

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 7, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Sonia G. Thangavelu, Cognizant Engineer
SUBJECT: Nevada National Security Site (NNSS) Report for September 2022

DNFSB Staff Activity: In August, M. Dunlevy and J. Flora attended the two-week criticality safety course on-site. During the week of September 25, S. Thangavelu and D. Bullen went on-site to perform walk downs at the various defense nuclear facilities and discuss the status of safety basis document updates and deliverables.

Technical Safety Requirement (TSR) Violation of Portable Radiography Specific Administrative Control (SAC) at the Device Assembly Facility (DAF). In August, a Los Alamos National Laboratory employee working at the DAF received and inspected a radiation generating device (RGD) package shipped from Oak Ridge National Laboratory to the DAF receiving warehouse. The employee inspected the RGD package then transferred it to a building at DAF for storage overnight. The next day, the employee became concerned that a key to the RGD may have been present within the RGD package, which would represent a noncompliance with a SAC that requires control of keys to portable radiography equipment when not in use. The employee notified the National Criticality Experiments Research Center (NCERC) facility operations director of the possible deficiency. The director and employees opened the RGD package and discovered a key present within the packaging. The director contacted a qualified radiographer to take control of the key and remove it from the DAF. This resulted in a pause of all DAF operations, and personnel performed an extent-of-condition evaluation to determine if other RGD packages present at the DAF contained keys. None of the other packages contained keys, and the evaluation concluded that the keys to each of the RGD packages are properly controlled. NNSS personnel are currently conducting a causal analysis of the event.

In-Service Inspection (ISI) of a Vertical Lift Assembly at DAF. The vertical lift assemblies at DAF are designed to perform critical and subcritical experiments to collect data and establish criticality safety benchmarks. In July, personnel discovered nuclear material had been placed on the assembly support element before an ISI could be performed. The TSR requires an ISI to be performed and verify that the support element of vertical lift assemblies can support a load based on an approved calculation. Personnel contacted the NCERC facility operations director to determine if nuclear material was allowed on the support element prior to performing the ISI. The director then contacted safety basis personnel, who concluded nuclear material should not have been present in the assembly prior to performing the ISI. This resulted in a pause of all criticality assembly operations at DAF. A fact-finding meeting was conducted and concluded that an ISI must be fully documented and performed for any experiment on the vertical lift assembly prior to placing nuclear material on the support element.