

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 2, 2021

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Austin R. Powers, Cognizant Engineer  
**SUBJECT:** Nevada National Security Site (NNSS) Report for June 2021

**DNFSB Staff Activity:** A. Powers and D. Montierth visited the site during the week of June 7 to perform walk downs at the various defense nuclear facilities, accomplish activities necessary to maintain site and facility access, and discuss the status of updating safety basis documents.

**Enhanced Capabilities for Subcritical Experiments (ECSE) Project:** In June, the Nevada Field Office (NFO) approved a revision to the safety design strategy (SDS) for the ECSE project. The NNSS Monthly Report for February 2019 discusses the original work scope of the ECSE project identified in the initial SDS submittal. In the recent revision to the SDS, Mission Support and Test Services, LLC (MSTS), eliminated the installation of a reactivity measurement system from the ECSE project scope and included it in the U1a.03 Test Bed project scope (see NNSS Monthly Report for March 2021). In addition, MSTS incorporated the following into the revised SDS: resolved a NFO comment on a previous revision of the SDS; included responses to NFO's comments on the draft preliminary documented safety analysis (PDSA); identified the need to use an alternative location for the co-located worker when analyzing the potential dose consequences for seismic-initiated explosion scenarios; and referenced the basis for reducing the seismic hazard underground at the U1a Complex (see NNSS Monthly Report for April 2021).

NFO developed a safety review letter and concluded that the revised SDS contains adequate information and background to continue with the design process for the ECSE project. However, NFO identified one issue regarding the final design of the fire extinguishing system. In the SDS, MSTS commits to providing the specifications for the fire extinguishing system in the PDSA. However, MSTS would not complete the final design of the fire extinguishing system until after the PDSA is submitted (the proprietary technology of the system requires the manufacturer to design the system as part of a design-build approach). In the safety review letter, NFO stated that the PDSA is required to demonstrate the adequacy of the project's design from the safety perspective. Therefore, if the PDSA does not include the final design of the fire extinguishing system, NFO stated that a condition of approval will be identified that will require MSTS to submit a revision to the PDSA that incorporates the system's final design. In addition, NFO must review and approve the revised PDSA prior to the installation of the system.

**Operational Event at the Device Assembly Facility (DAF):** In April, DAF personnel identified radioactive material being staged between the interlocked equipment passageway doors for a building where this is prohibited. Upon discovery, MSTS transitioned the building to the appropriate operational mode and moved the radioactive material to an area within the building where staging of material is authorized. As a result of this event, MSTS declared a potential inadequacy of the safety analysis. In June, MSTS developed an evaluation of the safety of the situation and established compensatory measures that prohibit the staging of radioactive material (for two DAF buildings) and high explosives (for all DAF buildings) between the interlocked equipment doors. MSTS plans to revise the appropriate procedures and formally incorporate the necessary changes into the DAF safety basis during the annual update process.