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

May 10, 2023

EA-22-134

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 – NOTICE OF VIOLATION

Dear Dr. Charlton:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) special inspection conducted from November 7 – December 8, 2022, at the University of Texas at Austin, Nuclear Engineering Teaching Laboratory (NETL). The special inspection was conducted in response to communications between NETL and NRC staff between October 17 and November 1, 2022, and event notification 56198 submitted by NETL staff on November 2, 2022. NETL staff submitted a 14-day report on November 16, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22322A114), describing the cause of, and corrective actions for, operating with fuel that did not meet the requirements of technical specification (TS) 5.3, “Reactor Core and Fuel.” The NRC staff discussed preliminary results with you and members of your staff at the conclusion of the onsite portion of the special inspection on November 17, 2022. A final special inspection exit briefing was conducted by NRC staff via teleconference with you and members of your staff on December 8, 2022. The NRC’s Special Inspection Report No. 05000602/2022201 was issued on January 25, 2023 (ML22347A311), which documented the results of the special inspection, including an apparent violation that was considered for escalated enforcement in accordance with the NRC Enforcement Policy. The Enforcement Policy can be found on the NRC’s website at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

The NRC staff provided you with the opportunity to address the apparent violation by either attending a predecisional enforcement conference or by providing a written response before we made our final enforcement decision. By letter dated February 25, 2023 (ML23067A209), you provided a written response to the apparent violation.

Based on the information developed during the special inspection and the information in your written response, the NRC staff determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject special inspection report (ML22347A311). The violation involves operation of the NETL research reactor, from January 6, 2022, to October 17, 2022, with fuel elements that did not meet the requirements of TS 5.3. Specifically, two aluminum cladded TRIGA [Training, Research, Isotopes, General Atomics] fuel elements were utilized in

the reactor core contrary to TS 5.3.1, “Fuel Elements,” which states, in part, that fuel element cladding will be “304 stainless steel, nominal 0.020 inches thick.”

NETL is only licensed to operate with stainless-steel cladded fuel elements in the reactor core and the safety analysis report evaluates the use of stainless-steel cladded fuel elements and not aluminum. While aluminum cladded fuel elements are licensed for use in some TRIGA reactors, these reactors have more restrictive operational limits and settings than those limits and settings authorized at NETL. Specifically, aluminum cladded fuel elements require a more conservative safety limit than that of stainless-steel cladded fuel elements to ensure the integrity of the cladding is maintained. By installing aluminum cladded fuel in the reactor core, NETL operated with a safety limit and limiting safety system settings that were less conservative than what is necessary to ensure the integrity of a fission product barrier. Operating the reactor with non-conforming fuel elements had a potential consequence of challenging the integrity of the fission product barrier. Therefore, this violation has been categorized in accordance with the NRC Enforcement Policy at Severity Level (SL) III.

Because your facility has not been the subject of escalated enforcement actions within the last 2 years, the NRC considered whether credit was warranted for corrective action in accordance with the civil penalty assessment process in section 2.3.4 of the Enforcement Policy. Corrective actions taken to date by NETL staff included: 1) removing aluminum fuel elements from the core; 2) revising the surveillance procedure for fuel element inspections and measurements; 3) performing a revised fuel element inspection and measurement surveillance for all fuel elements installed in the core at the time of the event and for fuel elements that were installed in the new core configuration; 4) updating the fuel management file used for tracking fuel elements; 5) reviewing the event with NETL staff emphasizing the importance of procedural compliance and the change control process; 6) developing engineering controls to prevent recurrence of the event; and 7) adding a management verification for core changes.

Therefore, to encourage prompt and comprehensive correction of violations, and in recognition of the absence of previous escalated enforcement action, I have been authorized, after consultation with the Director, Office of Enforcement, not to propose a civil penalty in this case. However, significant violations in the future could result in a civil penalty. In addition, issuance of this SL III violation constitutes escalated enforcement action that may subject you to increased inspection effort.

The NRC concluded that information regarding: (1) the reason for the violation; (2) the corrective actions taken and the results achieved; and (3) the date when full compliance was achieved is already adequately addressed on the docket in Special Inspection Report No. 05000602/2022201, and your letter dated February 25, 2023. Therefore, you are not required to respond to this letter unless the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

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 and ADAMS, accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html. Should you opt to provide a response, to the extent possible, it 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, 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 information, 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). The NRC also includes significant enforcement actions on its website at (http://www.nrc.gov/reading-rm/doc-collections/enforcement/actions/).

Additionally, if you choose to provide a response, it should be sent to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy mailed to Mr. Mohamed Shams, Director, Division of Advanced Reactors and Non-Power Production and Utilization Facilities, Office of Nuclear Reactor Regulation, 11555 Rockville Pike, Rockville, MD 20852-2738.

If you have any questions concerning this matter, please contact Travis Tate, Chief, Non-Power Production and Utilization Facilities Oversight Branch at (301) 415-3901.

Sincerely,

Signed by Shams, Mohamed on 05/10/23

Mohamed K. Shams, Director
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: GovDelivery Subscribers

SUBJECT: UNIVERSITY OF TEXAS AT AUSTIN – NOTICE OF VIOLATION
DATED: MAY 10, 2023

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ADAMS Accession No.: ML23129A243 **NRC-002**

OFFICE	NRR/DANU/UNPO	NRR/DANU/UNPO	NRR/DANU/LA	OE/EB
NAME	AWaugh	CBassett	NParker	DJones
DATE	5/9/2023	5/9/2023	5/10/2023	5/10/23
OFFICE	NRR/DANU/BC	NRR/DRO/DD	NRR/DANU/DD	NRR/DANU/D
NAME	TTate	TMartinezNavedo	JGreives	MShams
DATE	5/10/2022	5/10/2022	5/10/2022	5/10/2022

OFFICIAL RECORD COPY

NOTICE OF VIOLATION

The University of Texas at Austin
Nuclear Engineering Teaching Laboratory
Austin, TX

Docket No. 50-602
License No. R-129
EA-22-134

During a U.S. Nuclear Regulatory Commission (NRC) special inspection conducted from November 7 – December 8, 2022, a violation of NRC requirements was identified to have occurred. In accordance with the NRC Enforcement Policy, the violation is listed below:

> The University of Texas at Austin, Nuclear Engineering Teaching Laboratory (NETL, the facility) technical specifications (TSs) section 5.0 discusses the design features of the facility. TS 5.3.1 states, in part, that fuel element cladding will be "304 stainless steel, nominal 0.020 inches thick."
>
> Contrary to TS 5.3.1, between January 6 and October 17, 2022, the NETL staff operated the reactor with two aluminum cladded fuel elements installed in the reactor core. Specifically, on January 6, 2022, NETL staff performed a core change. As part of the core change, NETL staff unknowingly installed two aluminum cladded TRIGA [Training, Research, Isotopes, General Atomics] fuel elements in the reactor core. NETL staff operated the reactor with the two aluminum cladded elements in the reactor core until October 17, 2022, when the acting reactor manager identified the issue while reviewing paperwork. Reactor operations were suspended by NETL management at that time pending an assessment of the issue and implementation of corrective actions. NETL staff notified the NRC of the issue on October 17, 2022, and made an official report (event notification 56198) to the NRC on November 2, 2022.

This is a Severity Level III violation (section 6.1).

The NRC concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in Special Inspection Report No. 05000602/2022201, and in your response letter dated February 25, 2023. However, you are required to submit a written statement or explanation pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 2.201 "Notice of violation," if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation," include EA-22-134 in the subject line, and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy mailed to Mr. Mohamed Shams, Director, Division of Advanced Reactors and Non-Power Production and Utilization Facilities, Office of Nuclear Reactor Regulation, 11555 Rockville Pike, Rockville, MD 20852-2738, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you choose to respond, your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system Agencywide Documents Access and Management System, accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

In accordance with 10 CFR 19.11, “Posting of notices to workers,” you may be required to post this Notice within two working days of receipt.

Dated this 10th day of May, 2023