

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 4, 2016

TO: Steven A. Stokes, Technical Director
FROM: John R. Mercier, Cognizant Engineer
SUBJECT: Sandia National Laboratories Report for February 2016

Staff Activity at Sandia National Laboratories (SNL): On February 2-3, 2016, the Defense Nuclear Facilities Safety Board's (Board) Cognizant Engineer—with oversight responsibilities for Sandia National Laboratories—conducted walkdowns of radiological and nuclear facilities within the Board's purview. The Board's Cognizant Engineer observed that radiological protection practices at the Z Machine are adequate. He did not identify any safety issues with the criticality safety index method for safe storage of nuclear materials used at the Manzano Corporate Storage Area. He observed a satisfactory level of operator knowledge regarding the ventilation system, alarms, and procedures applicable to tritium operations at the Neutron Generator Facility. He reviewed ongoing efforts to re-establish fume hood air flow alarm compliance at the Auxiliary Hot Cell Facility, observing that the path forward appeared viable. Overall, the Board's Cognizant Engineer continues to gain insight on SNL implementation of requirements flowed down from Title 10, Code of Federal Regulations, Part 830 (10 CFR 830), *Nuclear Safety Management*, and Part 835 (10 CFR 835), *Occupational Radiation Protection*.

Sandia Pulse Reactor Facility (SPRF). At this Hazard Category 2 nuclear facility, the Board's Cognizant Engineer focused the walkdown on fire protection. The reactor building was built in 1960 and the adjacent reactor maintenance building was built in 1987. Due to the design of various highly enriched bare metal pulsed reactors that the SPRF originally housed, for nuclear criticality safety purposes the facility was designed to be moderator limited. Although the facility no longer houses this type of reactor, it maintains the mission to reconstitute pulse reactor operations. For over eight years the facility has not been designated a moderator limited facility in applicable criticality safety analyses. Due to the original facility design requirements there are no engineered fire suppression systems. The applicable Fire Hazards Analysis relies on combustible loading controls at the SPRF. Although the Board's Cognizant Engineer did not observe implementation of a rigorous combustible loading control program there appeared to be a low combustible load in the facility at the time of the walkdown. The Board's Cognizant Engineer and one of the Board's fire protection subject matter experts plan to walkdown the facility in March 2016 to gain additional insight into the fire protection safety posture at the SPRF.

Annular Core Research Reactor Facility (ACRRF). The Board's Cognizant Engineer conducted a walkdown at this Hazard Category 2 nuclear facility focusing on the exhaust air filtration and alarms. Sandia Field Office (SFO) engineers responsible for oversight of the ACRRF had not been up on the roof for an extended period of time. The Board's Cognizant Engineer encouraged SFO personnel to seek opportunities to increase their familiarity with facility monitoring systems.