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April 26, 2024

Docket No. 50-610

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Subject: Abilene Christian University Molten Salt Research Reactor  
White Paper on Material Control and Accounting

Abilene Christian University plans to submit an operating license application for the NEXT Lab Molten Salt Research Reactor. In preparation for the license application review, ACU and the Natura Resources Research Alliance has developed the enclosed white paper on material control and accounting.

Because molten fuel presents special challenges for material control and accounting, ACU is seeking NRC feedback on the adequacy of the proposed approach for meeting the requirements of 10 CFR Part 74. In particular, feedback is sought on the following specific issues.

1. Measurements methods
2. Considering the nature of molten fuel, what level of uncertainty is acceptable

ACU would like the feedback to be provided in a meeting between NRC reviewers and Natura Resources Research Alliance subject matter experts. If there are further questions, please contact [Cori.Shultz@acu.edu](mailto:Cori.Shultz@acu.edu).

A handwritten signature in blue ink that reads "Benjamin Beasley".

Benjamin Beasley  
Director of Licensing  
ACU NEXT Lab

Enclosure:

1. White Paper on Material Control and Accounting at the Abilene Christian University Molten Salt Research Reactor

cc: Richard Rivera, Project Manager, NRR Advanced Reactor Licensing Branch 2  
Edward Helvenston, Project Manager, NRR Non-Power Production and Utilization Facility Licensing Branch  
Brian Bettes, Project Manager, NRR Advanced Reactor Licensing Branch 2

