

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 4, 2022

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

**Fuel-Ringed External Cavity, Version II (FREC-II) Restart Activities:** On January 10, 2022, a Contractor Readiness Assessment (CRA) team began their evaluation of FREC-II operations at the Annular Core Research Reactor Facility (ACRRF). (See SNL Monthly Report for December 2021.) The FREC-II equipment was last used during reactor operations in 2019. The CRA team reviewed over 200 documents, conducted 30 interviews, observed tabletop demonstrations of steady-state and pulsed reactor operations, and observed an operational drill. On January 20, 2022, the CRA conducted an out-brief with National Technology and Engineering Solutions of Sandia, LLC (NTESS) and Sandia Field Office (SFO) managers and staff. The CRA team identified improvements in the quality of procedures and in the conduct of operations at the ACRRF. In addition, the CRA team noted weaknesses in human performance and in the development of the FREC-II restart plan. The CRA team concluded all objectives and criteria for this assessment were met with no findings. On January 13, 2022, SFO approved the Plan of Action for the Federal Readiness Assessment (FRA) for FREC-II Operations. The FRA is scheduled to begin on February 14, 2022.

**Hoisting and Rigging (H&R) Corrective Action Plan (CAP):** On January 7, 2022, NTESS issued a CAP to address causal analyses completed in response to recent hoisting and rigging incidents at the ACRRF (See SNL Monthly Reports for September 2021 and October 2021). NTESS initiated the causal analyses to investigate potential systemic issues related to the H&R process at the ACRRF due to four incidents concerning H&R over the last two calendar years. The causal analysis team reviewed all four incidents for underlying systemic issues and identified seven root causes and six contributing factors. The CAP documents how the root causes and contributing factors are being addressed through corrective actions including a timeline for the closure of each issue.

**Causal Analysis Report – Unauthorized Access to ACRRF Roof During Radiological Work:** On January 13, 2022, NTESS issued a causal analysis report for an incident involving unauthorized access to the ACRR building's roof on November 23, 2021. The Radiological Technical Work Document prohibits personnel access to the roof while radiological work is being conducted inside the building. Despite this prohibition, two subcontractor roof inspectors from the National Nuclear Security Administration Roof Asset Management Program (RAMP) accessed the roof while radiological work was being conducted in the building. After discovery of the unauthorized roof access, ACRRF staff determined that there was minimal to no risk of radiation exposure for the workers. The causal analysis report concluded that the RAMP site project team was unaware of Technical Area V (TA-V) requirements for work release before accessing the roof. ACRRF personnel subsequently posted a sign on the roof ladder instructing workers to contact ACRRF operations prior to accessing the roof.

**Second Quarter Fiscal Year 2022 Startup Notification Report (SNR):** On January 27, 2022, SFO approved the Second Quarter Fiscal Year 2022 SNR. NTESS identified five activities planned for TA-V in the next twelve months that will require readiness reviews. The activities included FREC-II Operations, Fielding Experiments Requiring Safety-Class and Safety-Significant Containment, Portable X-Ray Activities, Reactor Operations Activities to Support Neutron Radiography, and Transient Rod Withdrawal Operations. SFO agreed with the readiness level determination for all five activities and approved the SNR.