

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 2, 2018

TO: Steven A. Stokes, Technical Director
FROM: Douglas J. Brown, Cognizant Engineer
SUBJECT: Sandia National Laboratories Report for February 2018

Staff Activity at Sandia National Laboratories (SNL). On February 2, 2018, four Defense Nuclear Facilities Safety Board (Board) staff members completed the week-long WR708 course, *Survey of Weapons Development and Technology*. On February 5–9, 2018, the Board’s SNL Cognizant Engineer attended the week-long US Department of Energy Nuclear Criticality Safety Program Hands-On Training of Water-Moderated Criticality Experiments at SNL as part of staff member professional development and oversight. On February 20, 2018, the Board’s SNL Cognizant Engineer supported a site visit by the Board’s Acting Chairman. On February 21–22, 2018, the Board’s SNL Cognizant Engineer conducted a quarterly cognizant engineer site visit to include oversight and interaction with SNL and Sandia Field Office (SFO) personnel.

Acting Chairman Site Visit. On February 20, 2018, the Board’s Acting Chairman and Deputy Technical Director toured the defense nuclear facilities at SNL, which included all Hazard Category 2/3 facilities and a radiological facility in Technical Area V as well as the Neutron Generator Facility. The Acting Chairman and staff also held discussions with SNL and SFO senior leadership.

Sandia Pulse Reactor Facility (SPRF) Fire Suppression Update. As discussed in the February, September, and October 2017 monthly reports, SNL and SFO have completed the alternative study for the SPRF fire suppression system. SNL has elected to pursue a water-based fire suppression system for SPRF with the exception of the reactor room. The initial conceptual design is a wet-pipe system in the Falcon’s Nest (classroom), a multiple zone dry-pipe system with removable spool for water exclusion if required in the Reactor Maintenance Building, and a permanent waiver for no fire suppression system in the Reactor Room, which conducts water-moderated nuclear criticality experiments. Additionally, SNL has created a draft firefighter directive to support access by Kirtland Air Force Base firefighters into the facility in the event of a fire.

SPRF Reactor Room Drywall Sample Results. SNL and SFO are pursuing an effort to reduce combustible loading in the SPRF Reactor Room. The Reactor Room’s structure includes a thick layer of borated gypsum drywall suspended on a wooden framework with an air cavity behind, which provided shielding for Sandia Pulse Reactor III operations, which have been discontinued. SNL undertook sampling of the drywall to evaluate hazards that would be encountered while removing it, and the results confirmed radioactive contamination. This information will also be used to support the umbilical rerouting project.

SPRF Umbilical Rerouting Update. As discussed in the March and May 2017 monthly reports, SNL is rerouting umbilical cables at SPRF. The replacement of cabling between the SPRF critical experiment control room in the Falcon’s Nest and the critical experiment structure in the Reactor Room is proceeding after sampling results identified no asbestos. SNL plans to complete the project by the end of April 2018.