



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

March 9, 2023

**ABILENE CHRISTIAN UNIVERSITY – ENVIRONMENTAL AUDIT PLAN FOR THE  
MOLTEN SALT RESEARCH REACTOR CONSTRUCTION PERMIT APPLICATION  
TECHNICAL TOPICS  
(EPID: L-2022-NFW-0002 AND L-2022-NFW-0003)**

**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.:** 05000610

**Background:**

By letter dated August 12, 2022 (Agencywide Documents Access and Management System (ADAMS) ML22227A202), as supplemented by letter dated October 14, 2022 (ML22293B816), Abilene Christian University (ACU) submitted to the US 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 CP application for docketing. The staff is reviewing the information in the Environmental Report (ER) (ML22227A201) per 10 CFR 51. In accordance with 10 CFR 51.21 the staff is preparing an Environmental Assessment to evaluate the environmental impacts from the proposed action.

**Purpose:**

In its initial review of data and information within the corresponding context of the ER, the staff has identified initial information needs (Attachment 1) that would promote a better understanding of the detailed analysis and bases underlying the CP application. This environmental audit will provide the NRC staff an opportunity to discuss these items with the applicant subject matter experts, staff and contractors. During the audit, the staff will discuss a wide range of environmental matters related to land use, ground and surface water, terrestrial and aquatic ecology, human health, radiological and non-radiological waste, cultural resources, alternatives to the proposed action, air quality and noise. The audit will allow the staff to better understand the site, environmental interfaces of the project, and modeling results, in order to draw appropriate conclusions. 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

Requirements for ERs supporting CPs are specified in 10 CFR 51.50, “Environmental Reports – CP, early site permit or combined license stage.” The ER for the ACU construction permit application follows the guidance in chapter 19 of the final Interim Staff Guidance (ISG) Augmenting NUREG-1537, part 1, “Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors, Format and Content” (ML12156A069).

## Regulatory Audit Scope

Audit team members will review documents and other requested information outlined in the information needs list (Attachment 1). For continuity with the safety audit topics, the environmental audit will commence with topic five in the acceptance letter, “Management and disposal of transuranic-contaminated low-level waste generated by the MSRR.” This list covers those environmental review areas outlined in the Background section of this audit plan. Although additional information needs will be developed, the staff has included the attached in the interest of an expedient review and discussions with ACU.

## Environmental Review Team

The table below includes a list of the NRC’s environmental review team assigned to the ACU CP review and their role or review area coverage. Additional NRC staff may participate in some audit discussions based on coordination with related reviews.

Technical Areas	Subject Matter Expert
Branch Chief	Kenneth Erwin
Environmental Project Manager	Pat Vokoun
Deputy Project Manager	Joe Giacinto
Alternatives	Pat Vokoun, Peyton Doub
Accidents / Transportation	Don Palmrose, Brian Glowacki <sup>b</sup>
Air Quality / Meteorology / Noise	Laura Willingham, Saikat Ghosh <sup>a</sup> , Madelyn Nagel <sup>b</sup>
Cultural Resources	Lindsey Renaud <sup>a</sup> , Brian Glowacki <sup>b</sup>
Decommissioning	Caitlin Condon <sup>a</sup>
Ecology	Peyton Doub
Environmental Justice	Dave Anderson <sup>a</sup> , Madelyn Nagel <sup>b</sup>
Fuel Cycle / Health Physics	Don Palmrose, Brian Glowacki <sup>b</sup>
Hydrogeology	Phil Meyer <sup>a</sup> , Joe Giacinto
Climate Change	Phil Meyer <sup>a</sup> , Madelyn Nagel <sup>b</sup>
Land Use & Visual	Peyton Doub
Non-Rad Human Health	Peyton Doub
Non-Rad Waste	Kim Leigh <sup>a</sup>
Production	Mike Parker <sup>a</sup>

<sup>a</sup> Pacific Northwest National Laboratory staff

<sup>b</sup> NRC Trainee

Technical Areas	Subject Matter Expert
Radiological Waste	Don Palmrose
Socioeconomics	Michelle Niemeyer <sup>a</sup> , Madelyn Nagel <sup>b</sup>
Surface Water Hydrology	Joe Giacinto, Rajiv Prasad <sup>a</sup>

Additional audit team members may be added as needed.

### **Information and Other Material Necessary for the Regulatory Audit**

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

The NRC staff requests that all the documents and other requested information identified in Attachment 1 be provided by ACU on the online reference portal.

### **Logistics**

Audit meetings will take place in a virtual format, using Microsoft Teams, or via other, similar platform. The NRC and ACU audit managers will schedule an initial kickoff meeting and follow up meetings as needed upon ACU's review of this audit plan. The audit duration is anticipated to be approximately six months with activities occurring regularly throughout the first week and intermittently thereafter. For each topical area, follow up sessions will be scheduled, if needed, until audit closure.

### **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, a publicly noticed exit meeting will be held at which time a summary of audit activities and discussions will be presented along with the status of staff information needs identified as part of the audit. In addition, the audit team will issue an audit summary within ninety days after the exit meeting. The audit summary will be declared and entered as an official agency record in ADAMS and be made available for public viewing through the publicly available records component of ADAMS.

### **References**

ISG Augmenting NUREG-1537, part 1, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors: Format and Content," for Licensing Radioisotope Production Facilities and Aqueous Homogeneous Reactors (ML12156A069)

ISG Augmenting NUREG-1537, part 2, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors: Standard Review Plan and Acceptance Criteria," for Licensing Radioisotope Production Facilities and Aqueous Homogeneous Reactors (ML12156A075)

**Contacts**

Please contact Patricia Vokoun at 301-415-3470 or via email at [Patricia.Vokoun@nrc.gov](mailto:Patricia.Vokoun@nrc.gov) or Joseph Giacinto at 301-415-0714 or via email at [Joseph.Giacinto@nrc.gov](mailto:Joseph.Giacinto@nrc.gov) concerning any issues related to the conduct of the audit.

SUBJECT: ABILENE CHRISTIAN UNIVERSITY – ENVIRONMENTAL AUDIT PLAN FOR  
THE MOLTEN SALT RESEARCH REACTOR CONSTRUCTION PERMIT  
APPLICATION TECHNICAL TOPICS (EPID: L-2022-NFW-0002 AND L-2022-  
NFW-0003)

DATED: March 9, 2023

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