

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 7, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: Sonia G. Thangavelu, Ph.D., Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for May 2024

DNFSB Staff Activity: On May 7–8, 2024, the Board’s Chair and cognizant engineer for NNSS participated in the Department of Energy (DOE) Security and Enforcement workshop, and performed walkdowns at the Device Assembly Facility (DAF) and Principal Underground for Subcritical Experimentation (PULSE). The following week, the cognizant engineer observed execution of a subcritical experiment at PULSE. During the week of May 20, a DNFSB staff review team interacted with the design nuclear weapon laboratories, Joint Laboratory Operations Nevada, Mission Support and Test Services, LLC (MSTS), and Nevada Field Office (NFO) personnel to discuss the approach used to develop device response methodologies and dynamic criticality safety evaluations of subcritical experiments.

Update to Linear Accelerator (LINAC) Oil Potential Inadequacy in the Safety Analysis at DAF. As mentioned in the NNSS monthly report for February 2024, MSTS issued operational restrictions to prohibit high explosive and radiological materials in the radiography building until new compensatory measures are identified for a 62-gallon transformer oil pool fire event originating from the LINAC machine. In April, MSTS resubmitted the evaluation of the safety of the situation (ESS) to NFO for approval. The ESS uses a new fire modeling analysis to conclude fire scenarios (e.g., ignition and combustible initiators) needed to heat the transformer oil to a temperature greater than its flash point temperature is unlikely to occur, and actuation of the credited fire suppression system would maintain the temperature below the conditions required to ignite and sustain combustion of the transformer oil. The ESS identified compensatory measures including visual inspections to verify no oil leaks from the LINAC machine, lift table, and cylinder tanks prior to start of operations in the radiography building, and an action to update the DAF safety basis with the new fire analysis. On May 10, NFO approved the ESS and concluded the operational restriction can be removed once the ESS is implemented.

Third Quarter Startup Notification Report (SNR). MSTS resubmitted the third quarter SNR, as required by DOE Order 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities*, to NFO with revised startup schedules for the oxide capability and coordinate measuring machine contractor readiness assessments. The SNR also includes a revised schedule for the Nevada capability plan of action, contractor and federal readiness activities, and submittal of the safety basis. NFO approved the SNR on May 21.

Independent Assessment of Safety Systems Management (SSM) at DAF. On May 6, the DOE Office of Enterprise Assessments issued a report documenting an independent assessment of SSM performed from November 2023 to March 2024 at DAF. The purpose of the assessment was to evaluate whether the safety class blast door interlocks and fire dampers functional classifications are appropriate, and the controls are implemented properly to ensure their intended safety functions can be reliably performed during DAF operations. The report identified four strengths and several weaknesses, and concluded MSTS has established generally adequate SSM programs.