

**DATE:**

Tuesday  
January 23, 2024

## TerraPower Advanced Reactor Development Design and Quality Considerations

This is a virtual/online (MS Teams) meeting. Log-in information will be provided on the registration confirmation email.

**Time: 6:00 to 7:30 pm PST**

Welcome & Introductions will begin at 6 pm, followed by the presentation and Q&A

**Cost: Free for ASQ members and non-members**

To register for this online/virtual meeting, please RSVP with your name, email, ASQ affiliation (member and section, or non-member), to [denise.clements@aecom.com](mailto:denise.clements@aecom.com) by January 20 for planning purposes and to receive RU credit following the meeting.

Attendance at this meeting earns RUs toward ASQ recertification.

For more information about our ASQ section and other upcoming events: [www.asq614.org/](http://www.asq614.org/) or our [myASQ community site](#).



### Walter Josephson, Physicist/Radiation Shield Lead Molten Chloride Reactor Experiment

In 2018, more than three-quarters of U.S. greenhouse gas emissions came from the transportation, electricity, and industrial sectors. As many utilities and industries set carbon-free goals, they will require more innovative and affordable technology to reach these targets and effectively decarbonize.

TerraPower and Southern Company are working together to advance the molten chloride fast reactor (MCFR) technology. The project expands the ability of nuclear reactor technology to decarbonize the economy in sectors including and beyond electricity.

In December of 2020, the U.S. Department of Energy selected the Molten Chloride Reactor Experiment (MCRE) proposal, with Southern Company as the Prime, as a winner of the Advanced Reactor Demonstration Program risk-reduction pathway. This effort is relevant to TerraPower's MCFR design. The MCRE will be the world's first fast-spectrum, salt-fueled nuclear fission reactor to go critical, meaning that it is operating on a self-sustaining nuclear chain reaction. The project represents a significant inflection point in the technology demonstration roadmap for TerraPower's MCFR; it will inform the design, licensing, and operation of an MCFR demonstration reactor.

The MCRE project will not generate electricity, but it will operate at a power of up to 500 kilowatts and demonstrate key physics performance important to the broader MCFR program. An environmental review will be completed for the MCRE project in accordance with the National Environmental Policy Act before final design and construction begin. MCRE first criticality is scheduled for late 2025.

Join us on January 23 for this presentation to learn more about:

**Why Fast Reactors:** benefits and challenges

**TerraPower Designs:** maximizing benefits and overcoming challenges

**Quality Considerations:** nuclear data, design, procurement, software, and more

*About the speaker: Walter Josephson is a physicist acting as the radiation shielding lead for the Molten Chloride Reactor Experiment (MCRE), a fourth-generation reactor physics experiment under development by TerraPower, Southern Company, and the Idaho National Laboratory (INL). MCRE is part of the Advanced Reactor Demonstration Program (ARDP), an initiative under the U.S. Department of Energy (DOE) supporting ten advanced reactor designs to help mature and demonstrate their technologies.*

*Prior to TerraPower, Walter spent 11 years in the U.S. Navy as a submarine officer, and 30 years at the Hanford Site working on radioactive waste management. He has a BS degree in Physics from Emory University and is a member of the American Nuclear Society.*