

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 6, 2020

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

Defense Nuclear Facilities Safety Board Staff On-Site Activities: On February 24–27, 2020, the Board’s staff members J.D. Anderson, C. Berg, D.B. Bullen, R.C. Eul, M. McCoy, and S.R. Seprish reviewed weapon response technical basis documents at SNL. During that same time period, the Board’s cognizant engineer for SNL conducted an on-site review that included a walk down of Technical Area V (TA-V) and discussions with the Sandia Field Office (SFO) and National Technology and Engineering Solutions of Sandia, LLC (NTESS) managers and staff. The Board’s cognizant engineer also followed up on items from prior Board’s staff interactions related to emergency preparedness and response, nuclear quality assurance, conduct of operations, and the status of safety basis documents in TA-V.

Annular Core Research Reactor (ACRR): While searching for missing fasteners from Safety Rod 1 (see SNL Monthly Report for January 2020) on January 28, 2020, ACRR staff members found a surface anomaly on Fuel Element 134 during an inspection after the element was removed from the ACRR core. ACRR staff identified a similar anomaly on Control Rod 5 on February 5, 2020. ACRR staff decided to remove Fuel Element 134 from the core for further study. During a “dry run” of the fuel removal process, ACRR staff members placed a 15-element fuel assembly rack in the ACRR pool on February 18, 2020. While practicing the removal of the 15-element fuel assembly rack from the ACRR pool, a foot on one of the rack’s legs was apparently caught on a structure near the bottom of the pool. As the ACRR staff lifted the fuel rack with the overhead crane, the top plate of the fuel rack separated and the rack fell to the bottom of the ACRR pool. The rack top plate, which was still attached to the lifting fixture, was removed and inspected. All of the welds attaching the top plate to the fuel element tubes had failed. NTESS staff members began a causal analysis of this event on February 26, 2020. The results of this causal analysis will be available in early March 2020. The ACRR remains safely shut down.

Second Quarter Fiscal Year 2020 Startup Notification Report (SNR) Approval: On February 10, 2020, the SFO approved the Second Quarter Fiscal Year 2020 SNR that was submitted by NTESS on January 9, 2020. The NTESS submission identified three activities planned for the TA-V nuclear facilities in the next twelve months, and two additional activities beyond the next twelve months that will require readiness activities. These activities included modifications and experiments in the ACRR. The SFO agreed with the determination that these five activities require readiness assessments. The SFO will be the Startup Authorization Authority (SAA) for each activity. The SFO will be the Startup Authorization Authority (SAA) for four of the activities and the fifth is a readiness checklist with NTESS as the SAA.

Waste Isolation Pilot Plant (WIPP) Mobile Loading Unit (MLU) Waste Handling

Demonstration: On February 20, 2020, TA-V staff members completed a demonstration of the handling and transport of a shielded transuranic waste drum as part of the corrective actions identified in the Contractor Readiness Assessment for the WIPP MLU (see SNL Monthly Reports for October 2019 and January 2020). The SNL Director of Radiation and Electrical Sciences, who is the SAA for the MLU activities, observed this demonstration.