

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 1, 2022

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer  
**SUBJECT:** Sandia National Laboratories (SNL) Report for March 2022

**Defense Nuclear Facilities Safety Board (Board) Staff Interactions:** On March 28–31, 2022, a Board’s staff team was on site at SNL to observe the 2022 Technical Area V (TA-V) Functional Exercise and to complete a review of the SNL emergency management program. In addition, the Board’s cognizant engineer for SNL completed a walkdown at TA-V and held meetings with National Technology and Engineering Solutions of Sandia, LLC (NTESS) and Sandia Field Office (SFO) managers.

**Annular Core Research Reactor Facility (ACRRF) Fuel-Ringed External Cavity, Version II (FREC-II) Federal Readiness Assessment (FRA):** On March 3, 2022, the National Nuclear Security Administration FRA team issued their final report for the FRA for restarting FREC-II operations. The FRA on-site team observed all demonstrations to include coupling/decoupling the FREC and critical lifts involved, steady state power operations of the ACRRF, and a drill consisting of an injury during a critical lift in the ACRRF high bay. The FRA report concluded that all activities were successfully completed, and all Criteria and Review Approach Document criteria were met. The FRA team identified no findings during their review and concluded that FREC-II operations are ready to safely resume. On March 7, 2022, SFO transmitted the FRA report to NTESS noting that “*once NTESS resolves questions regarding the safety and operability of FREC fuel element FE4914 and communicates the results to SFO, the SFO authorizes NTESS to restart FREC II operations at the ACRR.*” SFO also requested that NTESS continue to communicate with SFO as the tasks in the FREC-II Restart Plan are completed.

**Handrail Dropped into ACRRF FREC-II Cavity:** On March 15, 2022, ACRRF staff were preparing for an upcoming test that required removing the handrails around the ACRRF deck. The ACRRF workers were properly tied-off, were wearing personal protective equipment, and were employing foreign material exclusion measures for tools and other objects. As a worker loosened a connection point, an 18-inch by 48-inch L-shaped cross member fell, hit the deck plate, and dropped into the FREC-II cavity. The railing landed at the bottom of the cavity approximately 25-ft below the deck plate. The workers had removed the FREC II cavity shield plug in the preceding task. ACRRF staff immediately placed the facility in a safe condition and paused work. ACRRF staff lowered a camera into the FREC-II cavity and identified no visible damage. A team of engineers, Environment, Safety and Health professionals, and management completed an assessment of the situation and planned the recovery of the handrail, which was accomplished that same day. NTESS completed a fact finding for this incident on March 16, 2022, and began a causal analysis on March 30, 2022. The Board’s staff will review the causal analysis report and any corrective actions taken to address this event, when available.

**ACRRF Safety Basis Change Notice 14.1 (CN 14.1):** On February 25, 2022, SFO issued a Safety Evaluation Report Addendum approving the updated Documented Safety Analysis and Technical Safety Requirements for the ACRRF. SFO identified no Conditions of Approval. SFO also directed NTESS to complete an Implementation Verification Review to confirm implementation of the approved CN 14.1 within 120 calendar days. SFO noted that the ACRRF Safety Basis continues to provide reasonable assurance of adequate protection to the workers, the public, and the environment from the identified hazards associated with ACRRF operation, and the safety basis meets the requirements specified in 10 CFR 830, Subpart B, *Safety Basis Requirements*.