DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 30, 2016

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

Staff Activity at Sandia National Laboratories (SNL). During September 20-22, 2016, three Defense Nuclear Facilities Safety Board (Board) staff members, with support from a Board technical consultant, conducted the on-site portion of their conduct of operations and maintenance review at Technical Area V (TA-V). On September 19, 2016, two Board staff members conduct familiarization walk downs of the Z-Machine, Neutron Generator Facility, and Manzano Corporate Storage Area. During September 21-22, the Board's Cognizant Engineer—with oversight responsibilities for Sandia National Laboratories—conducted a routine oversight visit. This report marks the final action by Dr. Mercier as Cognizant Engineer; he has been properly relieved by Dr. Brown.

TA-V Conduct of Operations and Maintenance Review. During the on-site portion of their review, the Board's review team conducted field observations of the operations and maintenance programs at the SNL TA-V nuclear facilities. This review follows up on an assessment of operations and maintenance activities undertaken by the Board's staff in February 2014 and a Board letter dated May 12, 2014. The scope of the review also included federal oversight by the National Nuclear Security Administration's Sandia Field Office (SFO). During the on-site portion of the review, the review team did not identify any safety issues during the facility walkdowns or during observations of operations and maintenance activities. The Board's staff shared their preliminary observations noting several opportunities for improvement (OFI) with SFO and SNL leaders and managers on September 22, 2016. The OFI topics included more exploration into operational drills and maintenance-specific performance metrics.

Radiation Levels in the Annular Core Research Reactor Facility (ACRR) High Bay Areas: Dating back to July 2015, SNL determined that radiation areas exist in the ACRR High Bay during steady state operations (1%-10% power) due to a change in shielding configuration to support researcher experiments. In 2016, SNL devoted 18 days of reactor operation in support of ACRR High Bay radiation level characterization measurements. SNL is analyzing the data and expects to produce the results of their characterization work later this year.

Sandia Pulse Reactor Facility (SPRF)–Fire Safety. The SFO has been working with Kirtland Air Force Base (KAFB) Fire and Security personnel to update the Memorandum of Understanding regarding fire and security response for the Sandia National Laboratories, New Mexico facilities. The document was approved by SFO management and is now with KAFB officials for their final review and approval.

SNL completed a new fire hazard analysis for the SPRF. It is now under review by SFO.

Annular Core Research Reactor Facility (ACRRF)—Reactor Fuel Modeling. SNL safety basis engineers are making significant progress in verification and validation (V&V) of version 1.0 of their Razorback software code designed to model the response of the reactor fuel for a wide range of thermal-hydraulic conditions. SNL expects to complete a V&V report on the Razorback code later in 2016.