SUMMARY REPORT ON THE ENVIRONMENTAL AUDIT OF ABILENE CHRISTIAN UNIVERSITY MOLTEN SALT RESEARCH REACTOR CONSTRUCTION PERMIT APPLICATION

1.0 Background

The U.S. Nuclear Regulatory Commission (NRC) is currently reviewing an application from Abilene Christian University (ACU) for a construction permit (CP) for a molten salt research reactor (MSRR) to be located in the existing Science and Engineering Research Center (SERC) building on the ACU campus in Abilene, Texas. As part of its review, the NRC is preparing an Environmental Assessment (EA). An audit was conducted from March 9, 2023, to September 21, 2023, to support the environmental review of Kairos' CP application. This report presents a summary of the audit's objectives and activities, and information that was obtained as a result of the audit activities as described in the staff's Audit Plan (ML23052A087).

1.1 Application Overview

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 an Environmental Report (ER) in support of its CP application. By letter dated November 23, 2023, ACU provided supplemental information regarding its CP application (ML23319A094) and provided clarifying information to the staff (ML23346A233). References to the ACU ER in this summary report include these revisions and clarifying information.

1.2 Project and Site Overview

The proposed action is for the NRC to issue a CP to ACU authorizing construction of the MSRR. In its CP application, ACU proposes to build and operate the MSRR for research related to solutions to the need for energy, water and medical isotopes by advancing the technology of molten salt reactors while educating future leaders in nuclear science and engineering. Operation of the MSRR would not generate any power for sale or distribution. The MSRR would be located on the ACU campus. The ACU MSRR ER provides ACU's analyses of the environmental impacts that could result from building, operating, and decommissioning the research reactor.

2.0 Audit Scope and Objectives

During the audit, the staff discussed environmental matters related to land use and visual resources, transportation of radioactive material, postulated accidents, climate change, air quality and noise, hydrogeology and water resources, terrestrial and aquatic ecology, cultural resources, socioeconomics and environmental justice, human health, waste management, fuel cycle and alternatives to the proposed action. The audit allowed the staff to better understand the site, environmental interfaces of the project, and modeling results in order to make appropriate environmental findings.

In its initial review of data and information within the corresponding context of the ER, the staff identified information needs that would promote a better understanding of the detailed analysis and bases underlying the construction permit application. These items were included in

Attachment 1 (ML23061A132) of the audit plan (ML23052A087) was presented to ACU on March 9, 2023 and a subsequent set of information needs (ML23159A012) provided on June 8, 2023. Audit activities consisted of document reviews, virtual meetings and discussions as documented herein. These activities assisted the NRC and ACU staff in resolving the information needs. For items that the staff was not able to resolve through document reviews and audit discussions, ACU submitted information to the Kairos Hermes docket, supplementing its CP application to provide the necessary information for the staff to make impact determinations in the EA.

3.0 Summary of Audit Activities and Issues Addressed

During the first week of the audit, an audit kickoff meeting and breakout sessions were conducted virtually where the NRC and Kairos staff discussed the information needs that had been provided to ACU. For the remaining period of the audit, the staff continued to examine supporting documents and hold follow up discussions as needed. The staff determined that responses to several items would be needed on the docket and ACU agreed to provide that information in supplemental submittals or as responses to Requests for Confirmatory Information (RCIs).

In order to appropriately document the staff's confirmation of information gathered during the audit which would not otherwise be available in the public domain, the staff prepared and issued two sets of RCIs (ML23061A132 and ML23159A012). ACU provided all agreed upon supplemental information requested by the staff within 30 days of audit closure.

4.0 Audit Closeout Meeting

The NRC staff conducted an audit closeout meeting on September 21, 2023. ACU shared their expected timeframe for providing the agreed upon submittals expected to close the remaining items. Conditional upon review of the information ACU would be providing, the NRC staff stated that they did not anticipate the need for any additional information in order to complete their review; however, the staff stressed that should new information be received, additional information from ACU could become necessary. ACU provided confirmation of the NRC staff's understanding of the RCIs needed for development of the EA on or before December 12, 2023 (ML23346A233).

5.0 Post Audit Follow-up and Current Review Status

As discussed above, ACU provided supplemental information to respond to RCIs and to close out those audit information needs requiring that particular information be submitted to the docket. On December 12, 2023, ACU provided responses to confirm the staff's remaining RCIs (ML23346A233). The staff determined all information provided by ACU was adequate to close all information needed from the applicant to conduct the review. To date, the staff has not identified any new information requiring additional requests for information from ACU. The final EA is currently on schedule to be issued on or before April 2023.