

ANS NCSD Newsletter Winter 2024

Member Highlight- Riley Bulso

Riley Bulso is a nuclear criticality safety analyst and deputy group leader at Los Alamos National Laboratory (LANL). He started his career in criticality safety as a summer student in 2019 at LANL. He obtained a bachelor's degree in nuclear engineering from Rensselaer Polytechnic Institute in Troy, NY in 2019.

He continued this position through a post-bachelor appointment before starting full time in 2020. He supports plutonium operations (PF-4) at LANL, where he initially focused on the material management area, supporting conveyance, non-destructive assay (NDA), waste management, and short- and long-term storage.

Currently, Riley now provides support to the pyrochemical and aqueous processing NCS team, where he is now deputy group leader. This team provide NCS evaluations and support for pyrochemical purification, and aqueous nitrate/chloride actinide recovery operations. He also supports decontamination and decommissioning, maintenance, and construction activities, as well as assists in design reviews for new fissionable material equipment and gloveboxes.

Outside of facility support, Riley has also assisted in verification of benchmark models for the Los Alamos Benchmark Suite (LABS) to be used with Whisper, and is currently supporting a critical experiment design, providing and editing application models to support manufacturing activities with tantalum. He also prominently supports the NCSD Comms Committee, aiding newsletter production.

Additionally, Riley also recently graduated from the University of New Mexico with an M.S. in nuclear engineering with his thesis, "Application of an Empirical Density Law for Aqueous Plutonium Chloride Systems via Python for MCNP6". He is pursuing continuing this work such that this tool may be utilized in criticality safety evaluations.

Outside of work, Riley enjoys baking, trying new recipes, traveling and exploring new places, and hiking with his dog. He also enjoys live music and attending local concerts, and playing table-top games with his friends.



Site Highlight-ICSBEP TRG

The International Criticality Safety Benchmark Evaluation Project (ICSBEP) Handbook is the main source of benchmark data used to validate nuclear criticality safety calculational techniques. These benchmarks are derived from experiments conducted in various critical facilities around the world. The ICSBEP is coordinated by the OECD Nuclear Energy Agency (NEA) and falls under the Working Party for Nuclear Criticality Safety (WPNCS).

The ICSBEP Technical Review Group (TRG) meets annually to evaluate new benchmark evaluations for inclusion into the handbook. The upcoming meeting is scheduled for April 16-17, 2024, and will be hosted at Lawrence Livermore National Laboratory (LLNL). Historically, the ICSBEP meeting would move around to different countries, although it has been held at the NEA headquarters in Paris, France for most of the last decade. Changing the location of the meeting allows for more local (national) participation and allows for tours of experimental facilities.

Currently, five benchmarks are scheduled to be reviewed at the meeting, as listed below:

- LLNL (USA) – *Pulsed-Neutron Die-Away Experiments with HDPE and PMMA Targets (Fundamental Physics Benchmark)*
- LLNL (USA) – *TEX-HEU Critical Benchmarks with Hafnium*
- LANL (USA) – *Flattop Reevaluation*
- LANL (USA) – *PU-MET-FAST-047: Jupiter Plutonium and Lead Void Critical Experiments*
- University of New Mexico (USA) – *AGN Reactor Critical Benchmark*

Attendees at the meeting are assigned benchmarks to review before coming to the meeting, and evaluations are usually distributed for review one month before the meeting. During the meeting, candidate benchmarks will be presented by the evaluator. Anyone in attendance can ask questions or make comments, with the NEA Secretariat recording all the comments to compile into a summary report. At the end of the meeting, the review group will make a vote to accept the evaluation, accept the evaluation upon approval of a subgroup (evaluation needs some revision), or reject the evaluation (evaluation needs substantial revision).



UPCOMING EVENTS

Trainings/Classes:

- Manager CSO Course at NCERC (March 18-22, Dec 9-13)
- Intermediate MCNP Online (April 8-12)
- Manager CSO Course at SNL (April 29-May 3, Sep 9-13)
- Criticality Calculations with MCNP6 at LANL (June 3-7)
- Introduction to MCNP6 Online (June 17-21)
- 2-week CSE Course at SNL/NCERC (Aug 5-16)

Meeting Reminders:

- ANS Student Conference (April 4-6, University Park, PA)
- ICSBEP/IRPhEP/SINBAD TRG (April 15-19, Livermore, CA)
- ANS Annual Meeting (June 16-19, Las Vegas, NV)
- ANS Winter Conference and Expo (November 17-21, Orlando, FL)
- *Special Announcement:* ANS NCSD Topical 2025 will be in Austin, TX, Sept 14-18, 2025!