DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 4, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Sandia National Laboratories (SNL) Report for July 2023

Mixed Waste Landfill (MWL) – Annual Long-Term Monitoring and Maintenance Report (April 2022 – March 2023): National Technology and Engineering Solutions of Sandia, LLC (NTESS) submitted the tenth *Mixed Waste Landfill Annual Long-Term Monitoring and Maintenance Report, April 2021 – March 2022*, 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. As part of the second semiannual groundwater monitoring event conducted in October 2022, perfluoroalkyl and polyfluoroalkyl substances (PFAS), including perfluorohexane sulfonic acid (PFHxS), perfluorooctane sulfonic acid (PFOS), and perfluorooctanoic acid (PFOA), were added to groundwater monitoring. NTESS included these constituents to address an NMED request in July 2021 to evaluate toxic pollutants added to the New Mexico Ground Water and Surface Water Protection regulation since NMED approval of the MWL Long-Term Monitoring and Maintenance Plan (LTMMP)). The report noted that soil-vapor monitoring was transitioned to an annual frequency in accordance with the revised LTMMP and was conducted in October 2022. All monitoring activities were conducted in accordance with 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 within 60 days of the inspections. The report concluded that all LTMMP requirements have been met for the April 2022 through March 2023 reporting period, and that, based upon monitoring, inspection, and maintenance results, the evapo-transpirative cover and monitoring systems are functioning as designed and site conditions remain protective of human health and the environment.

Fourth Quarter Fiscal Year (FY) 2023 Startup Notification Report (SNR): On July 7, 2023, NTESS submitted the fourth quarter FY 2023 SNR to the Sandia Field Office (SFO). NTESS noted there was one proposed activity (x-ray analysis of irradiated Annular Core Research Reactor (ACRR) fuel at the Auxiliary Hot Cell Facility (AHCF)) evaluated by its Readiness Level Determination (RLD) team for entry conditions into the readiness review process. The RDL team noted that the radioactive material involved in this activity is less than Hazard Category 3 (HC-3) quantities and less than the nuclear criticality safety threshold mass limits. Further, the RLD team noted that the AHCF is an operational HC-3 nuclear facility that operates under an approved and implemented safety basis (Basis for Interim Operation and Technical Safety Requirements) for which receipt, handling, inspection, measurement, assay, and storage of the spare reactivity control elements involving less than HC-3 quantities of nuclear material are typical and routine. In addition, the RLD team noted that working with reactivity control elements has been performed by AHCF staff within the last year. The RLD team determined that this activity is not a candidate for a readiness review since all aspects of the activity are within the intent and scope of the activity descriptions for routine AHCF activities except for the use and deployment of the portable x-ray unit. In addition, the RLD team noted that there is no significant impact on the facility safety basis (hazards are bounded with no increase in risk). The checklist for startup of this activity is currently scheduled to be completed in August 2023, pending SFO approval.