

OBSERVATIONS DEVELOPED DURING THE ACCEPTANCE REVIEW TO SUPPORT THE TRISO-X APPLICATION FOR A FUEL FABRICATION FACILITY

The following observations represent information the U.S. Nuclear Regulatory Commission (NRC) identified during the acceptance review for the TRISO-X, LLC license application (LA) issued on November 18, 2022 (Agencywide Documents Access and Management System Accession (ADAMS) No. ML22320A110). These observations are provided for early awareness of the applicant and no formal response is needed. The NRC staff will follow up on these observations during the development of requests for additional information as the review proceeds.

1. Environmental Report

The public health evaluation in the environmental report does not include certain radiological and chemical release scenarios and may not be conservative in terms of the atmospheric dispersion modeling and distances at which maximum radiological and chemical concentrations occur. Additionally, staff noted that surface water drainage from areas at higher elevations that would enter onto the site was not included in the surface water evaluation. Finally, the cultural resource information is complete but may not be in a format acceptable to the State's Historic Preservation Office.

2. Geotechnical

Figures 1-4 through 1-8 of LA: Please provide a larger scale to allow the NRC staff to read the details (geological cross-sections).

For the following items, the NRC staff is interested in reviewing the supporting information through an electronic reading room, portal, or other means.

- On page 1-7 under Subsurface Bearing Capacity: The text says an analysis has been done which shows no soil failure.
- On page 1-6 under Site Topography: The text says a slope stability analysis will be conducted to show the design is adequate.
- On page 1-6/1-7 under Differential Settlement: The LA discusses additional design elements (such as, Rigid Inclusion, Load Transfer Platform). They appear appropriate conceptually. Provide the design calculations needed to show the design achieves the goal of acceptable differential settlement throughout the process building and some monitoring program is provided during operations to detect any deviation from design.

The information is needed to demonstrate compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) Paragraph 70.22(d) for additional information to support the NRC's review, 10 CFR 70.22l for complete and accurate information, and 10 CFR 70.22(a)(7), 10 CFR 70.65(b)(1), and (2) for facility and site information.

3. Material Control and Accounting (Fundamental Nuclear Material Control Plan)

- In the Abbreviations and Acronyms section, "MC&A" is defined as "material control and accountability." In Section 1.1, it is defined as "material control and accounting." Both are used throughout the fundamental nuclear material control (FNMC) plan. Ensure consistent usage throughout the document.

- Appendix A of the FNMC plan provides supplementary information about the facility and the material control and accounting program in the form of process flow diagrams. The scale of the drawings is such that even in electronic form (where the drawings can be digitally enlarged), the text is difficult to read. The NRC staff will need readable versions of the drawings in Appendix A.

The information is needed to demonstrate compliance with 10 CFR 70.22(e) for complete and accurate information.

4. Electrical/I&C Observations

[REDACTED]

5. Chemical

[REDACTED]

6. Structural

[Redacted]

7. Integrated Safety Analysis

[REDACTED]