

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 4, 2017

**TO:** Steven A. Stokes, Technical Director  
**FROM:** Douglas J. Brown, Cognizant Engineer  
**SUBJECT:** Sandia National Laboratories Report for July 2017

**Staff Activity at Sandia National Laboratories (SNL).** On July 12-13, 2017, the Board's SNL cognizant engineer (COG) observed the completion of the W78 Repair Nuclear Explosive Safety Study deliberations. The COG also attended Sandia Field Office (SFO) staff meetings and held discussions with SFO management on the afternoon of July 13, 2017.

**Annular Core Research Reactor (ACRR) Potential Inadequacy in the Safety Analysis (PISA).** On July 11, 2017, a PISA was declared based on initial computer modeling that indicated under certain conditions the ACRR power distribution, peak-to-average values, potentially constitute new information. The PISA Entry Form analyses identified cases where more fuel elements are damaged in the unmitigated reactor transient accidents than in the current design basis accidents in the documented safety analysis. None of these cases challenge the evaluation guideline or increase the consequence bin to the worker. For the mitigated cases, the technical safety requirement controls preventing fuel and cladding damage are still effective and there is no increase in the quantity of material released. An operational directive on temporary experiment restrictions was issued.

**Sandia Pulsed Reactor Facility (SPRF) – Safety Basis Documentation.** On July 3, 2017, SFO issued their Safety Evaluation Report Addendum for the *Sandia Pulsed Reactor Facility Safety Basis 2016 Annual Update, (Change Notice 9)*. SFO concluded that the SPRF Safety Basis 2016 Annual Updates meet the annual requirement for submittal of an updated documented safety analysis as specified in Title 10, Code of Federal Regulations, Part 830, Subpart B, *Safety Basis Requirements*. Two conditions of approval (hand-calculations for bounding offsite dose calculation and adjudication in language for fire department emergency response) were identified and require action prior to the SPRF 2017 Annual Update submission.

**SNL Implementation Plan for Department of Energy (DOE) Order 151.1D.** On July 14, 2017, SFO approved the SNL Implementation Plan submitted for DOE Order 151.1D, *Comprehensive Emergency Management System*. SFO expects full implementation of DOE Order 151.1D to occur no later than July 24, 2020 given the needed resources, costs, and clarifications identified. The DOE implementation guidance for DOE Order 151.1D (issued August 11, 2016) required full compliance with the Order within one year of the issuance date.

**Sandia Pulsed Reactor Facility/Critical Experiments (SPRF/CX) Core Change.** As originally noted in the June 2017 monthly report, SNL personnel have been working to complete the changeover of SPRF to the Burnup Credit Critical Experiment (BUCCX) core. The BUCCX core has now been characterized, validated, and approved for use.

**SNL Annual Exercise.** On July 26, 2017, SNL conducted its annual site-wide emergency management exercise. This year's scenario was an active shooter with participation from multiple organizations and external agencies. SFO and SNL are in the process of evaluating whether all exercise objectives were met.