

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 1, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Sandia National Laboratories (SNL) Report for October 2019

Annular Core Research Reactor (ACRR) - Wire Rope Failure: On September 25, 2019, SNL ACRR personnel were in the process of decoupling the Fuel Ringed External Cavity. The decoupling requires placement of a heavy nickel reflector plate adjacent to the outer row of ACRR fuel elements. ACRR operators use steel wire ropes to maneuver the nickel plate slightly above the pool bottom, approximately 25 feet below the pool surface, using a crane and manpower to guide the plate around support structures and equipment. When the crane operator attempted to take up slack in the wire rope before raising the plate from the bottom, one of the two wire ropes broke and the plate tipped over, resting partially against the core support skirt and the pool bottom. ACRR personnel stopped the operation and inspected the adjacent fuel elements using the underwater camera. The ACRR operators found no damage to the core. National Technology and Engineering Solutions of Sandia, LLC (NTESS) completed a causal analysis for this event on October 10, 2019. On October 17, 2019, ACRR staff successfully recovered the nickel plate, inspected it, and replaced the lifting hardware. ACRR staff then returned the nickel plate to its ACRR core grid location. Following a review of the event and the recovery actions by the ACRR Committee, the ACRR resumed operation on October 23, 2019.

Emergency Management Full-Scale Exercises Corrective Actions: On October 2, 2019, NTESS provided the Sandia Field Office (SFO) with corrective actions for the 2019 Emergency Management Full-Scale Exercises. The NTESS response identified actions taken, or planned, to address five issues identified by SFO in previous correspondence (April 17, 2019 and May 22, 2019) to NTESS regarding these exercises. The issues included; deficiencies with the controller organization; poor formality of operations by radiological protection program participants; issues with critical decision making by the SNL Incident Commander; poor conduct of exercise and formality of operations by SNL Field Monitoring; and a lack of integration between Technical Area-V, Radiological Protection, and Emergency Operations. In addition to addressing these issues, NTESS management and staff completed an effort to identify industry best practices and benchmark Sandia Emergency Management with other DOE sites. The resulting NTESS report was based on 67 interviews, four benchmarking site visits, direct observations, and research into requirements and Federal guidance. NTESS executive leadership evaluated the report and developed initiatives for implementation. NTESS is currently identifying organizational changes that will support the accomplishment of these initiatives.

Mobile Loading Unit (MLU) Contractor Readiness Assessment (CRA) Report: On October 23, 2019, NTESS issued their CRA report for the Waste Isolation Pilot Plant (WIPP) MLU restart of operations. The CRA report identified no prestart findings, no post-start findings, two observations, and one recommendation based on the limited scope of the readiness assessment. The CRA team concluded that the WIPP MLU activities can proceed safely. The CRA team verified that the required plans, procedures, and worker training and qualifications are in place. The CRA team provided their report to the Director of Radiation and Electrical Science, who is the Start-Up Authorization Authority for the MLU activities.