Generation IV International Forum℠

EDUCATION AND TRAINING TASK FORCE

Join us on August 26, 2020 for the next GEN IV webinar

Molten Salt Reactor Safety Evaluation – A US Perspective

Reactor safety is evaluated to demonstrate that a plant's operation does not present significant additional risk to the life and health of the public. Reactor safety evaluation historically focused on maintaining adequate containment of radionuclides during the maximum credible accident. However, as progressively larger light water-cooled reactors (LWRs) were developed in the 1960s, the increased potential for catastrophic accidents necessitated expanding the safety adequacy from the containment of radionuclides under all conditions to the prevention of accidents and the mitigation of their consequences. Either a deterministic or probabilistic pathway could be taken to demonstrate the safety adequacy for US molten salt reactors (MSRs). The deterministic pathway relies on adapting accepted minimum design criteria for LWRs to MSRs, whereas the probabilistic pathway relies on adequately modeling the risks of MSR accidents to discern what can occur, how likely it is to occur, and the consequences of its occurrence. MSR designs as envisioned have a readily apparent high degree of passive safety. Their combination of low pressure, low stored energy within containment, negative reactivity feedback, and effective passive decay heat removal substantially reduces the potential for cascading and escalating events. This MSR resiliency opens a third demonstration pathway that refocuses safety adequacy on containment of credible accidents, precluding the need for complete probability information. This approach would be especially useful for early prototype plants which lack sufficient performance data to take advantage of higher fidelity, data-driven risk modeling. This webinar will describe the current status and comparative advantages of the three alternative MSR safety adequacy demonstration pathways.

Free webcast

August 26, 2020 at 8:30 am (EDT) (UTC -4)

Register NOW at https://attendee.gotowebinar.com/register/9014722520819633932

Who should attend: policy makers, managers, regulators, students, general public

Meet the Presenter...

Dr. David E. Holcomb is a distinguished member of the technical staff and distinguished inventor at Oak Ridge National Laboratory (ORNL). Dr. Holcomb currently represents the U.S. and serves as a vice chair of the provisional system steering committee for the Generation IV International Forum on MSRs, chairs the American Nuclear Society's working group developing a design safety standard for liquid fueled MSRs (ANS 20.2), and provides technical oversight of DOE's university projects on MSRs. Dr. Holcomb is a past chair of the American Nuclear Society's Human Factors, Instrumentation, and Controls Division. Dr. Holcomb has been a staff member at ORNL for more than 25 years and is currently a member of the Reactors and Nuclear Systems Division. Dr. Holcomb has in the past served as the ORNL team lead for space reactor instrumentation as part of the Jupiter Icy Moons Orbiter program. He has served as an Adjunct Assistant Professor at the University of Tennessee, Knoxville, in the Nuclear Engineering Department since 1995 and is a current member of the nuclear engineering program advisory board for the Ohio State University.

The Generation IV International Forum invites you to attend web-based lectures on the next generation of nuclear energy systems and other cross-cutting subjects. Join internationally recognized subject matter experts and leading scientists in the nuclear energy arena for these short presentations.

Upcoming Webinars	
22 September 2020	Integrated Energy Systems Laboratory Initiative, Dr. Shannon Bragg-Sitton, INL
28 October 2020	Global Potential for Small and Microreactor Systems to Provide Electricity, Dr. Amy Schweikert, Colorado School of Mines, USA
19 November 2020	Neutrino and Gen IV Reactor Systems, Prof. Jonathan Link, Virginia Tech, USA

For more information, please contact: Patricia Paviet at patricia.paviet@pnnl.gov or visit the GIF website at www.gen-4.org