DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 1, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Sandia National Laboratories (SNL) Report for April 2020

COVID-19 Response: A majority of Sandia Field Office (SFO) and National Technology and Engineering Solutions of Sandia, LLC (NTESS) staff continues to telework in response to the COVID-19 pandemic. A Facility Representative continues to provide oversight of activities at Technical Area V (TA-V). Managers from the SFO and NTESS are participating in working groups from NNSA and Kirtland Air Force Base to develop plans to restart operations at SNL when conditions warrant.

Annular Core Research Reactor (ACRR): On April 10, 2020, NTESS issued its Record of Decision (ROD) on the resumption of ACRR operations. In the ROD, NTESS identified plans to move forward with a risk-informed plan to address the most urgent maintenance, to conduct the highest priority programmatic work, and to create a longer-term plan to address sustainable inspections and maintenance at the ACRR. On April 10, 2020, NTESS submitted the *Justification for Continued Operation (JCO) for Steady State and Pulse Operations at the Annular Core Research Reactor Facility*. On April 15, 2020, SFO approved the JCO with five conditions of approval and four compensatory measures. SFO limited ACRR operations to the completion of 10 experiments listed in the Safety Evaluation Report (SER) Addendum. The SER Addendum identified no significant issues in the JCO but included conditions of approval that limited ACRR operations to activities identified in the Acceptance Test Plan; extended the time frame of a limited number of surveillance requirements; required an SFO review of the ACRR Return to Operations Plan; required monthly progress updates to SFO; and required a Senior Supervisory Watch for all 10 approved tests listed in the JCO. The SER stated that the JCO will terminate once the listed experiments are completed and will only be in effect when NTESS is actively preparing for, performing, or recovering from these experiments. NTESS staff returned ACRR to programmatic operations during the week of April 27 – May 1, 2020.

ACRR 15-Element Fuel Rack Separated During Critical Lift - Causal Analysis Report: On April 15, 2020, NTESS completed its causal analysis report on failure of a 15-element rack that occurred during removal of the rack from the ACRR pool on February 18, 2020. The removal was part of a mock-up of a task involving moving a fuel element from the ACRR pool to the storage pool. The causal analysis report identified six issues including unknown design specifications for the fuel rack; inadequate critical lift plan; use of the fuel rack was based on similar historical use; inadequate attention to the potential for the rack footing to get caught; the underwater camera was not available (or not chosen to be used) to monitor the load during the critical lift; and the ACRR staff felt operational pressures to resume activities. NTESS developed a Corrective Action Plan to address the issues identified in the causal analysis report.

Alternate Methodology for Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR) for Sandia Nuclear Reactor Facilities: On March 26, 2020, the National Nuclear Security Administration Cognizant Secretarial Officer for Safety, with Central Technical Authority concurrence, approved the alternate methodology for nuclear reactor facility DSAs and TSRs at SNL. The alternate methodology was prepared in accordance with DOE-STD-1083-2009, *Processing Exemptions to Nuclear Safety Rules and Approval of Alternative Methods for Documented Safety Analyses*. One condition of approval requires the Safety Basis Approval Authority to issue guidance for the review of Reactor Protection Controls in the DSA and TSR.