

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 2, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Sandia National Laboratories (SNL) Report for July 2024

Annular Core Research Reactor (ACRR) Evaluation of the Safety of the Situation (ESS) and Justification for Continued Operations (JCO): National Technology and Engineering Solutions of Sandia, LLC (NTESS) submitted an ESS/JCO in response to the positive unreviewed safety question determination addressing the identification of new information that ACRR fuel cladding may exceed the Technical Safety Requirement Safety Limit temperature under certain conditions. (See SNL Monthly Report for June 2024). ACRR staff are currently operating the reactor with limits on reactivity insertion for pulsed operations with the concurrence of the Sandia Field Office (SFO). SFO is currently reviewing the ESS/JCO. The Board's staff will continue to monitor the completion of this process including SFO's review and approval of the JCO.

Mixed Waste Landfill (MWL) – Annual Long-Term Monitoring and Maintenance Report (April 2023 – March 2024): NTESS recently submitted the *Mixed Waste Landfill Annual Long-Term Monitoring and Maintenance Report, April 2023 – March 2024*, to the New Mexico Environment Department (NMED). The report documents the long-term monitoring, inspection, and maintenance activities conducted at the legacy MWL during the reporting period. The report noted that sampling activities for this reporting period included two semiannual monitoring events each for groundwater and radon. The report stated that soil-vapor monitoring was conducted in November 2023, annual soil-moisture monitoring was conducted in April 2023, annual tritium surface soil sampling was conducted in August 2023, and annual biota sampling was conducted in September 2023. All monitoring activities were conducted in accordance with Long-Term Monitoring and Maintenance Plan (LTMMP) requirements, and no monitoring results exceeded LTMMP trigger levels. All monitoring results were consistent with historical MWL monitoring data. The report also noted that inspections of the MWL final cover system, storm-water diversion structures, compliance monitoring systems, and security fence were performed in accordance with LTMMP requirements and that required maintenance and repairs were minor and completed at the time of the inspections. The report concluded that all LTMMP requirements have been met for the April 2023 through March 2024 reporting period, and that, based upon monitoring, inspection, and maintenance and repair results, the cover system, monitoring systems, and related physical controls are performing as designed, and site conditions remain protective of human health and the environment.

Fourth Quarter Fiscal Year (FY) 2024 Startup Notification Report (SNR): On July 9, 2024, NTESS submitted the fourth quarter FY 2024 SNR to SFO. NTESS completed a Readiness Level Determination (RLD) for *Waste Isolation Pilot Plant Mobile Loading Unit Hosting Activities – Plutonium Isentropic Compression Experiments (Pu-ICE) Support*. The NTESS RLD concluded that no readiness activity is required because each Pu-ICE experiment package contains less than Hazard Category 3 quantities present in the loading area and any other materials will be in Type B containers and excluded from the material at risk. NTESS noted that the Pu-ICE material will be sent to the Los Alamos National Laboratory where it will be processed for shipment to the Waste Isolation Pilot Plant as waste. On July 25, 2024, SFO approved the SNR and requested that NTESS inform SFO of the timeframe for work planning and control processes and mobile loading unit activities to allow SFO to provide appropriate oversight.