

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 5, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Austin R. Powers, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for July 2022

DNFSB Staff Activity: The staff conducted no onsite activities at NNSS during July.

Criticality Safety Infraction at Device Assembly Facility (DAF): For staged fissile material at DAF, each container is assigned a criticality safety index value (defined in Title 10 Code of Federal Regulations, Part 71, *Packaging and Transportation of Radioactive Material*). The criticality safety index value depends on the fissile material type, fissile material mass, and packaging material in each container. Each staging building at DAF has a total criticality safety index limit, which the sum of the index values for each container in the building cannot exceed. In late June, Lawrence Livermore National Laboratory (LLNL) and Mission Support and Test Services, LLC (MSTS), personnel found that each entity's inventory log, which tracks the total criticality safety index, did not match for a DAF staging building. MSTS personnel placed an administrative hold on the building until a 100 percent inventory could be performed on all the containers. The inventory check revealed that the LLNL and MSTS inventory lists were both incorrect and that the building exceeded the criticality safety index limit. This resulted in a criticality safety infraction and MSTS suspending all operations in the DAF building. Personnel from the LLNL Nuclear Criticality Safety Division performed an assessment of the criticality safety infraction and found several containers in the building without a criticality safety index label. They also found several containers without an assigned criticality safety index value and label. Given the issues identified in this DAF staging building, LLNL personnel also assessed the other staging building at DAF. They found that this building was well below the criticality safety index limit but identified additional containers without an assigned criticality safety index value and label. LLNL personnel developed a recovery plan, which primarily focuses on bringing the buildings back into compliance with the criticality safety controls. Actions from the plan include properly assigning index values for containers, posting labels on containers where needed, and moving material/containers out of the building that exceeds the total criticality safety index limit. LLNL personnel are currently preparing a final report on the infraction, which will include corrective actions to prevent reoccurrence.

U1a Complex Vessel Confinement System: Nevada Field Office (NFO) personnel performed an operational awareness assessment on whether the U1a Complex's credited vessel confinement system could pass the in-service inspection to verify that the vessel is qualified in accordance with American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 3, Code Case 2564. From the assessment, NFO identified discrepancies between the code and the fabrication of the vessel, such as the vessel being constructed from a steel type that is not recognized by the code and the vessel not having the appropriate certification marks after required inspections and tests are completed. As a result, MSTS personnel declared a potential inadequacy of the safety analysis and determined the discrepant as-found condition involved an unreviewed safety question. MSTS personnel are currently preparing the evaluation of the safety of the situation document and plan to resolve the issue by revising the U1a Complex safety basis.