UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

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104 S. Wright St.
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April 11, 2025

Docket No.: 99902094

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Subject: Written communication as specified by 10 CFR 50.4 regarding the "University of Illinois at Urbana-Champaign – Safety Evaluation for Topical Report related to Fuel Qualification Methodology (EPID: L-2024-NFN-0003)," dated April 1, 2025

By letter dated February 7, 2023 (ML23038A241), the University of Illinois Urbana-Champaign (UIUC) submitted the Topical Report (TR), "University of Illinois Urbana-Champaign High-Temperature Gas-Cooled Research Reactor: Fuel Qualification Methodology," Release 01, dated January 23, 2023, Document No. IMRDD-MMR-23-01 (ML23038A242) to the U.S. Nuclear Regulatory Commission (NRC) for acceptance and review.

By email dated March 22, 2023 (ML23079A127), the NRC Staff informed UIUC that NRC Form 897 for the NRC staff proprietary determination review of the UIUC TR titled, "University of Illinois Urbana-Champaign High Temperature Gas-cooled Research Reactor: Fuel Qualification Methodology," had been completed.

By email dated March 31, 2023 (ML23088A117), the NRC staff determined that the TR provided sufficient information to begin its technical review. By email dated July 10, 2023 (ML23191A864), the NRC staff indicated it planned to begin a Regulatory Audit of the TR.

By letter dated July 27, 2023 (ML23208A308), UIUC notified the NRC Staff that Ultra Safe Nuclear Corporation (USNC) had determined the need to revise aspects of the report that are material to the NRC staff's review to address recent updates to the Micro Modular Reactor® (MMR®) fuel design. To support an effective and efficient NRC staff review, UIUC requested that the referenced TR be withdrawn and that an updated TR would be submitted in the future.

By letter dated August 18, 2023 (ML23229A238), the NRC staff notified UIUC that it had terminated its review of the TR; however, information provided to the NRC staff in support of the TR would remain in the NRC **A**gencywide **D**ocuments **A**ccess and **M**anagement **S**ystem (ADAMS). Also, the NRC staff terminated the Regulatory Audit that was initiated for this TR. No activities were conducted under the Regulatory Audit for this TR prior to the termination of the review; therefore, no audit report was issued.

By letter dated March 11, 2024 (ML24071A238), UIUC submitted the TR titled, "University of Illinois Urbana-Champaign High-Temperature Gas-Cooled Research Reactor: Fuel Qualification Methodology," Release 01, dated February 29, 2024, Document No. IMRDD-MMR-24-01 (ML24071A239 – proprietary

version and ML24071A240 – non-proprietary version), which incorporated the updates to the MMR® fuel design.

By email dated April 4, 2024 (ML24093A221), the NRC provided UIUC a completed Form 898 (ML24093A220), for the completeness determination for TR IMRDD-MMR-24-01, "University of Illinois Urbana-Champaign High-Temperature Gas-cooled Research Reactor: Fuel Qualification Methodology," Release 01, dated February 29, 2024.

By email dated June 14, 2024 (ML24166A223), the NRC provided UIUC the Regulatory Audit Plan for TR IMRDD-MMR-24-01, "University of Illinois Urbana-Champaign High-Temperature Gas-cooled Research Reactor: Fuel Qualification Methodology," Release 01, dated February 29, 2024.

By email dated August 7, 2024 (ML24220A062), the NRC provided UIUC with a list of questions within the scope of the audit plan to facilitate discussion during the audit meetings. Audit meetings were conducted on August 12, September 11, October 15 and November 20, 2024, to discuss those questions and any additional questions that arose during the meetings.

By letter dated December 12, 2024 (ML24347A212), UIUC provided the NRC with new versions (ML24347A213 – proprietary version and ML24347A214 – non-proprietary version) of the TR to address the NRC staff's questions and discussion items: "University of Illinois Urbana-Champaign High-Temperature Gas-Cooled Research Reactor: Fuel Qualification Methodology," Release 02, dated December 4, 2024, Document No. IMRDD-MMR-24-01.

By email dated February 3, 2025 (ML25031A240), the NRC provided UIUC with a completed Form 897 (ML25031A239) regarding the proprietary determination review of the TR.

By email dated February 25, 2025 (ML25056A214), the NRC notified UIUC that the final report of the Regulatory Audit had been completed (ML25056A215 – non-proprietary version).

By letter dated April 1, 2025 (ML25077A166), the NRC staff concluded that the "University of Illinois Urbana-Champaign High-Temperature Gas-Cooled Research Reactor: Fuel Qualification Methodology," TR, Release 02, dated December 4, 2024 was acceptable. The NRC staff's final safety evaluation (SE) (ML25077A168) for the non-proprietary version of the TR was also attached.

Enclosed are the accepted versions of the TR. In addition, the TRs incorporate, after the title page, the April 1, 2025, NRC letter, SE and final report of the Regulatory Audit. Portions of the TR are considered proprietary and should be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390. Enclosure 1 provides the proprietary version of the TR whereas Enclosure 2 provides the nonproprietary version. Additionally, the information indicated as proprietary has also been determined to contain Export Controlled Information. This information must be protected from disclosure pursuant to the requirements of 10 CFR 810. Finally, no new proprietary information has been added to the TR since the NRC's prior proprietary determination as documented in the above referenced Form 897 (ML25031A239).

Questions or other requests regarding this submittal should be directed to Caleb Brooks at csbrooks@illinois.edu or (217) 265-0519.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 11, 2025.

Sincerely,

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Enclosures:

1. "University of Illinois Urbana-Champaign High-Temperature Gas-cooled Research Reactor, Fuel Qualification Methodology, Topical Report," IMRDD-MMR-24-01-P-A, Release 02, dated December 4, 2024; accepted by the NRC on April 1, 2025
2. "University of Illinois Urbana-Champaign High-Temperature Gas-cooled Research Reactor, Fuel Qualification Methodology, Topical Report," IMRDD-MMR-24-01-NP-A, Release 02, dated December 4, 2024; accepted by the NRC on April 1, 2025

Cc:
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