

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 6, 2019

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

Defense Nuclear Facilities Safety Board Staff On-Site Activities: On November 18–21, 2019, the Board’s staff members J.D. Anderson, C. Berg, D.B. Bullen, R.C. Eul, M. McCoy, and S.R. Seprish reviewed weapon response technical basis documents and completed a tour of the neutron generator facility at SNL. During that same time period, the Board’s cognizant engineer for SNL conducted an on-site review that included a walk down of Technical Area V (TA-V); discussions with the Sandia Field Office (SFO) and National Technology and Engineering Solutions of Sandia, LLC (NTESS) staff on the Potential Inadequacy of the Safety Analysis (PISA) and Unreviewed Safety Question (USQ) process at SNL; and discussion of the corrective actions taken in response to the 2019 Emergency Management Exercises.

Annular Core Research Reactor (ACRR) - Wire Rope Failure Causal Analysis Report: On October 24, 2019, NTESS completed a causal analysis on the failure of a wire rope attached to a nickel reflector plate in the ACRR that occurred on September 25, 2019. The causal report identified three issues, five causes, two compensatory measures, and five long-term corrective actions. The corrective actions include; revise procedures to require a pre-lift inspection of the nickel plate rigging equipment; identify a predetermined schedule for wire rope replacement if it cannot be adequately inspected; improve communication by adding Facilities Supervisors to the list of invitees for the condition review board meetings; determine if there are other similar degradation issues; and evaluate design changes to the facility to eliminate the use of the nickel reflector plate.

First Quarter Fiscal Year 2020 Startup Notification Report (SNR): On November 8, 2019, the SFO approved the First Quarter Fiscal Year 2020 SNR that was submitted by NTESS in October 2019. The SFO approved restart activities for portable x-ray activities at the Annular Core Research Reactor Facility (ACRRF), installation and operation of the core grid extension, and reactor operations activities to support neutron radiography at the ACRRF. The SFO requested that NTESS re-evaluate the spare fuel preparation and storage activity at the Auxiliary Hot Cell Facility (AHCf) and re-submit that activity in the Second Quarter Fiscal Year 2020 SNR.

Alternate Methodology Proposal for Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR) for SNL Reactor Facilities: On November 19, 2019, the SFO submitted a request to the NNSA Cognizant Secretarial Officer to approve the use of an alternate methodology for DSAs and TSRs for the reactor facilities at SNL. The alternate methodology document was prepared in accordance with the requirements of DOE-STD-1083-2009, *Processing Exemptions to Nuclear Safety Rules and Approval of Alternative Methods for Documented Safety Analyses*. The proposed approach will use DOE-STD-3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*, as the basis of the methodology and the format, while also using Nuclear Regulatory Commission (NRC) Regulatory Guide 1.70, *Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants* (the safe harbor in 10 CFR 830 for DOE reactors), and other relevant reactor safety guidance documents and standards discussed in the alternative methodology. The SFO has reviewed the submittal and concurred with the approach for this alternate methodology. The SFO requested the approval of this alternate methodology by the Cognizant Secretarial Officer, with the concurrence of the Central Technical Authority, by March 31, 2020.