DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 8, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Sandia National Laboratories (SNL) Report for June 2022

Defense Nuclear Facilities Safety Board (Board) Staff Interactions: On June 14–15, 2022, the Board's cognizant engineer for SNL was on site providing quarterly oversight at SNL. The cognizant engineer completed a walkdown at Technical Area V and held meetings with National Technology and Engineering Solutions of Sandia, LLC (NTESS) and Sandia Field Office (SFO) managers.

Sandia Pulsed Reactor/Critical Experiment (SPR/CX) Facility: On May 31, 2022, SFO approved an exemption from select portions of American National Standards Institute/American Nuclear Society (ANSI/ANS) Standard-8.23, *Nuclear Criticality Accident Emergency Planning And Response*, for the nuclear criticality safety program at the SPR/CX Facility. SFO identified the need for additional defense-in-depth controls for the firefighting scenario at the SPR/CX Facility critical experiments tank. While SFO noted that these additional controls are not required to prevent firefighters from spraying any water into the tank (i.e., non-water-tight barrier), additional controls will reduce the likelihood and mitigate the amount of water that could be sprayed into the tank (e.g., physical barrier on the tank, signage, etc.). SFO directed NTESS to evaluate the situation and propose additional controls to SFO that will be included in the SPR/CX safety basis. SFO expects NTESS to implement these additional controls by February 28, 2023.

Annular Core Research Reactor Facility (ACRRF) Experiment Material at Risk (MAR): On June 15, 2022, SFO approved an NTESS request to temporarily allow the ACRRF to exceed the experiment MAR administrative limit during setup, execution, and disposition of the SPECTRE Phase V and Bambino experiment series activities. These temporarily approved quantities are still within the analyzed, approved MAR limits in the ACRRF Documented Safety Analysis and Technical Safety Requirements. SFO's approval is specific to these two experiment series activities, which are expected to be completed by the end of fiscal year 2023. In its approval, SFO noted that the increased MAR limit directly affects the level of risk associated with ACRRF operations and directed NTESS to notify SFO when the higher MAR limits are in effect. SFO also directed NTESS to provide a final notification when the experiment series associated with this approval are completed and the administrative limits are restored. In addition, SFO noted that before either experiment series can be conducted, all necessary operational changes (e.g., procedures), emergency management documentation, and any associated readiness activities must be completed to ensure compliance with all requirements outside the safety basis.

Radioactive Mixed Waste Management Facility (RMWMF) Personnel Contamination Event: On June 22, 2022, NTESS staff began a causal analysis for the unintentional breach of a plutonium isentropic compression experiment (Pu-ICE) container resulting in minor contamination of a radiological buffer area and minor skin contamination on the hand of a radiological control technician. On June 16, 2022, RMWMF staff were preparing to place the Pu-ICE containment vessel into a configuration to support future shipment to Los Alamos National Laboratory when the inadvertent removal of a vessel port was identified. NTESS staff took proper action to stabilize the situation. NTESS management paused operations at the RMWMF pending the outcome of the causal analysis.