DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 7, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Sandia National Laboratories (SNL) Report for April 2021

Technical Area-V (TA-V) Decennial Update of Natural Phenomena Hazards (NPH) and Seismic Assessments: On April 8, 2021, the Sandia Field Office (SFO) responded to correspondence from National Technology and Engineering Solutions of Sandia, LLC (NTESS) dated December 16, 2020, addressing TA-V NPH evaluations submitted as part of the decennial update for the TA-V seismic assessment. NTESS conducted a review of the TA-V site and facility NPH parameters to determine whether any significant changes in NPH data, models, or analytical methods have occurred since the last evaluation in 2010. Due to the significant contribution that seismic-initiated events have on the Hazard Analyses for TA-V's Nuclear Facilities, NTESS prepared an updated Seismic Assessment Report for TA-V. NTESS used these seismic assessments to inform TA-V's Documented Safety Analyses (DSA) and Basis of Interim Operation (BIO). In its response to NTESS, SFO noted that TA-V facilities currently only have safety structures, systems, and components (SSC) classified as NPH Design Criteria 2 (NDC-2) (i.e., safety significant) and that NDC-2 SSCs are not subject to the requirement for periodic review and approval by SFO. However, SFO also noted that in the near future, programmatic activities may require NDC-3 safety SSCs (i.e., safety class) at which time potential system interactions must be considered. During its review of the submitted assessment, SFO determined that NTESS had completed it using outdated requirement standards. The previous Executive Order 12941, *Seismic Safety of Existing Federally Owned or Leased Buildings*, was used instead of the current Executive Order 13717, *Establishing a Federal Earthquake Risk Management Standard*, and DOE-STD-1020-2012, *Natural Phenomena Hazards Analysis and Design Criteria for DOE Facilities*, was used instead of DOE-STD-1020-2016. SFO noted that all future submittals shall be consistent with the current requirements. SFO approval is required before use of NDC-3 SSCs at TA-V.

Annual Full-Scale Emergency Exercise After Action Report (AAR): On April 22, 2021, the NTESS Director of Environment, Safety, & Health submitted the AAR for the Full-Scale Emergency Management Exercise performed on March 10, 2021, to SFO. In its AAR evaluation, NTESS identified deficiencies, issues, improvement items, and noteworthy practices, in accordance with the requirements of Department of Energy Order 151.1D, *Comprehensive Emergency Management System*. NTESS selected twenty-four objectives for evaluation during the exercise; 23 objectives were evaluated, and one objective (SNL-TAV.1 - Actions to Take in an Emergency) could not be evaluated due to the decision by Emergency Management personnel to use mannequins in place of workers due to COVID-19 social distancing requirements. The AAR identified one deficiency, 29 opportunities for improvement, and two noteworthy practices. The Corrective Action Plan for this exercise is due in June 2021.

Federal Readiness Assessment (FRA) for In-Service Fuel Cladding Inspections at the Annual Core Research Reactor (ACRR): On April 12–21, 2021, the National Nuclear Security Administration completed an FRA of In-Service Fuel Cladding Inspections at ACRR. At the completion of their assessment, the FRA team concluded that all eight Functional Area Objectives for this assessment were met. The FRA team identified one Pre-Start Finding associated with the flow down of requirements for the limit on the allowable number of fuel elements assembled in the reactor pool outside of the reactor core. The FRA team concluded that ACRR In-Service Fuel Cladding Inspections should be allowed to commence after the Pre-Start Finding has been corrected. The FRA team will finalize its report in early May 2021.