



## **NUCLEAR REGULATORY COMMISSION**

**[Docket No. 50-610; NRC-2022-0167]**

**Abilene Christian University; Molten Salt Research Reactor;**

**Environmental Assessment and Finding of No Significant Impact**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Notice; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is considering whether to issue a construction permit (CP) to Abilene Christian University (ACU) to authorize the construction of a proposed non-power molten salt research reactor (MSRR). The MSRR would be an up to 1 megawatt-thermal, graphite moderated, fluoride salt flowing fluid (fuel dissolved in the salt) research reactor that would be located in the existing Gayle and Max Dillard Science and Engineering Research Center (SERC) building on the ACU campus in Abilene, Texas. The NRC has prepared this environmental assessment (EA) and finding of no significant impact (FONSI) that considers the impacts associated with issuing the CP.

**DATES:** The EA and FONSI referenced in this document are available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

**ADDRESSES:** Please refer to Docket ID **NRC-2022-0167** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2022-0167**. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: [Stacy.Schumann@nrc.gov](mailto:Stacy.Schumann@nrc.gov). For technical questions, contact the individual listed in the "For Further Information Contact" section of this document.

- **NRC's Agencywide Documents Access and Management System**

**(ADAMS):** You may obtain publicly available documents online in the ADAMS Public

Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by email to [PDR.Resource@nrc.gov](mailto:PDR.Resource@nrc.gov). For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the “Availability of Documents” section.

- **NRC’s PDR:** The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to [PDR.Resource@nrc.gov](mailto:PDR.Resource@nrc.gov) or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

**FOR FURTHER INFORMATION CONTACT:** Patricia Vokoun, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-4067; email: [Patricia.Vokoun@nrc.gov](mailto:Patricia.Vokoun@nrc.gov).

**SUPPLEMENTARY INFORMATION:**

**I. Introduction**

By application dated August 12, 2022, as supplemented by letters dated October 14, 2022, September 27, 2023, and November 14, 2023, ACU submitted, pursuant to section 104c of the Atomic Energy Act of 1954, as amended, and part 50 of title 10 of the *Code of Federal Regulations* (10 CFR), “Domestic Licensing of Production and Utilization Facilities,” a CP application for the MSRR. A notice of receipt and availability of the CP application was published in the *Federal Register* (FR) on October 14, 2022 (87 FR 62463). A notice of the acceptability for docketing of the CP application was published in the FR on November 28, 2022 (87 FR 73051) as was a January 31, 2023, notice of opportunity to request a hearing and petition for leave to intervene (88 FR 6319). The NRC has prepared an EA as part of its review of the CP application in accordance with the requirements of 10 CFR part 51, “Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions.”

Based on the results of the EA, the NRC has determined not to prepare an environmental impact statement (EIS) and is issuing a FONSI.

## **II. Environmental Assessment**

The NRC issuance of a CP would constitute an authorization for ACU to proceed with the construction of the MSRR in the existing SERC building on the ACU campus in Abilene, Texas. The need for the MSRR is to conduct research on molten salt reactor technology. This would help to further the research of ACU's Nuclear Energy eXperimental Testing Laboratory whose mission is to seek solutions to the world's need for energy, water, and medical isotopes by advancing the technology of molten salt reactors while educating future leaders in nuclear science and engineering. The MSRR would not produce electricity and would be the first university-based molten salt research reactor.

In the EA, the NRC staff assessed the potential direct and indirect environmental impacts from the proposed action associated with the following relevant resource areas: land use and visual resources; air quality and noise; hydrogeology and water resources; ecological resources; historic and cultural resources; socioeconomics and environmental justice; human health; nonradiological waste management; uranium fuel cycle and radiological waste management; transportation of radioactive material; postulated accidents; and climate change. The NRC staff also considered the cumulative impacts from past, present, and reasonably foreseeable future actions when combined with the proposed action. The NRC staff identified alternatives to the proposed action and the environmental impacts of the alternatives as appropriate. The NRC staff determined that the environmental impacts of the proposed action would be SMALL for each potentially affected environmental resource, meaning that the environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource. The NRC staff also determined that there are no alternatives that meet the need for the proposed action and that are environmentally preferable to the proposed action.

The issuance of a CP is a separate licensing action from the issuance of an operating license (OL). If the NRC issues a CP for the MSRR and ACU were to seek NRC approval to operate the MSRR, then ACU would have to submit a separate application for an OL pursuant to the NRC’s regulations, and ACU would have to obtain NRC approval before it could operate the MSRR. The NRC staff would review any application for an OL for the MSRR for new and significant information related to the environmental impacts of operating and decommissioning the MSRR that might alter the staff’s conclusions made in the EA for the CP application.

### **III. Finding of No Significant Impact**

As required by 10 CFR 51.21, “Criteria for and identification of licensing and regulatory actions requiring environmental assessments,” the NRC prepared the EA. On the basis of the EA, the NRC concluded that the proposed action will not have a significant impact on the quality of the human environment. Accordingly, the NRC has determined, pursuant to 10 CFR 51.31, “Determinations based on environmental assessment,” not to prepare an EIS for the proposed action.

### **IV. Availability of Documents**

The following table identifies the EA and FONSI and related documents. The documents are available for public inspection online through ADAMS at <https://www.nrc.gov/reading-rm/adams.html> at the listed accession numbers.

<b>DOCUMENT DESCRIPTION</b>	<b>ADAMS ACCESSION NO.</b>
Environmental Assessment for the Construction Permit Application for the Abilene Christian University Molten Salt Research Reactor, dated January 31, 2024	ML23300A053
Letter to NRC from ACU, Construction Permit Application Preliminary Safety Analysis Report Revision 1, dated November 14, 2023	ML23319A094 (Package)
Email to NRC from ACU, Response Regarding Environmental Review Requests for Confirmatory Information - Closure Confirmation, dated September 27, 2023	ML23271A020
Clarification on Project #19599, Abilene Christian University Molten Salt Research Reactor Construction Permit Application, dated September 7, 2023	ML23256A287

<b>DOCUMENT DESCRIPTION</b>	<b>ADAMS ACCESSION NO.</b>
Email Correspondence with Caitlin Brashear (Texas State Historic Preservation Officer) as of August 29, dated August 11, 2023	ML23241A831
Meeting Notes for June 28, 2023 ACU Call with Texas Historical Commission, dated August 16, 2023	ML23241A784
Chitimacha Tribe of Louisiana Consultation Response, dated August 14, 2023	ML23241A793
Texas Historical Commission Closure of Consultation, dated August 11, 2023	ML23241A819
Texas Historical Commission Consultation Response and Request for Information, dated June 12, 2023	ML23241A826
ACHP Consultation Response, Request for Information, dated June 12, 2023	ML23241A849
Delaware Nation Consultation Response, dated June 12, 2023	ML23241A814
Kickapoo Tribe Consultation Response, dated May 23, 2023	ML23241A817
Caddo Nation of Oklahoma Consultation Response, dated May 16, 2023	ML23241A786
Letter to Bobby Gonzalez, Chairman, Caddo Nation of Oklahoma, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A281
Letter to Brad Killscrow, Chief, Delaware Tribe of Indians, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A282
Letter to Debbie Dotson, President, Delaware Nation of Oklahoma, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A283
Letter to Durell Cooper, Chairman, Apache Tribe of Oklahoma, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A284
Letter to E. Michael Silvas, Governor, Ysleta del Sur Pueblo, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A285
Letter to Juan Garza, Chairman, Kickapoo Tribe of Texas, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A286
Letter to Reggie Wassana, Governor, Cheyenne and Arapaho Tribes of Oklahoma, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A287
Letter to Russell Martin, President, Tonkawa Tribe of Indians of Oklahoma, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23122A288
Letter to Terri Parton, President, Wichita and Affiliated Tribes of Oklahoma, Re ACU Molten	ML23122A289

<b>DOCUMENT DESCRIPTION</b>	<b>ADAMS ACCESSION NO.</b>
Salt Research Reactor Construction Permit Application, dated May 5, 2023	
Letter to Ricky Sylestine, Chairman, Alabama-Coushatta Tribe of Texas, Re ACU Molten Salt Research Reactor Construction Permit Application, dated May 5, 2023	ML23009B617
Letter to NRC from ACU, Response to NRC Request for Supplemental Information, dated October 14 and October 20, 2022	ML22293B816 (Package)
Letter to NRC from ACU, Submittal of Construction Permit Application for the Molten Salt Research Reactor, dated August 12, 2022	ML22227A201 (Package)

Dated: March 11, 2024.

For the Nuclear Regulatory Commission.

**Daniel Barnhurst,**

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