control of changes to procedures, and the associated review and approval process, in ADMN-1. The inspector verified that substantive changes to procedures were reviewed and approved by the ROC. The inspector verified that this process was followed and that training of personnel on procedures and changes was completed.

c. Conclusion

The inspector determined that facility procedures were reviewed, approved, and implemented in accordance with TS requirements.

2. Experiments

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify that experiments were reviewed, approved, and conducted within the guidelines specified in TS Sections 3.4, 4.4, and 6.4:

- UTA-TRIGA console operation log sheets from November 2018 through the present
- selected experiment authorization forms
- selected operation request forms from November 2018 through the present
- NETL Administrative Procedure, ADMN-6, "Authorization of Experiments," Version 1.01
- "2018 Annual Report for the University of Texas TRIGA II Nuclear Research Reactor (Docket 50-602)," submitted February 25, 2019

- "2019 Annual Report for the University of Texas TRIGA II Nuclear Research Reactor (Docket 50-602)," submitted March 3, 2020

b. Observations and Findings

Through discussions with licensee personnel and records review, the inspector determined that there were no new experiments proposed since the last inspection. The inspector noted that most of the experiments conducted at the facility were performed under well-established procedures that were in place for several years. These experiments were generally the type of experiments known as routine experiments and were authorized for repeat applications.

c. Conclusion

The inspector determined that the licensee reviewed and performed experiments in accordance with TS and procedural requirements

3. Health Physics

a. Inspection Scope (IP 69001)

The inspector verified compliance with 10 CFR Parts 19 and 20, and TS Sections 3.3.3 and 4.3.3 and reviewed the following:

- radiological signs and posting
- contamination reports and personnel contamination forms
- personnel dosimetry records for 2018, 2019, and 2020 to date
- daily reactor startup and shutdown checklists for 2019 and 2020 to date
- selected routine surveys and monitoring records for 2018, 2019, and 2020 to date including biweekly, bimonthly, and semiannual checklists
- records of maintenance and calibration of radiation survey and monitoring instruments
- ADMN - 004 "Radiation Protection Program," Version 2.00
- HP-002, "Radiation Monitoring - Facility," Version 3.00
- HP-003, "NETL ALARA Program," Version 3.00
- HP-004, "Radiation Protection Training," Version 3.00
- HP-006, "Radioactive Material Control," Version 3.00
- airborne release calculation records
- environmental dosimetry records

b. Observations and Findings

The inspector toured the facility and observed operations and maintenance activities. The inspector also observed the use of dosimetry and radiation monitoring equipment during tours of the facility. The inspector found practices regarding the use of dosimetry, radiation monitoring equipment, placement of radiological signs and postings, use of protective clothing, and the handling and storing of radioactive material or contaminated equipment was in accordance with regulations and the licensee's written radiation protection program.

The inspector reviewed records of radiation surveys and accompanied a radiation technician taking contamination and area radiation surveys during the inspection of the nuclear reactor facility and found them within the limits specified by the facility postings. The inspector did not observe any unmarked radioactive material in the facility. The licensee posted a copy of the current NRC Form 3, "Notice to Employees," required by 10 CFR Part 19 in the facility. The inspector reviewed dosimetry results and determined that doses to facility occupants was minimal. The inspector found that radiation monitoring devices were calibrated within the frequencies specified in the licensee procedures.

The inspector noted from records that training was provided for radiation workers assigned to the facility and individuals were not issued dosimetry or given facility access until the training was successfully completed. The annual reports referenced above described the gaseous waste generated at the facility, with gaseous Argon-41 produced by the irradiation of atmospheric air as the most significant isotope noted. The inspector verified that the release of Argon-41 was below TS limits. The inspector verified that the licensee also reported the results of thermoluminescent dosimeters placed at locations around the facility as environmental radiation monitors.

The inspector also attended the UTA Radiation Safety Committee meeting. The meeting discussed radiation topics across multiple departments on the UTA campus including the NETL.

c. Conclusion

The inspector determined that the radiation protection program implemented by the licensee satisfied regulatory requirements.

4. Design Changes

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with 10 CFR 50.59, regarding design change control:

- UTA ROC meeting minutes and records from April 2019 through the present
- NETL Procedure No. ADMN-1, Version 3, approval dated April 14, 2010
- NETL Procedure No. ADMN-2, "Procedures for Design Features and Quality Assurance," Version 1
- "2018 Annual Report for the University of Texas TRIGA II Nuclear Research Reactor (Docket 50-602)," submitted February 25, 2019
- "2019 Annual Report for the University of Texas TRIGA II Nuclear Research Reactor (Docket 50-602)," submitted March 3, 2020

b. Observations and Findings

Through review of applicable records and interviews with licensee personnel, the inspector determined that to date in 2020, various changes were initiated and/or completed at the facility. Evaluations of the changes were completed, and a

safety analysis was performed if needed. The inspector verified that the changes were evaluated using the licensee's 10 CFR 50.59 review process outlined in NETL procedures ADMN-1 and ADMN-2. The licensee's evaluations were then reviewed and approved by the UTA ROC if needed. It was noted that none of the changes required a full 10 CFR 50.59 evaluation and none required NRC approval prior to implementation.

c. Conclusion

The inspector verified that the proposed changes at the facility were analyzed using the 10 CFR 50.59 review process in accordance with licensee procedures.

5. Committees, Audits and Reviews

a. Inspection Scope (IP 69001)

In order to verify that an oversight committee conducted reviews and audits as required in TS Section 6.4, the inspector reviewed the following:

- UTA ROC meeting minutes and records from April 2019 through the present
- NETL Procedure No. ADMN-1, Version 3
- NETL Procedure No. ADMN-2, Version 1
- "2018 Annual Report for the University of Texas TRIGA II Nuclear Research Reactor (Docket 50-602)," submitted February 25, 2019
- "2019 Annual Report for the University of Texas TRIGA II Nuclear Research Reactor (Docket 50-602)," submitted March 3, 2020

b. Observations and Findings

The inspector reviewed the ROC meeting minutes from 2019 to the present. The inspector confirmed that the ROC met as required by the TS and a quorum was present. The inspector confirmed that the safety reviews and audits conducted by the committee or designated individuals were completed at the TS-required frequency and topics of these reviews were also consistent with TS requirements and provided guidance, direction, and oversight of the reactor.

c. Conclusion

The inspector concluded that the ROC provided the oversight required by the TS.

6. Transportation Activities

a. Inspection Scope (IP 86740)

The inspector reviewed the following records to verify compliance with 10 CFR 71.5, "Transportation of licensed material," and procedural requirements for the transfer or shipment of licensed radioactive material:

- records of radioactive material shipments completed from 2019 and to date in 2020
- HP-006, “Radioactive Material Control,” Version 3.00

b. Observations and Findings

The inspector reviewed a sample of radioactive shipment records. The inspector also found that the licensee documented shipments of radioactive material made from 2019 to 2020.

c. Conclusion

The inspector determined that the program for shipment of radioactive material satisfied regulatory requirements.

7. Exit Interview

The inspection scope and results were summarized on November 18, 2020, with members of licensee management. The inspector described the areas inspected and discussed in detail the inspection findings. No proprietary material was reviewed by the inspector during the inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

W. Charlton	Director, NETL
P.M. Whaley	Associate Director, NETL
T. Tipping	Reactor Health Physicist and Laboratory Manager
L. Hall	Reactor Supervisor, NETL
J. Terry	Senior Reactor Operator, NETL

INSPECTION PROCEDURES USED

IP 69001:	Class II Non-Power Reactors
IP 86740:	Inspection of Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None