



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

February 23, 2024

EA-24-114

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

SUBJECT: CONFIRMATORY ACTION LETTER - KANSAS STATE UNIVERSITY  
COMMITMENT TO OPERATIONAL PRACTICES

Dear Dr. Cebula:

This letter documents Kansas State University's (KSU, the licensee) continued commitment to implement operating restrictions for the KSU Training, Research, Isotopes, General Atomics (TRIGA) Mark II Nuclear Reactor Facility. The restrictions will ensure the avoidance of certain operating conditions that are not bounded by existing analyses.

By letter dated April 9, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12109A063), as supplemented by letters dated April 28, 2014, October 5, 2016, May 2, 2017, September 23, 2017, and November 30, 2018 (ML16200A317, ML16291A498, ML17139C979, ML17319A305, and ML18347A209, respectively), KSU submitted a license amendment request (LAR) to Renewed Facility Operating License No. R-88 for the KSU TRIGA Mark-II Nuclear Reactor Facility. The requested amendment would allow KSU to add up to four fuel elements that are 12 percent by weight uranium to the reactor core.

By letter dated June 5, 2019 (ML19128A342), the U.S. Nuclear Regulatory Commission (NRC) staff requested additional information to continue its review of the LAR and requested responses by October 7, 2019. During teleconferences on September 3 and September 16, 2019, KSU and the NRC staff discussed the status of the LAR review and reactor operations. The NRC staff summarized the information discussed during the teleconferences in a letter to KSU dated September 18, 2019 (ML19248C834). This included discussion that, based on analyses performed by KSU to date in support of the LAR, KSU was evaluating and addressing some potential reactor operating conditions that may not be bounded by the existing analyses supporting the reactor's current licensing basis, but would not be specifically prohibited by KSU's current reactor operating license and technical specifications (TSs). Potential reactor operating conditions discussed included steady-state full-power reactor operation at any reactor bulk pool water temperature, reactor operation with flow channels between fuel elements partially blocked by experiments, and reactor operation with one or more control rods inoperable.

By letter dated October 7, 2019 (ML19295D727), KSU requested an extension of time for providing responses to the NRC staff's June 5, 2019, request for additional information. KSU

also stated that it would, for the duration of the LAR review, administratively impose reactor operating restrictions to limit the potential operating conditions discussed during the September 3 and September 16, 2019, teleconferences and summarized in the NRC staff's September 18, 2019, letter. The NRC staff acknowledged KSU's administrative operating restrictions by letter dated October 24, 2019 (ML19290H593).

KSU's operating restrictions in its October 7, 2019, letter included a statement that KSU would not operate the reactor with core excess reactivity significantly greater than its October 7, 2019, value (i.e., more than \$0.15 above the October 7, 2019, core excess reactivity), except for low power reactor operation that may be necessary to make measurements needed to determine excess reactivity. Based on information provided by KSU during teleconferences on September 3 and September 16, 2019, and summarized in the NRC staff's letter dated September 18, 2019, this operating restriction prevents KSU from making core configuration changes, for example, fresh fuel additions, that could increase core excess reactivity such that KSU would be able to operate the reactor above a maximum steady-state power level of approximately 600 kilowatts-thermal (kW(t)).

During a teleconference on September 27, 2023, KSU informed the NRC staff that it planned to withdraw the LAR based on significant changes in its methodology for performing the thermal-hydraulics analyses supporting the LAR, and additional time needed to complete these analyses. Thereafter, by letter dated December 21, 2023 (ML24018A104), KSU withdrew the LAR and stated that it anticipated resubmitting the LAR in the future. In its December 21, 2023, letter, KSU also stated that the administrative operating restrictions committed to in its letter dated October 7, 2019, would remain in place following the LAR withdrawal.

This confirmatory action letter (CAL) confirms that KSU will continue the operational practices described in its October 7, 2019, letter and indicated would remain in place in its December 21, 2023, letter. Pursuant to a phone conversation on February 15, 2024, between you and Holly Cruz, acting Branch Chief, Linh Tran, Senior Project Manager; Edward Helvenston, Project Manager; Andrew Miller, Project Manager representing the NRC, it is the NRC's understanding that KSU will:

1. Not operate the reactor with core excess reactivity significantly greater than its current [October 7, 2019] value (i.e., more than \$0.15 above the current [October 7, 2019] core excess reactivity), except low power reactor operation that may be necessary to make measurements needed to determine excess reactivity.
2. Not operate the reactor when the bulk pool temperature is above 50 degrees Celsius ( $^{\circ}\text{C}$ ) (122 degrees Fahrenheit ( $^{\circ}\text{F}$ )).
3. Not operate the reactor when experiments or other objects are inserted in interstitial flux wire ports in the grid plate and the bulk pool temperature is above  $37^{\circ}\text{C}$  ( $98.6^{\circ}\text{F}$ ).
4. Not operate the reactor when one or more control rods is inoperable.

This CAL will remain in effect until (1) KSU submits an LAR, or other licensing action, that addresses the NRC staff's underlying concerns related to the operational practices described above, and revises the reactor license and TSs to prohibit potential reactor operating conditions that may not be bounded by analyses supporting the reactor's licensing basis, (2) the NRC staff reviews the LAR or other licensing action, and (3) the NRC staff provides written correspondence to KSU indicating that it has concluded that the reactor can be operated without undue risk to the health and safety of the public.

Pursuant to section 182 of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2232), you are required to:

1. Notify the NRC immediately if your understanding differs from that set forth above;
2. Notify the NRC if for any reason you cannot perform the actions; and
3. Notify the NRC in writing when you have completed the actions addressed in this CAL.

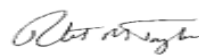
Issuance of this CAL does not modify or amend KSU's license, and does not preclude issuance of an order formalizing the above commitments or requiring other actions on the part of the licensee; nor does it preclude the NRC from taking enforcement action for violations of NRC requirements that may have prompted the issuance of this letter.

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 and any response will be made available electronically for public inspection in the NRC Public Document Room or from the ADAMS, accessible from the NRC website at <https://www.nrc.gov/reading-rm/adams.html>.

To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Should you have any questions concerning this letter, please contact Edward Helvenston of my staff at 301-415-4067, or by email at [Edward.Helvenston@nrc.gov](mailto:Edward.Helvenston@nrc.gov).

Sincerely,



Taylor, Robert signing on behalf  
of Veil, Andrea  
on 02/23/24

Andrea D. Veil, Director  
Office of Nuclear Reactor Regulation

Docket No. 50-188  
License No. R-88

cc: GovDelivery Subscribers

SUBJECT: CONFIRMATORY ACTION LETTER - KANSAS STATE UNIVERSITY  
COMMITMENT TO OPERATIONAL PRACTICES DATED: FEBRUARY 23, 2024

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**NRR-106**

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