Natura Resources

50+

advanced reactor companies and/or technologies currently under development worldwide

13

advanced reactors currently in pre-application engagement with the NRC

3

advanced reactors technologies in the “NRC Non-LWR Application Project Hub”

2

advanced reactors technologies with approved construction permits from the NRC

Natura Resources

FAQ | AGREEMENT STATES | FACILITY LOCATOR | WHAT'S NEW | SITE HELP | INDEX A-Z | CONTACT US | EMAIL UPDATES

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

REPORT A SAFETY CONCERN | SEARCH

NUCLEAR REACTORS | NUCLEAR MATERIALS | RADIOACTIVE WASTE | NUCLEAR SECURITY | PUBLIC MEETINGS & INVOLVEMENT | NRC LIBRARY | ABOUT NRC

Home ▸ Nuclear Reactors ▸ New Reactors ▸ Advanced Reactors (non-LWR designs) ▸ Who We're Working With

Navigation

- Non-LWR Applicant Project Hub
- Pre-Application Activities
- International Cooperation

Spotlight

Choose a section

Non-LWR Application Project Hub

Power Reactor Applications

Non-Power Reactor Applications

**These pages are cross referenced to the Non-Power Reactor Licensing site.*

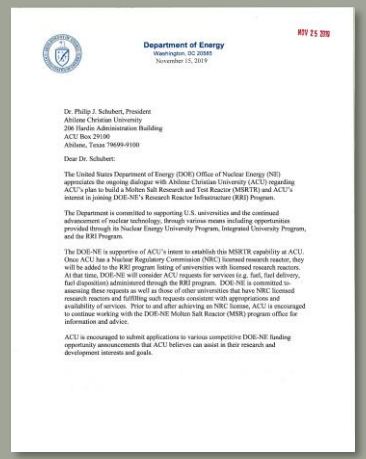
Page Last Reviewed/Updated Wednesday, March 27, 2024

Natura Resources

Natura Resources

- Advanced reactor developer headquartered in Abilene, TX committed to answering the world's increased demand for reliable energy, medical isotopes and clean water by developing commercially deployable molten salt reactors.
- Natura's liquid-fueled molten salt reactor systems are designed for assembly line manufacturing and modular installation on site.
- The Natura MSR-1 will be deployed at Abilene Christian University as a university research reactor.
- The Natura MSR-1 is the first liquid-fueled advanced reactor design to receive a construction permit from the NRC.
- Natura MSR-100 - design and pre-application engagement is underway.

Natura Resources


Department of Energy
Washington, DC 20585
November 15, 2019

NOV 25 2019

Dr. Phillip J. Schubert, President
Abilene Christian University
206 Hardin Administration Building
ACU Box 29100
Abilene, Texas 79699-9100

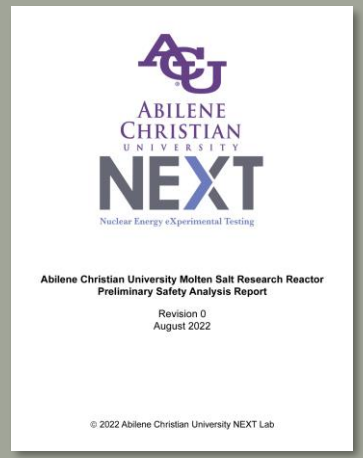
Dear Dr. Schubert:

The United States Department of Energy (DOE) Office of Nuclear Energy (NE) appreciates the ongoing dialogue with Abilene Christian University (ACU) regarding ACU's plan to build a Molten Salt Research and Test Reactor (MSRTR) and ACU's interest in joining DOE-NE's Research Reactor Infrastructure (RRI) Program.

The Department is committed to supporting U.S. universities and the continued advancement of nuclear technology, through various means including opportunities provided through its Nuclear Energy University Program, Integrated University Program, and the RRI Program.

The DOE-NE is supportive of ACU's intent to establish this MSRTR capability at ACU. Once ACU has a Nuclear Regulatory Commission (NRC) licensed research reactor, they will be added to the RRI program listing of universities with licensed research reactors. At that time, DOE-NE will consider ACU requests for services (e.g. fuel, fuel delivery, fuel disposition) administered through the RRI program. DOE-NE is committed to assessing these requests as well as those of other universities that have NRC licensed research reactors and fulfilling such requests consistent with appropriations and availability of services. Prior to and after achieving an NRC license, ACU is encouraged to continue working with the DOE-NE Molten Salt Reactor (MSR) program office for information and advice.

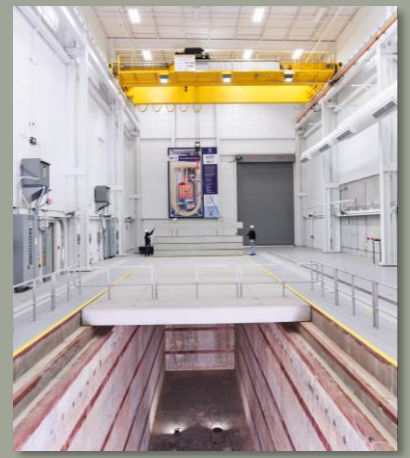
ACU is encouraged to submit applications to various competitive DOE-NE funding opportunity announcements that ACU believes can assist in their research and development interests and goals.

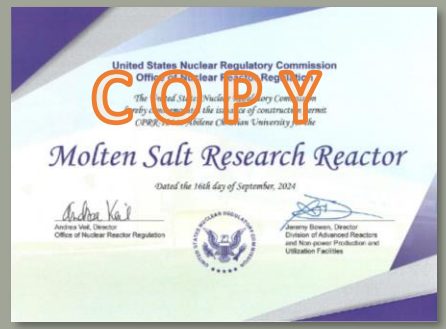

ABILENE CHRISTIAN UNIVERSITY
NEXT
Nuclear Energy eXperimental Testing

Abilene Christian University Molten Salt Research Reactor
Preliminary Safety Analysis Report

Revision 0
August 2022

© 2022 Abilene Christian University NEXT Lab




United States Nuclear Regulatory Commission
COPY
Molten Salt Research Reactor
Dated the 16th day of September, 2024
Andrea Veil, Director
Office of Nuclear Reactor Regulation
Jeremy Bowen, Director
Division of Advanced Reactors and Non-power Production and Utilization Facilities

2019 2020 2021 2022 2023 2024

Natura Resources

1st liquid-fueled advanced reactor design approved for construction by the Nuclear Regulatory Commission

Demonstrated Technology
Molten salt reactor operated successfully for 5 years

University Sponsored Research
Unique path to develop and deploy MSR technology to reduce costs, schedule and regulatory risk

Industry Expertise
Delivering complex projects on-time and on-budget

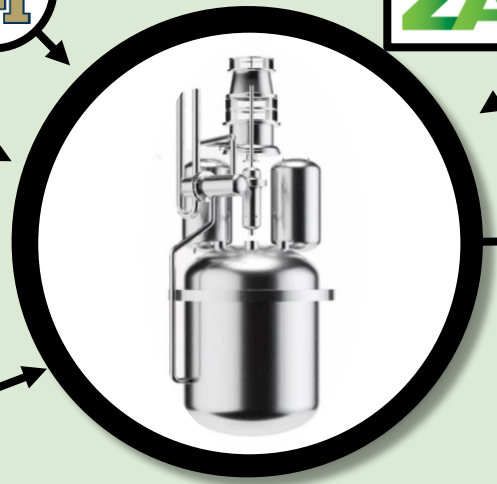
Commercial Deployment
Successful FOAK deployment is made possible through the data, knowledge, and experience gained through the deployment of the MSR-1.

Molten Salt Reactor Experiment
U.S. Atomic Energy Commission at Oak Ridge National Lab

Nuclear Regulatory Commission

TELEDYNE BROWN ENGINEERING Everywhereyoulook™

ZACHRY



Pilot Reactor
Molten Salt Research Reactor (MSRR) at Abilene Christian University (ACU)

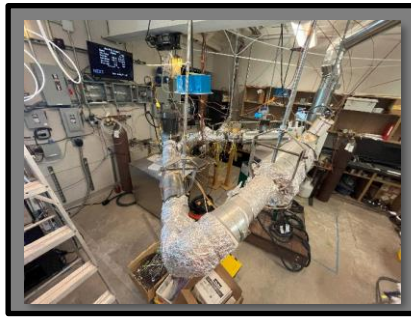
Commercial Reactor
100 MWe (250 MWth) GEN-IV reactor deployment

MSRE | Natura MSR-1 | Natura MSR-100

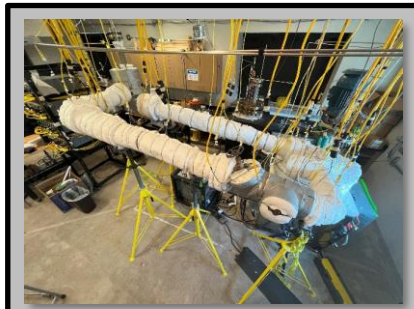
1964 1969 1974 2026 2030

Natura Resources

Research & Development: Molten Salt Loops



Molten Salt Test Loop (MSTL)	
Salt	Nitrate
Temp.	<200°C
Volume	~ 5 gal.



Fluoride Molten Salt Test Loop (FMSTL)	
Salt	FLiNaK
Temp.	~ 700°C
Volume	~ 5 gal.

Molten Salt Test System (MSTS)	
Salt	FLiNaK
Temp.	~ 700°C
Volume	~ 50 gal.

Pilot: Natura MSR-1

SCIENCE & ENGINEERING RESEARCH CENTER

COMPLETED AUGUST 2023

U.S. NUCLEAR REGULATORY COMMISSION

CONSTRUCTION PERMIT SEPTEMBER 2024

NATURA MSR-1 DETAILED DESIGN

ZACHRY NUCLEAR MAY 2025

OPERATING LICENSE AND CONSTRUCTION

2027

ZACHRY

Commercial: Natura MSR-100

FORTIFYING OUR FUTURE

ENERGY & WATER DESALINATION

Texas Produced Water Consortium

ENGINEERING & DESIGN

Design one
Build many

LICENSING

6-Month site approvals with Standard Design Cert.

CONSTRUCTION & DEPLOYMENT

Achieve NOAK cost reductions after 2-3 reactor deployments

Abilene Christian University

ZACHRY

Numerical Advisory Solutions
a Zachry Group company

Texas A&M University

Natura Resources

Trillium Advisory Group
a Zachry Group company

Texas
The University of Texas at Austin

Teledyne Brown Engineering
Everywhereyoulook™

Georgia Tech

Texas Tech University

VISTRA

University of Idaho

MATERION

Oak Ridge National Laboratory

INL
Idaho National Laboratory

Sandia National Laboratories

Texas Produced Water Consortium

Streamline Automation LLC

Natura Resources

Texas

- 2 Operating Nuclear Sites (Comanche Peak & STP)
- 2021 – H.B. No. 7 – TX Legislative Session
  - Resolutions of Support from Texas House & Senate
- 2023 – Gov. Greg Abbott establishes the Texas Advanced Nuclear Reactor Working Group
  - Evaluating how advanced nuclear reactors can provide safe, reliable, and affordable power for Texas and how to make the state a national leader in the development of nuclear power.
  - Work is complete and recommendations are with the governor.

Natura Resources

DEPARTMENT OF ENERGY

Idaho National Laboratory (INL) Advanced Reactor Timeline - **2024**

SCIENCE & ENGINEERING RESEARCH CENTER (SERC)
ACU | TEST BED

PROJECT PELE
DoD & BWXT | MICRO

AURORA
Oklo | MICRO

HERMES 2
Kairos | SMR

Xe-100
X-energy & Dow | SMR

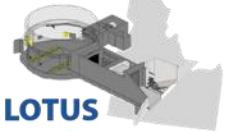
NATRIUM
TerraPower & GE | SMR

MCRE
Southern Co. & TerraPower | EXPERIMENT

MARVEL
DOE | MICRO

2025 | 2026 | 2027 | 2028 | 2029 | 2030

LOTUS
NRIC | TEST BED



MMR
USNC & UIUC | TEST REACTOR

DOME
NRIC | TEST BED

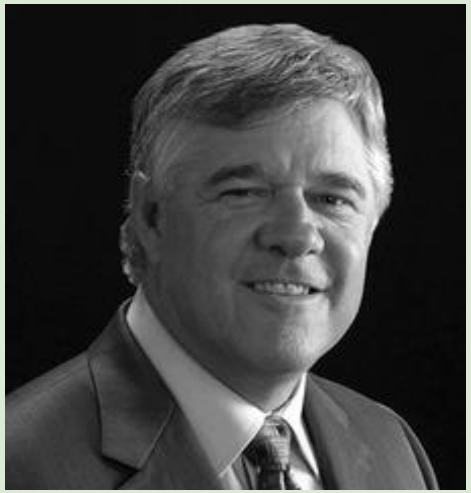
HERMES
Kairos | TEST REACTOR

NEXT MSRR
Natura Resources & Abilene Christian University | TEST REACTOR

Natura MSR-100

Natura Resources

EXECUTIVE TEAM



Douglass Robison
FOUNDER, PRESIDENT

Douglass Robison is the founder and President of Natura Resources. Throughout his career in the energy sector, Douglass has been at the forefront of leading-edge technologies, in his role as Partner, Co-founder, President and Executive Chair of ExL Petroleum, a Permian-based oil and gas exploration and production company, and now as the founder and President of Natura Resources. In 2004 he was appointed by former Texas Gov. Rick Perry to serve on the Texas Energy Planning Council and co-chaired the Energy Supply Committee during which time his committee identified the importance of nuclear energy in our energy future. Natura Resources is a natural fit for his deep-seated interest in advanced energy technologies.

Andrew Harmon
VP OF OPERATIONS & BUSINESS DEVELOPMENT

Andrew Harmon is the Vice President of Operations and Business Development of Natura Resources, LLC. He holds a bachelor's degree in business administration and finance from Abilene Christian University and a M.S. in Technology Commercialization from McCombs School of Business at The University of Texas at Austin. His professional experience includes corporate development positions at Accenture, a global professional services company, and executive roles in finance and operations within the manufacturing industry. In 2020 he joined Natura Resources and leads investment, operations and business development efforts.

Jordan Robison, PE
VP OF ENGINEERING & PROGRAM MANAGEMENT

Jordan Robison is the Vice President of Engineering and Program Management of Natura Resources, LLC. He holds a bachelor's degree in physics from Austin College, a M.S. in Mechanical Engineering from The University of Texas at Dallas, an MBA from Abilene Christian University and is a licensed professional engineer in the state of Texas. Robison spent the first part of his career working in technical and engineering management positions within both the semiconductor and oil and gas industries. In 2020 he joined Natura Resource to guide university research and development efforts as well as Natura Resource's commercial reactor development.

CONTACT
jordan@naturaresources.com

www.naturaresources.com/careers