



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

June 5, 2023

Dr. Alan Cebula
Nuclear Reactor Facility Manager
Kansas State University
112 Ward Hall
Manhattan, KS 66506-5204

SUBJECT: KANSAS STATE UNIVERSITY – U.S. NUCLEAR REGULATORY COMMISSION
SAFETY INSPECTION REPORT NO. 05000188/2023201

Dear Dr. Cebula:

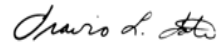
From April 24-28, 2023, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Kansas State University Nuclear Reactor Facility. The enclosed report presents the results of that inspection, which were discussed on April 28, 2023, with you and members of your staff.

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* 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 website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

If you have any questions concerning this inspection, please contact Andrew Waugh at (301) 415-0230, or by email to Andrew.Waugh@nrc.gov.

Sincerely,



Signed by Tate, Travis
on 06/05/23

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. 50-188
License No. R-88

Enclosure:
As stated

cc w/enclosure: GovDelivery Subscribers

SUBJECT: KANSAS STATE UNIVERSITY – U.S. NUCLEAR REGULATORY COMMISSION
SAFETY INSPECTION REPORT NO. 05000188/2023201 DATED: JUNE 5, 2023

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

Docket No.: 50-188

License No.: R-88

Report No: 05000188/2023201

Licensee: Kansas State University

Facility: Kansas State Nuclear Reactor Facility

Location: Manhattan, Kansas

Dates: April 24-28, 2023

Inspector: Andrew Waugh

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

Kansas State University
Kansas State Nuclear Reactor Facility
Inspection Report No. 05000188/2023201

The primary focus of this routine announced inspection was the onsite review of selected aspects of the Kansas State University (KSU, the licensee's) Class II research reactor facility safety program, including: (1) procedures; (2) requalification; (3) experiments; (4) health physics (HP); (5) design changes; (6) committees, audits and review; and (7) transportation of radioactive materials. The U.S. Nuclear Regulatory Commission (NRC) staff determined that the licensee's program was acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements.

Procedures

- The inspector determined that procedures were controlled, maintained current, implemented, and followed in compliance with technical specifications (TSs) and license requirements.

Requalification

- The inspector determined that the operator requalification program was conducted and completed in accordance with the NRC approved program and regulatory requirements.

Experiments

- The inspector determined that experiments were reviewed, approved, and conducted in accordance TS, procedural, and regulatory requirements.

Health Physics

- The inspector determined that the licensee's HP program was conducted in accordance with TS, procedural, and regulatory requirements.

Design Changes

- The inspector determined that design changes were conducted in accordance with TS, procedural, and regulatory requirements.

Committees, Audits and Reviews

- The inspector determined that the licensee's oversight programs were conducted in accordance with TS and procedural requirements.

Transportation Activities

- The inspector determined that the licensee's radioactive material transportation program was in accordance with regulatory and procedural requirements.

REPORT DETAILS

Summary of Facility Status

The KSU, 1,250-kilowatt Training, Research, Isotopes, General Atomics (TRIGA) Mark II research reactor continued to be operated in support of the University's academic program in nuclear engineering laboratory instruction and research. During the inspection, the reactor was not operated.

1. Procedures

a. Inspection Scope (Inspection Procedure [IP] 69001, Section 02.03)

The inspector reviewed the following regarding the licensee's procedures to ensure that the requirements of the licensee's administrative procedures and TS 6.3 were met:

- reactor safeguards committee (RSC) meeting minutes, dated 2021-present
- 2021 and 2022 annual operating reports
- "Reactor Facility Operations Manual," dated May 2009
- Procedure No. 2, "Annual Power Level Calibration," dated November 23, 2010
- Procedure No. 3, "Annual Remote Area Monitor," dated March 14, 2008
- Procedure No. 10, "Fuel Element Inspection," dated April 7, 2011
- Procedure No. 15, "Steady State Operation," dated September 12, 2018
- Experiment 50, "Decay Gamma Irradiation," dated April 28, 2021
- Experiment 56, "Packed Bed Vapor Void Fraction Imaging," dated July 30, 2021

b. Observations and Findings

The inspector observed that the licensee maintained written procedures covering the areas specified in TS 6.3. The inspector found that the procedures in use by the licensee were current, reviewed and approved as required by TS 6.3, implemented as intended, and adhered to by reactor personnel.

c. Conclusion

The inspector determined that procedures were controlled, maintained current, implemented, and followed in compliance with TS and license requirements.

2. Requalification

a. Inspection Scope (IP 69001, Section 02.04)

The inspector reviewed the following aspects of the licensee's requalification program to verify compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55, "Operators' Licenses," and the licensee's NRC-approved operator requalification program:

- KSU's requalification program, dated June 2003
- RSC meeting minutes, dated 2021-present

- select operations logs, dated 2021-present
- select operator requalification training records, dated 2021-present
- select licensee medical exams, dated 2021-present

b. Observations and Findings

The inspector found that the licensee’s training was conducted and documented in accordance with their NRC-approved requalification and training program, and that the license operator’s requalification training and medical records were maintained.

c. Conclusion

The inspector determined that the operator requalification program was conducted and completed in accordance with the NRC approved program and regulatory requirements.

3. Experiments

a. Inspection Scope (IP 69001, Section 02.06)

The inspector reviewed the following to ensure that experiments were reviewed and conducted as required by TS 3.6, 5.4, and 6.4:

- “Kansas State University TRIGA Mark II Reactor Facility Operations Manual,” dated May 2009
- 2021 and 2022 annual operating reports
- 10 CFR 50.59, “Changes, tests and experiments,” screening, evaluation, and approval forms, dated 2021-present
- RSC meeting minutes, dated 2021-present
- reactor experiment request forms, dated 2021-present
- Experiment 50, “Decay Gamma Irradiation,” dated April 28, 2021
- Experiment 56, “Packed Bed Vapor Void Fraction Imaging,” dated July 30, 2021

b. Observations and Findings

The inspector found that experiments were reviewed and approved as required by TS 6.4 and 10 CFR 50.59. The inspector also found that experiments were conducted in accordance with the licensee’s procedures and TS 3.6 and 5.4.

c. Conclusion

The inspector determined that experiments were reviewed, approved, and conducted in accordance TS, procedural, and regulatory requirements.

4. Health Physics

a. Inspection Scope (IP 69001, Section 02.07)

The inspector toured the facility and observed radiological signs and postings. The inspector also reviewed the following to ensure the licensee’s HP program adheres to the requirements of 10 CFR Part 19, “Notices, Instructions, and Reports to Workers:

Inspection and Investigations,” 10 CFR Part 20, “Standards for Protection against Radiation,” and TS 3.3 and 4.3:

- 2021 and 2022 annual operating reports
- select environmental radiation surveys, dated 2021-present
- select contamination surveys, dated 2021-present
- select personnel and area dosimetry records from 2021-present
- select calibration records for radiation monitors, dated 2020-present
- KSU Nuclear Reactor Radiation Protection Program dated August 23, 2011
- Procedure No. 3, “Annual Remote Area Monitor,” dated March 14, 2008

b. Observations and Findings

The inspector found that practices regarding the use of dosimetry, radiation monitoring equipment, placement of radiological postings, posting of notices, use of protective clothing, and the handling and storing of radioactive material or contaminated equipment was in accordance with regulations and the licensee’s radiation protection program. The inspector found that the licensee met the regulatory requirements concerning radiological effluent releases and radiation survey, sampling, and monitoring. The inspector also found that training was conducted for radiation workers and as low as reasonably achievable principles were implemented as required by licensee procedures.

c. Conclusion

The inspector determined that the licensee’s HP program was conducted in accordance with TS, procedural, and regulatory requirements.

5. Design Changes

a. Inspection Scope (IP 69001, Section 02.08)

The inspector reviewed the following to ensure that modifications to the facility were made in accordance with the requirements of 10 CFR 50.59 and TS 6.2:

- SOM5, “Configuration Management: Equipment Changes,” dated August 2, 2017
- 2021 and 2022 annual operating reports
- 10 CFR 50.59 screening, evaluation, and approval forms, dated 2021-present
- RSC meeting minutes, dated 2021-present

b. Observations and Findings

The inspector found that design changes were reviewed and approved as required by 10 CFR 50.59. The inspector also found that the performance of modified equipment and the procedures and drawings related to that equipment met regulatory, TS, and procedural requirements.

c. Conclusion

The inspector determined that design changes were conducted in accordance with TS, procedural, and regulatory requirements.

6. Committees, Audits and Reviews

a. Inspection Scope (IP 69001, Section 02.09)

The inspector reviewed the following to ensure that committees, audits, and reviews were conducted as required by the licensee's procedures and TS 6.2:

- RSC meeting minutes, dated 2021-present
- 2021 and 2022 annual operating reports
- semi-annual reports of reactor operations & radiation protection program, dated 2021-present
- SOM5, "Configuration Management: Equipment Changes," dated August 2, 2017
- 10 CFR 50.59 screening, evaluation, and approval forms, dated 2021-present

b. Observations and Findings

The inspector found that the licensee's RSC met and provided reviews as required by the TS. The inspector also found that problems identified from the licensee's required reviews and audits were resolved in accordance with the licensee's procedures and TS.

c. Conclusion

The inspector determined that the licensee's oversight programs were conducted in accordance with TS and procedural requirements.

7. Transportation Activities

a. Inspection Scope (IP 86740)

The inspector reviewed the following to ensure the licensee's program for transporting radioactive materials met NRC and Department of Transportation (DOT) requirements:

- records of radioactive material shipments from 2021-present
- 2021 and 2022 annual operating reports

b. Observations and Findings

The inspector found that the licensee's procedures and records concerning the transportation of radioactive material were in accordance with NRC and DOT requirements.

c. Conclusion

The inspector determined that the licensee's radioactive material transportation program was in accordance with regulatory and procedural requirements.

8. Exit Interview

The inspection scope and results were summarized on April 28, 2023, with members of licensee management and staff. The inspector described the areas inspected and discussed the inspection results. The licensee acknowledged the results of the inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

A. Cebula KSU Nuclear Reactor Facility Manager
R. Seymour Reactor Supervisor

Other Personnel

R. Bridges Campus Radiation Safety Officer, Environmental Health and Safety
Department
M. Catanach Assistant Radiation Safety Officer, Environmental Health and Safety
Department

INSPECTION PROCEDURES USED

IP 69001 Class II Research and Test Reactors
IP 86740 Inspection of Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

None

Closed:

None

Discussed:

None