



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

October 14, 2020

APPLICANT: Abilene Christian University

SUBJECT: SUMMARY OF SEPTEMBER 29, 2020, MEETING WITH ABILENE CHRISTIAN UNIVERSITY (EPID NO. L-2020-LRM-0081)

On September 29, 2020, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) staff and representatives of Abilene Christian University (ACU) via teleconference. The purpose of this meeting was to discuss licensing topics regarding ACU's proposed molten salt research reactor (MSRR) project. This was the first public meeting related to the proposed ACU MSRR. The meeting notice and agenda, dated September 16, 2020, are available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML20260H340. ACU's presentation used in the meeting is also available in ADAMS at Accession No. ML20280A315. A list of meeting attendees is provided as an enclosure to this summary.

ACU began the meeting by providing an overview of its academic and research programs, including its Nuclear Energy eXperimental Testing (NEXT) Lab. ACU provided a brief summary of research projects at ACU NEXT Lab, which it stated would lead the MSRR project. ACU then discussed the Nuclear Energy eXperimental Testing Research Alliance (NEXTRA) between ACU and three other universities: the University of Texas at Austin, Texas A&M University, and the Georgia Institute of Technology. ACU stated that these universities would be collaborating with it on the MSRR project. ACU also introduced key individuals, including staff at ACU and collaborating universities, involved in the project.

Following the introductions, ACU discussed its proposed licensing pathway and schedule for its MSRR project. ACU stated that its MSRR would be licensed under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," as a research reactor and utilization facility under Section 104(c) of the Atomic Energy Act of 1954, as amended, and pursuant to 10 CFR 50.21, "Class 104 licenses; for medical therapy and research and development facilities," paragraph (c). ACU stated that it planned to submit separate construction permit (CP) and operating license applications for its MSRR. ACU estimated that it would submit a CP application in late 2021, and stated that the CP application package would include a preliminary safety analysis report, preliminary emergency plan, and environmental report. ACU stated that it planned to submit a quality assurance program (QAP) description for NRC review ahead of its CP submittal, and that it may also send other information or documents for NRC review prior to its CP submittal. ACU also briefly discussed regulations and guidance it would consider in the preparation of a CP application.

ACU stated that it has not yet selected a site for the MSRR, but that it is considering multiple sites on or near the ACU campus in Abilene, Texas, including in a Science and Engineering Research Center building that is planned for construction at ACU. ACU stated that it may plan to begin construction of a multi-purpose building that would later house the MSRR, before a CP

is issued for the MSRR, pursuant to 10 CFR 50.10, "License required; limited work authorization," paragraph (a)(2)(x).

ACU stated that, at the time its CP application is submitted, research and development (R&D) will be planned or underway to confirm the adequacy of the design of certain MSRR structures, systems, and components. ACU stated that its CP application would contain required information related to R&D, but that it was still developing a list of necessary R&D for the MSRR as of the date of the meeting.

ACU stated that it has begun coordination with local authorities, including the city of Abilene, Texas, regarding its proposed MSRR project.

In the last portion of its presentation, ACU provided a technical summary of its proposed MSRR. ACU discussed the information provided on its presentation slides, and stated that its MSRR would operate with forced flow of a liquid fuel-salt mixture, use high-assay low-enriched uranium fuel, and be graphite moderated. Additionally, ACU briefly discussed fuel qualification for the MSRR, which it stated was being done in partnership with the U.S. Department of Energy (DOE). ACU stated that DOE would provide the fuel and salt, but the exact form in which it would be provided (e.g., pre-mixed or separate) was not yet certain. ACU stated that it intends for the initial fuel loading to last the lifetime of the reactor. ACU stated that fission gasses would be released from the fuel (into an off-gas handling system), but that it did not expect to otherwise need to remove impurities from the fuel during the lifetime of the reactor. ACU stated that it was still considering various materials for reactor structural components and secondary coolant, but that stainless steel and a molten salt similar to that used in the primary (fueled) salt loop, respectively, were likely choices.

At the end of the meeting, ACU and the NRC staff discussed and agreed that additional pre-application meetings, including detailed meetings related to various technical areas of the proposed MSRR project, would be beneficial for both ACU and the NRC staff. ACU and the NRC staff agreed to follow-up regarding planning additional meetings. ACU also stated that it may be interested in requesting a pre-application readiness assessment prior to its submission of a CP application. The NRC staff encouraged ACU to keep it informed of any updates on its project plans or schedule, including its plans and schedule for any items it may send for NRC review ahead of a CP application (e.g., QAP description).

Please direct any inquiries to me at 301-415-4067, or by electronic mail at Edward.Helvenston@nrc.gov.

/RA/

Edward Helvenston, Project Manager
Non-Power Production and Utilization Facility
Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Project/Docket No. 99902088

Enclosure:
As stated

cc: See next page

Abilene Christian University

Docket No. 99902088

cc:

Dr. Rusty Towell
Director of NEXT Lab
Abilene Christian University
ACU Box 27963
Abilene, TX 79699

Phil Schubert, Ed.D.
President
Abilene Christian University
Office of the President
206 Hardin Administration Building
ACU Box 29100
Abilene, TX 79699-9100

Test, Research and Training
Reactor Newsletter
Attention: Ms. Amber Johnson
Dept. of Materials Science and Engineering
University of Maryland
4418 Stadium Drive
College Park, MD 20742-2115

SUBJECT: SUMMARY OF SEPTEMBER 29, 2020, MEETING WITH ABILENE CHRISTIAN UNIVERSITY (EPID NO. L-2020-LRM-0081) DATED: OCTOBER 14, 2020

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BSmith, NRR

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GCasto, NRR

MKGavello, NRR

ADAMS Accession Nos.: ML20260H340 Mtg. Notice

ML20280A315 Mtg. Slides

ML20281A446 Mtg. Summary *concurred via email

NRC-001

OFFICE	NRR/DANU/PM*	NRR/DANU/LA*	NRR/DANU/BC*	NRR/DANU/PM*
NAME	EHelvenston	NParker	GCasto	EHelvenston
DATE	10/13/2020	10/13/2020	10/14/2020	10/14/2020

OFFICIAL RECORD COPY

LIST OF ATTENDEES

SEPTEMBER 29, 2020, MEETING WITH ABILENE CHRISTIAN UNIVERSITY

1:00 P.M. - 5:00 P.M.

<u>Name</u>	<u>Organization</u>
Rossnyev Alvarado	U.S. Nuclear Regulatory Commission
Joseph Anderson	U.S. Nuclear Regulatory Commission
Suzanne Ani	U.S. Nuclear Regulatory Commission
Steve Bajorek	U.S. Nuclear Regulatory Commission
Michael Balazik	U.S. Nuclear Regulatory Commission
Dan Barss	U.S. Nuclear Regulatory Commission
Hayden Brundage	U.S. Nuclear Regulatory Commission
Tyson Campbell	U.S. Nuclear Regulatory Commission
Greg Casto	U.S. Nuclear Regulatory Commission
Alex Chereskin	U.S. Nuclear Regulatory Commission
Peyton Doub	U.S. Nuclear Regulatory Commission
Marilyn Diaz Maldonado	U.S. Nuclear Regulatory Commission
Kenneth Erwin	U.S. Nuclear Regulatory Commission
Kayla Gamin	U.S. Nuclear Regulatory Commission
Molly-Kate Gavello	U.S. Nuclear Regulatory Commission
Joseph Giacinto	U.S. Nuclear Regulatory Commission
Valerie Gray	U.S. Nuclear Regulatory Commission
James Hammelman	U.S. Nuclear Regulatory Commission
Duane Hardesty	U.S. Nuclear Regulatory Commission
Michelle Hart	U.S. Nuclear Regulatory Commission
Michelle Hayes	U.S. Nuclear Regulatory Commission
Edward Helvenston	U.S. Nuclear Regulatory Commission
Timothy Hooker	U.S. Nuclear Regulatory Commission
Chris Hoxie	U.S. Nuclear Regulatory Commission
Kerri Kavanagh	U.S. Nuclear Regulatory Commission
William Kennedy	U.S. Nuclear Regulatory Commission
John Lehning	U.S. Nuclear Regulatory Commission
Timothy Lupold	U.S. Nuclear Regulatory Commission
Steve Lynch	U.S. Nuclear Regulatory Commission
Jeremy Munson	U.S. Nuclear Regulatory Commission
Daniel Mussatti	U.S. Nuclear Regulatory Commission
Mathew Panicker	U.S. Nuclear Regulatory Commission
Benjamin Parks	U.S. Nuclear Regulatory Commission
Tom Pham	U.S. Nuclear Regulatory Commission
Beth Reed	U.S. Nuclear Regulatory Commission
Wendy Reed	U.S. Nuclear Regulatory Commission
Jeffrey Rikhoff	U.S. Nuclear Regulatory Commission
Kevin Roach	U.S. Nuclear Regulatory Commission
David Roth	U.S. Nuclear Regulatory Commission
James Rubenstone	U.S. Nuclear Regulatory Commission
Michael Salay	U.S. Nuclear Regulatory Commission
Jason Schaperow	U.S. Nuclear Regulatory Commission
Eric Schrader	U.S. Nuclear Regulatory Commission

Enclosure

Jennifer Scro	U.S. Nuclear Regulatory Commission
Karen Sida	U.S. Nuclear Regulatory Commission
Brian Smith	U.S. Nuclear Regulatory Commission
Todd Smith	U.S. Nuclear Regulatory Commission
Joseph Staudenmeier	U.S. Nuclear Regulatory Commission
Dinesh Taneja	U.S. Nuclear Regulatory Commission
Linh Tran	U.S. Nuclear Regulatory Commission
Boyce Travis	U.S. Nuclear Regulatory Commission
Christopher Van Wert	U.S. Nuclear Regulatory Commission
Pat Vokoun	U.S. Nuclear Regulatory Commission
Susan Vrahoretis	U.S. Nuclear Regulatory Commission
Geoffrey Wertz	U.S. Nuclear Regulatory Commission
Bernie White	U.S. Nuclear Regulatory Commission
Alexus Willis	U.S. Nuclear Regulatory Commission
Kent Wood	U.S. Nuclear Regulatory Commission
Irene Wu	U.S. Nuclear Regulatory Commission
Andrew Yeshnik	U.S. Nuclear Regulatory Commission
Mitzi Young	U.S. Nuclear Regulatory Commission
Alexander Adams	Abilene Christian University
Ralph Butler	Abilene Christian University
Rosario Gibbs	Abilene Christian University
Tim Head	Abilene Christian University
Tim Kennedy	Abilene Christian University
Rusty Kruzelock	Abilene Christian University
Kim Pamplin	Abilene Christian University
Jordan Robison	Abilene Christian University
Jonathan Scherr	Abilene Christian University
Lester Towell	Abilene Christian University
Rusty Towell	Abilene Christian University
Steve Vanderslice	Abilene Christian University
Jessica Yerger	Abilene Christian University
Belinda Harmon	Abilene Christian University (Board of Trustees)
James Porter	Abilene Christian University (Board of Trustees)
David Halbert	Abilene Christian University (NEXT Lab Advisor)
Andrew Harmon	Abilene Christian University (NEXT Lab Advisor)
Charles Ivey	Abilene Christian University (NEXT Lab Advisor)
Steve Biegalski	Georgia Institute of Technology
Bojan Petrovic	Georgia Institute of Technology
Doug Robison	Natura Resources
Mark Kimber	Texas A&M University
Paval Tsvetkov	Texas A&M University
Kevin Clarno	University of Texas at Austin
Derek Haas	University of Texas at Austin
Don Williams	XL Engineering
Yassin Hassan	Member of the Public