



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

March 14, 2025

Jennifer K. Wheeler, Vice President,
Regulatory Affairs
TRISO-X, LLC
801 Thompson Avenue
Rockville, MD 20852

SUBJECT: UPDATED REVIEW SCHEDULE AND ESTIMATED STAFF COSTS FOR THE TRISO-X, LLC LICENSE APPLICATION TO POSSESS AND USE SPECIAL NUCLEAR MATERIAL FOR THE MANUFACTURE OF HIGH ASSAY LOW ENRICHMENT URANIUM FUEL AT A FUEL FABRICATION FACILITY (ENTERPRISE PROJECT IDENTIFICATION NUMBER L-2022-NEW-0005 AND L-2022-LNE-0002)

Dear Jennifer Wheeler:

The U.S. Nuclear Regulatory Commission (NRC) staff accepted the TRISO-X, LLC, license application to possess and use special nuclear material for the manufacture of high assay, low enriched uranium (HALEU) fuel for formal review via letter dated November 18, 2022 (ML22320A110). The NRC's 30-month review schedule, with a projected completion date of June 2025, is being updated to reflect TRISO-X's submittal of a revised license application and partial environmental report submitted via letters dated December 30, 2024 (ML24365A254) and January 31, 2025 (ML25031A449), the anticipated submittal of the remainder of the environmental report in March of 2025, as well as other factors described below.

IMPACTS DRIVING SCHEDULE CHANGES

In August 2023, the U.S. Department of Energy (DOE) Office of Clean Energy Demonstrations communicated to the NRC that due to a shortage of the commercial supply of HALEU it expected the HALEU for the first core load for its Advanced Reactor Demonstration Program, to be fabricated by TRISO-X under a cooperative agreement, may be in a form that TRISO-X did not include in its application. In cooperation with DOE, TRISO-X determined that it needed to modify its license application to reflect the changes necessary to process the proposed HALEU form. On January 20, 2024 (ML24020A010), TRISO-X notified the NRC staff that they intended to submit a major revision to their licensing application and environmental report in December 2024. TRISO-X's revision addresses modifications to the facility design and layout to support the change for initial near-term HALEU feedstock from uranium oxide to uranyl nitrate and an increase in overall facility capacity by adding another process building and expanding the production capacity of the original process building. TRISO-X has indicated that additional changes made to further the maturity of the design are intended to reduce or eliminate hazards and enhance safety.

Updated documentation for the License Chapters 1 – 13, Fundamental Nuclear Material Control Plan, Site Emergency Plan, and Decommissioning Funding Plan portions of the license application were submitted in December 2024. However, the revised Integrated Safety Analysis (ISA) Summary, Security Plan, and portions of the environmental report were submitted later in

January 2025. TRISO-X stated that the December 2024 and January 2025 submittals incorporate their responses to previous requests for additional information (RAIs). The complete revised environmental report, which is also intended to incorporate TRISO-X responses to previous RAIs, is expected to be submitted in March of 2025. The NRC worked closely with TRISO-X to make progress in the review, where possible, based on the information available. As discussed previously with TRISO-X, 14 of the 20 review areas of the safety and security review progressed through the development of the draft safety and safeguards evaluation report based on the original submittal and then were paused for 10 months while the NRC staff awaited the revised license application. Similarly, the environmental review progressed through the development of a draft environmental impact statement based on the original submittal and then paused for 13 months while the NRC staff awaits the updated environmental report that incorporates the impacts of the facility design changes and HALEU feedstock.

The original 30-month schedule was based on several assumptions: (1) submittal of an application supporting a review with no more than one round of RAIs, (2) submittal of the Electrical and Instrumentation and Control (Electrical and I&C) portion of the application by August 2023, and (3) timely RAI response that fully address the information needs. However, several factors challenged these assumptions. On August 31, 2023, TRISO-X notified the NRC staff that it would need an additional six months to submit the Electrical and I&C portion of the application (submitted by letter dated February 29, 2024, ML24060A239). This delayed the start of the staff's review of the Electrical and I&C portion of the application by six months. Additionally, early in the review, the NRC staff identified high impact technical issues (HITIs) with the TRISO-X methodologies for the ISA Summary, human factors, management measures, structural safety, and criticality safety (ML24089A200). As a result, the NRC paused the detailed review of these 6 of 20 review areas until the NRC and TRISO-X aligned on methodology changes through RAI responses, meetings, and audits to resolve the HITIs. TRISO-X provided responses for 118 RAIs on the original safety and safeguards portion of the application and 38 RAIs on the original environmental report. The NRC staff will verify the information agreed upon in the RAI responses, meetings, and audits is incorporated into the revised license application and environmental report. Considering these delays and pauses in the review, the NRC's active review time will be extended by one month to 31 months; however, the projected completion date will be extended by 11 months.

REVISED SCHEDULE

Based on the NRC staff's acceptance review of the revised license application and partial environmental report, NRC staff anticipate completing the review of the TRISO-X application by May 2026. When possible, the NRC staff will conduct review steps and concurrence in parallel and review technical areas on an accelerated schedule. The revised schedule, below, is based on the following assumptions: (1) the revised application and environmental report appropriately resolve previous RAI responses, (2) any additional RAI responses are timely and resolve new issues with limited need for follow-up RAIs, (3) clarification calls and audits are scheduled and conducted promptly, and (4) any additional supporting non-docketed information, including the horizontal and vertical slice for the ISA, are provided timely. If these assumptions are not met, the NRC staff will pause the clock on the review schedule until the issues are resolved. Should the review experience a delay for other reasons, the NRC staff will endeavor to make up the time within the revised schedule.

The May 2026, schedule includes the following major interim milestones:

- April 2025 – develop the revised draft safety and safeguards evaluation report (SER) and issue the safety, safeguards, and environmental RAIs
- July 2025 – receive TRISO-X's RAI responses
- August 2025 – issue the draft Environmental Impact Statement (EIS) for 45 day public comment period
- Fall 2025 – compile the draft-final SER based on technical review inputs
- Fall of 2025 – draft EIS public meetings
- December 2025 – response to public comments on the draft EIS
- Winter 2025 and early 2026 – conduct internal technical and legal review of the draft-final SER
- Spring 2026 – cooperating agency concurrence on the draft-final EIS
- May 2026 – complete the final EIS, final SER, and issue the Record of Decision for the EIS and the licensing decision

This revised schedule will exceed the NRC's three-year generic milestone schedule (November 17, 2025) developed in compliance with the Nuclear Energy Innovation and Modernization Act (NEIMA). Consistent with notification requirements in NEIMA Section 102(c), the NRC staff will conduct the appropriate notifications to the NRC Commission by December 17, 2025 and to Congress by February 15, 2026. In addition, the development and issuance of the final EIS will likely extend to May 2026. This letter constitutes the NRC staff's consultation with TRISO-X regarding the EIS schedule, consistent with Section 107(g)(2) of National Environmental Policy Act.

The revised schedule is posted on the NRC's TRISO-X Project Status Dashboard at <https://www.nrc.gov/info-finder/fc/triso-x/project-status.html>, which will be updated regularly to show the progress of the NRC staff's review.

CHANGES IN NRC STAFF ESTIMATED REVIEW COSTS

The NRC staff has revised its estimate of total billable hours and contract costs for the review. The NRC staff estimates the total billable hours for its safety and safeguards review will now be 13,800 hours, an increase of 5,300 hours over the original 8,500 hour estimate. The NRC staff estimates a total of 4,900 billable hours and \$1.5 million dollars in contractor support will now be needed to perform its environmental review, an increase of 400 hours and \$400,000, respectively, over the original estimate. The total estimated cost for the NRC staff's review of the TRISO-X's application will increase from \$4,870,000 to \$7,377,900 (at \$317/hour); the cost estimate includes developing the final SER, completing the EIS, and making a licensing decision. The NRC staff's estimate of the level of effort and revised schedule for the overall review could change further based on the actual time needed to complete the review. Any significant revisions in this estimate will be communicated to you promptly.

J. Wheeler

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If you have any questions regarding this communication, please contact Matthew Bartlett of my staff at 301-415-7154 or via email at matthew.bartlett@nrc.gov.

Sincerely,



Signed by Lav, Samantha
on 03/14/25

Samantha Lav, Chief
Fuel Facility Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 07007027

cc: triso@listmgr.nrc.gov

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