



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

December 23, 2019

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 – U.S. NUCLEAR REGULATORY
COMMISSION ROUTINE INSPECTION REPORT NO. 05000602/2019201

Dear Dr. Charlton:

From November 18-21, 2019, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the University of Texas at Austin Nuclear Engineering Teaching Laboratory facility. The enclosed report presents the results of that inspection, which were discussed on November 21, 2019, with 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 selective 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* 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 Publicly Available Records component of 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).

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

Sincerely,

/RA/

Anthony J. Mendiola, 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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SUBJECT: UNIVERSITY OF TEXAS AT AUSTIN – U.S. NUCLEAR REGULATORY
COMMISSION ROUTINE INSPECTION REPORT NO. 05000602/2019201
DATE: DECEMBER 23, 2019

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

Docket No.: 50-602

License No.: R-129

Report No: 0500602/2019201

Licensee: The University of Texas at Austin

Facility: Nuclear Engineering Teaching Laboratory

Location: Austin, TX

Dates: November 18-21, 2019

Inspector: Kevin Roche
Phil O'Bryan

Approved by: Anthony J. Mendiola, 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. 50-602/2019-201

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the University of Texas at Austin (UTA, or the licensee's) Class II research reactor safety programs including: (1) organization and staffing; (2) operations logs and records; (3) requalification training; (4) surveillance and limiting conditions for operation (LCO); (5) emergency planning; (6) maintenance logs and records; (7) fuel handling logs and records. The licensee's programs were acceptably directed toward the protection of public health and safety, and in compliance with the U.S. Nuclear Regulatory Commission (NRC) requirements.

Organization and staffing

- Organizational structure and staffing were consistent with technical specification (TS) requirements.

Operations Logs and Records

- Operations Logs and records were maintained in accordance with procedures and TSs.

Requalification Training

- Operator requalification was conducted as required by the Operator Requalification Plan

Surveillance and Limiting Conditions for Operation

- The inspector found that the surveillance program and supporting procedures met TS requirements.
- Operations met the TS LCO and surveillance requirements.

Emergency Planning

- The emergency preparedness program was conducted in accordance with the emergency plan (E-Plan).

Maintenance Logs and Records

- Maintenance logs, records, reviews, and performance satisfied TS and procedure requirements.

Fuel Handling Logs and Records

- Fuel handling and inspection activities were completed and documented as required by TS and facility procedures.

REPORT DETAILS

Summary of Facility Status

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

1. Organization and Staffing

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

The inspector reviewed the following to verify that the staffing requirements, personnel responsibilities, and organizational structure specified in Section 6.1 of the licensee's TSs, as implemented through Amendment Number (No.) 4 of the Facility Operating License No. R-129 dated May 10, 2001, were being met:

- Management responsibilities and administrative controls
- The UTA Nuclear Engineering Teaching Laboratory (NETL) organizational structure and staffing
- The UTA, NETL 2018 Annual Report, submitted February 25, 2019

b. Observations and Findings

Through discussions with licensee representatives, the inspector determined that designated management responsibilities at the NETL facility had not changed since the previous NRC operations inspection in November, 2018 (see NRC Inspection Report No. 50-602/2018-201). Organization, structure, responsibilities, and staffing were as required by TS Section 6.1. The NETL Director and Associate Director were responsible for general reactor facility operation. The Reactor Supervisor was responsible for the day-to-day operation and maintenance of the facility as specified in the TSs.

Through review of records and logs, and through discussions with licensee personnel, the inspector determined that the organizational structure observed at the NETL facility met the requirements stated in Section 6.1 of the TSs. At the time of the inspection, three operators held current senior reactor operator (SRO) licenses and seven held current reactor operator (RO) licenses at the facility.

c. Conclusion

The licensee's organization and staffing followed the requirements specified in TS Section 6.1. The operations log and associated records confirmed that shift staffing met the minimum requirements for duty and on call personnel.

2. Operations Logs and Records

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify operation of the reactor in accordance with TS Sections 3.0 through 5.0 and TS Section 6.1.3.

- The UTA, NETL 2018 Annual Report, submitted February 25, 2019
- OPER-1, "Startup - Shutdown Checks," dated 4/3/2002
- OPER-1 Attachment, "Start Up Checks," dated 2/14/2018
- OPER-2, "Reactor Startup, Operating and Shutdown," Version 2.0 dated 4/18/2019
- OPER-2 Attachment, "UT-TRIGA ICS Console Operation Log," dated 8/29/2018
- Logs from 12/2018 to present
- Scram log sheets and startup reactivity calculation records from January 2019 to the present
- Selected monthly checklists for 12/2018 through the present
- Selected prestart check sheets for 12/2018 through the present
- Selected UTA-TRIGA instrumentation and control system (ICS) console operation log sheets for 12/2018 through present
- Selected startup-shutdown check sheets and the associated experiment startup-shutdown check sheets and heat exchanger startup-shutdown check sheets for 1/2019 through the present

b. Observations and Findings

The inspector reviewed selected operations records from December 2018 through the present. These records included daily startup-shutdown checklists, log sheets, experiment startup and shutdown checklists, weekly checklists, monthly checklists, and other associated forms. Information on the operational status of the facility was recorded accurately on the log sheets and/or the checklists as required by procedure. The inspector observed a reactor startup to 950 kilowatts.

Through interviews with operators and review of logs and records, the inspector confirmed that shift staffing met the minimum requirements for duty and on-call personnel as required by TS Section 6.1.3. This was noted on the log sheets by listing the names of the individuals designated as the RO and the SRO.

c. Conclusion

The licensee's record keeping program conformed to TS requirements.

3. Requalification Training

a. Inspection Scope (IP 69001)

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

- Active license status of all current ROs and SROs
- Medical examination records for selected operators
- Training lectures and records for the training cycle (August 2017-July 2019)
- Training lectures and records for the training cycle (August 2019-present)
- UTA-TRIGA Requalification Plan, dated January 17, 2019
- Written examinations given during February 2019
- Logs and records of reactivity manipulations for the requalification cycle (December 2018 through present)
- NETL Administrative Procedure, ADMN-3, "Procedures for Personnel and Operator Qualifications," Revision 0, approved January 31, 1992

b. Observations and Findings

There were three licensed SROs and seven licensed ROs at the facility. A review of all the operators' licenses showed that they were current.

A review of the logs and records showed that training was being conducted in accordance with the licensee's requalification and training program. Records of quarterly reactor operations, reactivity manipulations, and operator activities indicating operator proficiency were being maintained. Biennial written examinations were being completed as required or credit was taken by the licensee for the licensed operator exams administered by the NRC to satisfy the requalification cycle exam requirements when applicable. The inspector confirmed that the requalification program was being administered in a manner that would sufficiently maintain the qualifications and proficiency of the licensed operators currently working at the facility. The inspector also noted that the operators were receiving the required biennial medical examinations as well.

c. Conclusion

Operator requalification was conducted as required by the Requalification Program and the NRC regulations.

4. **Surveillance and Limiting Conditions for Operation**

a. Inspection Scope (IP 69001)

To determine that maintenance and surveillance activities and calibrations were being completed as required by TS Sections 3.0 and 4.0, the inspector reviewed:

- TSs through Amendment 4, dated May 10, 2001
- Weekly surveillance checks sheets for June 2019-present
- Selected UTA-TRIGA ICS console operation log sheets from January 2017 through the present
- SURV-3, "Excess Reactivity and Shutdown Margin," Revision 2, dated 7/15/2019
- SURV-4, "Reactor Water Systems Surveillance," dated January 22, 1991
- SURV-4, "Annual Water Systems Surveillance Checklist" dated July 2019
- Bimonthly Reactor Pool Water Samples (TS required quarterly)

b. Observations and Findings

The inspector reviewed selected surveillance procedures and records including the weekly-monthly surveillance log. The inspector determined that selected weekly, monthly, semiannual, and annual checks, tests, and/or calibrations for TSs required surveillances were completed as stipulated. The inspector observed the weekly surveillance checks for the week of November 18, 2019. The tests and calibrations reviewed were completed on schedule and in accordance with licensee procedures. The appropriate records and logs reviewed were being maintained as required.

c. Conclusion

The LCO and surveillances required by the TS were being properly implemented.

5. Emergency Planning

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify compliance with the NETL emergency response plan:

- Emergency Response Plan, Revision 4
- Training records for the past 2 years
- Emergency response facilities, supplies, equipment, and instrumentation
- Documentation of emergency drills and exercises held during 2018 and 2019
- Letters of Agreement with support organizations including the Austin - Travis County Emergency Medical Services, City of Austin Fire Department, and the Dell Seton Medical Center
- NETL Implementing Procedure, PLAN-0, "Call and Notification," Version 2.00, approved November 9, 2000, with local permanent change (Emergency Call List) dated April 10, 2012
- NETL Implementing Procedure, PLAN-E, "Emergency Response," Version 3.00, approved November 2, 2006, which specified the emergency equipment and supplies required to be available at the facility
- E-Plan audit dated July 17, 2018

b. Observations and Findings

The E-Plan in use at the reactor and emergency facilities was the same as the version most recently submitted to the NRC for approval. The inspector verified that the E-Plan and implementing procedures were being audited and reviewed biennially as required and revised as needed. The inspector verified that emergency response facilities, supplies, instrumentation, and equipment were being maintained and controlled as required in the E-Plan.

Through records review and interviews with licensee personnel, the inspector determined that emergency responders were knowledgeable of the proper actions to take in case of an emergency. Letters of agreement with outside response organizations were being maintained and updated annually.

Emergency drills had been conducted annually as required by the E-Plan. Records indicated that off-site support organizations had participated in the facility drills at least every 2 years as required. Critiques were held following the drills to discuss the strengths and weaknesses identified during the exercises and to develop possible solutions to any problems identified. The results of these critiques were documented. Emergency preparedness and response training for reactor staff personnel was being conducted and documented as stipulated in the E-Plan.

c. Conclusion

The emergency preparedness program was conducted in accordance with the E-Plan and implementing procedures.

6. Maintenance Logs and Records

a. Inspection Scope (IP 69001)

To determine that maintenance activities were being completed as required by TSs and procedures, the inspector reviewed:

- TSs through Amendment 4 dated May 10, 2001
- System maintenance log for 2018 through the present
- Weekly-monthly surveillance log for December 2018 through the present
- Selected UTA-TRIGA ICS console operation log sheets from December 2018 through the present
- The UTA, NETL 2018 Annual Report, submitted February 25, 2019

b. Observations and Findings

The inspector reviewed selected maintenance procedures and maintenance records, including the system maintenance log. The log contained maintenance information on various systems, including the reactor coolant system, the radiation monitoring system, the ICS computer, the ICS data acquisition control system, the ICS neutron monitoring (power channel) system, and the ICS rod drive system. The logs and records showed that routine and preventive maintenance was controlled and documented in the maintenance and/or operations logs consistent with licensee procedures and within the time frame specified.

Conclusion

Maintenance was performed, and logs and records maintained consistent with TS and licensee procedure requirements.

7. Fuel Handling Logs and Records

a. Inspection Scope (IP 69001)

To verify adherence to fuel handling and inspection requirements specified in TS Sections 3.1.4, 4.1.4, 5.3, and 5.4, the inspector reviewed:

- Selected NETL pool configuration forms
- UTA-TRIGA fuel movement log and selected log sheets
- Selected Fuel Element Movement log forms
- Selected UTA-TRIGA ICS console operation log sheets from December 2018 through the present
- FUEL-1, "Movement of Fuel," Version 1.0, dated December 17, 2005
- Reviewed MAIN-5 Data Sheet, "Fuel Inspection Summary," Revision 3.0, dated December 18, 2018

b. Observations and Findings

The inspector determined that the licensee was maintaining the required records of the various fuel movements that had been completed. The inspector also determined that the fuel was being moved in compliance with procedure and the moves were being tracked and documented on the appropriate forms.

The inspector also verified that the reactor fuel was being inspected biennially as required by TS Section 4.1.4.

c. Conclusion

Fuel movements were performed safely in accordance with TS requirements and licensee procedural requirements.

8. Exit Interview

The inspector presented the inspection results to licensee management at the conclusion of the inspection on November 21, 2019. The inspector described the areas inspected and discussed in detail the inspection observations. The licensee acknowledged the findings presented 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

L. Hall	Reactor Supervisor
T. Tipping	Reactor Health Physicist and Laboratory Manager
M. Whaley	Associate Director, NETL

INSPECTION PROCEDURES USED

IP 69001	Class II Non-Power Reactors
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ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

None

Closed:

Discussed:

None

LIST OF ACRONYMS USED

E-Plan	Emergency Plan
ICS	Instrumentation and Control System
IP	Inspection Procedure
LCO	Limiting Conditions for Operation
NETL	Nuclear Engineering Teaching Laboratory
No.	Number
NRC	U.S. Nuclear Regulatory Commission
RO	Reactor Operator
SRO	Senior Reactor Operator
TS	Technical Specification(s)
TRIGA	Training, Research, Isotopes, General Atomics
UTA	University of Texas at Austin