

From: Richard Rivera
Sent: Thursday, March 2, 2023 11:57 AM
To: Rusty Towell; Lester Towell; Jordan Robison; Tim Head
Cc: Edward Helvenston; Zackary Stone; Richard Rivera
Subject: Abilene Christian University - Audit Plan for the Molten Salt Research Reactor Construction Permit Application Primarily Regarding Chapters 1, 5, 8, 9 (Except 9.2 and 9.6), 10, 11, 12, 14-18, and General Topics
Attachments: ACU CP Review Audit Plan_Chapters 1, 5, 8, 9 (Except 9.2 and 9.6), 10, 11, 12, 14-18).pdf

Dear Dr. Towell,

By letter dated August 12, 2022, as supplemented by letter dated October 14, 2022 (ADAMS Accession Nos. ML22227A201 and ML22293B816, respectively), Abilene Christian University (ACU) submitted to the U.S. Nuclear Regulatory Commission (NRC), an application for a construction permit (CP) for a molten salt research reactor (MSRR), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," and Section 104c of the Atomic Energy Act of 1954, as amended. By letter dated November 18, 2022, the NRC issued a letter accepting ACU's MSRR CP application for docketing (ML22313A097).

Upon initial technical review of the application, the NRC staff has determined that a regulatory audit would assist in the detailed review of the preliminary safety analysis report (PSAR) and the resolution of technical questions resulting from that review. The NRC staff will conduct the audit to seek clarification, gain understanding, and verify information primarily regarding PSAR Chapter 1, 5, 8, 9 (Except 9.2 and 9.6), 10, 11, 12, 14-18, and general topics. The NRC staff will coordinate with ACU to kick off the audit in March 2023, in accordance with the attached audit plan.

If you have any questions, please contact Richard Rivera at (301) 415-7190 or via email at Richard.Rivera@nrc.gov, Edward Helvenston at (301) 415-4067 or via email at Edward.Helvenston@nrc.gov, or Zackary Stone at (301) 415-0615 or via email at Zackary.Stone@nrc.gov.

Sincerely,

Richard Rivera

Richard Rivera, MEM

Project Manager
U.S. Nuclear Regulatory Commission – HQ
NRR/DANU/UAL1
Ph. 301-415-7190
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Docket No. 50-610
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Options

Priority: Normal

Return Notification: No

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

**ABILENE CHRISTIAN UNIVERSITY – GENERAL TOPICS AUDIT PLAN FOR THE MOLTEN
SALT RESEARCH REACTOR CONSTRUCTION PERMIT APPLICATION
(EPID: L-2022-NFW-0002)**

APPLICANT INFORMATION

Applicant: Abilene Christian University (ACU)

Applicant Address: NEXT Lab, Abilene Christian University, ACU Box 28208
Abilene, TX 79699-8208

Plant Name: ACU Molten Salt Research Reactor

Docket No.: 50-610

Background:

By letter dated August 12, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22227A202), as supplemented by letter dated October 14, 2022 (ML22293B816), Abilene Christian University (ACU) submitted to the U.S. Nuclear Regulatory Commission (NRC), an application for a construction permit (CP) for a molten salt research reactor (MSRR), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities,” and Section 104c of the Atomic Energy Act of 1954, as amended. By letter dated November 18, 2022 (ML22313A097), the NRC issued a letter accepting ACU’s MSRR construction permit application for docketing and initiated the detailed technical review of the application.

Purpose:

The purpose of this audit is for the NRC staff to seek clarification, gain understanding, and verify information regarding Chapters 1, 5, 8, 9 (except 9.2 and 9.6), 10, 11, 12, and 14-18 of the preliminary safety analysis report (PSAR) submitted for the MSRR CP application. In addition, the NRC staff may provide to ACU audit topics or questions relevant to other areas of the MSRR CP application to support the NRC staff’s review of the application, as appropriate. The audit achieves a more effective and efficient review by allowing the NRC staff to review and discuss supporting material with the objective of improving communication and helps focus the request for additional information to the most risk significant items. The NRC staff plans to audit material which may be needed to make a reasonable assurance finding that the preliminary design protects public health and safety. If the NRC staff identifies information that is needed to support a finding, ACU will need to submit that information on the application docket.

Regulatory Audit Basis:

The basis for the audit is the regulations in 10 CFR Part 50, Sections 50.34(a), "Preliminary safety analysis report," and 50.35, "Issuance of construction permits."

Regulatory Audit Scope

This audit will focus on information provided by ACU in the online reference portal (i.e., Certrec) and during virtual meetings. This audit will provide the NRC staff with information related to the NRC staff's evaluation of the CP application. Specific audit discussion topics associated with this audit may be provided in subsequent correspondence, such as an email.

Information and Other Material Necessary for the Regulatory Audit

ACU should be prepared to provide documents, reports, calculations, computer code verification, and other material, as applicable, related to PSAR Chapter 1, "The Facility," Chapter 5, "Molten Salt Research Reactor Description," Chapter 8, "Electrical Power Systems," Chapter 9, "Auxiliary Systems," Chapter 10, "Experimental Facilities and Utilizations," Chapter 11, "Radiation Protection Program and Waste Management," Chapter 12, "Conduct of Operations," Chapter 14, "Technical Specifications," Chapter 15, "Financial Qualifications," Chapter 16, "Other License Considerations," Chapter 17, "Decommissioning and Possession-Only License Amendments," and Chapter 18, "Highly Enriched to Low-Enriched Uranium Conversions." Specific questions and discussion topics to support this audit will be communicated to ACU via e-mail and will be entered as a public record in ADAMS, as appropriate.

In addition, the NRC staff may provide to ACU audit topics or questions relevant to other areas of the MSRR CP application to support the NRC staff's review of the application, as appropriate.

The NRC staff may request that ACU make these materials available in the online reference portal and/or during a site visit if one is conducted.

Audit Team

Boyce Travis	Senior Nuclear Engineer
Kyle Song	Reactor Systems Engineer
Chris Van Wert	Sr. Technical Advisor for Reactor Fuels
Kenneth See	Sr. Hydrologist
Michael Mazaika	Physical Scientist (Meteorologist)
Laurel Bauer	Geologist
Scott Stovall	Geophysicist
Zuhan Xi	Geotechnical Engineer
Weijun Wang	Sr. Geotechnical Engineer
Thomas Weaver	Seismologist / Geophysicist
Andrew Prinaris	Civil Engineer (Structural)
Matthew McConnell	Sr. Electrical Engineer
Nicholas Hansing	Mechanical Engineer
Benjamin Parks	Sr. Nuclear Engineer
Charles Peabody	Nuclear Engineer
Megan Audrain	Materials Engineer
Ryann Bass	Reactor Systems Engineer

Calvin Cheung	Electronics Engineer
Joseph Ashcraft	Electronics Engineer
Naeem Iqbal	Fire Protection Engineer
Alexander Chereskin	Materials Engineer
Adakou Foli	Electrical Engineer
Vijay Goel	Electrical Engineer
Steve Jones	Sr. Safety and Plant System Engineer
Zachary Gran	Health Physicist
Michelle Hart	Senior Reactor Engineer
Kenneth Mott	Emergency Preparedness Specialist
Dong Park	Reactor Operations Engineer (QA Inspector)
Amy Beasten	Reactor Engineer
Glenn Tuttle	MC&A Physical Inspection Analyst
Suzanne Ani	MC&A Physical Scientist
John Parillo	Sr. Reactor Engineer (Radiation)
Shawn Harwell	Financial Analyst
Richard Rivera	Project Manager, responsible for audit logistics
Zackary Stone	Project Manager
Ed Helvenston	Project Manager
Gregory Oberson	Branch Chief, Technical
Michael Wentzel	Branch Chief, Licensing

Additional audit team members may be added as needed.

Logistics

Entrance Meeting	March 2023
Exit Meeting	Approximately December 2023, a precise date and time TBD

Audit meetings take place in a virtual format, using Microsoft Teams, or via another, similar platform. Audit meetings will be scheduled on an as needed basis after the entrance meeting and, as appropriate, once the NRC staff has had the opportunity to review any applicable documents placed in the online reference portal. If a site visit is needed, review topics will be provided to ACU, and mutually agreeable dates will be established. The audit will begin in March 2023, and continue as necessary, with activities occurring intermittently during the audit period.

The audit period may be reduced or extended, dependent on the NRC staff and ACU progress in addressing the audit topics. Additional audit activities may be planned as necessary to support the NRC staffs' understanding of information needed to complete the review of the application.

To improve the efficiency of the audit, ACU and NRC staff discussed the use of the online reference portal (i.e., Certrec), established by ACU, that would allow NRC staff limited read-only access to the requested material and other technical information provided by ACU. Use of the online reference portal is acceptable provided that ACU establishes measures to limit access to specific NRC staff (e.g., based on NRC e-mail addresses or the use of passwords which will only be assigned to NRC staff directly involved in the audit on a need-to-know basis), and to make the documents view-only (i.e., prevent NRC staff from saving, copying, downloading, or printing any documents). The conditions associated with the online reference portal must be maintained throughout the audit process. The NRC staff who should initially be granted access

to the portal are those listed in the “Audit Team” section above. As needed, the NRC audit logistics lead may provide ACU with the names of additional NRC staff who are added to the audit team and should subsequently be granted access.

Special Requests

The NRC staff requests that ACU ensure that their technical staff are available to answer questions during the audit.

Deliverables

At the completion of the audit, the audit team will issue an audit summary within 90 days after the exit meeting but will strive for a shorter duration. The audit summary will be declared and entered as an official agency record in ADAMS and be made available for public viewing.