

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 30, 2023

**TO:** Katherine R. Herrera, Acting Technical Director  
**FROM:** Frank Harshman, Resident Inspector; David Andersen, Acting Resident Inspector  
**SUBJECT:** Oak Ridge Activity Report for Week Ending June 30, 2023

**Staff Activity:** D. Andersen, the Oak Ridge cognizant engineer, travelled to the Y-12 National Security Complex and Oak Ridge National Laboratory (ORNL) this week to augment resident inspector coverage. The resident inspectors attended HAZWOPER training this week. The acting resident inspector continued familiarization with Y-12 facilities (see 6/9/2023 report) by conducting walkdowns in Buildings 9204-2E, 9720-5, and 9720-82. In Building 9204-2E, the acting resident inspector observed a surveillance activity for the criticality accident alarm system, required by that facility's technical safety requirements. While on-site, the acting resident inspector also discussed the safe storage of materials that will be processed in reduction operations at Building 9212. The reduction process is paused due to pressure excursions (see 1/6/2023 report) until a path forward for resumption of operations can be finalized. At ORNL, the resident inspectors walked down waste storage facilities with OREM management.

**Building 9720-82:** During movement of a high-mast forklift, one of the forklift outriggers impacted the baseplate of a storage rack structural steel column. There was no nuclear material on the rack and the damage to the baseplate was minor. The forklift was travelling through a storage bay to a neighboring bay and was not carrying nuclear material at the time of the incident. While travelling between storage racks, these forklifts use a wire guidance system embedded in the floor to control the forklift's travel path and prevent impact into the storage racks. CNS has paused high-mast forklift operations within Building 9720-82 until the cause of the collision can be determined and plans to conduct an event investigation.

**Building 9720-5:** In 2021, the Defense Nuclear Facilities Safety Board (Board) transmitted Technical Report 47, *Seismic Hazard Assessments*, to the Secretary of Energy, discussing concerns with the seismic hazard assessment process at DOE sites. In mid-2022, as follow-up, the Board questioned whether the unreviewed safety question (USQ) process needed to be invoked when an update to a probabilistic seismic hazard analysis resulted in qualification assumptions for seismic safety controls being exceeded. In response, DOE clarified that the USQ process applied in those situations, developed an Operating Experience, and broadened expectations beyond seismic to other natural phenomena hazards (NPH) such as wind, tornado, and flood. Recently, CNS developed an updated probabilistic flood hazard analysis for Y-12 and determined most facilities were not affected by the new flood hazard levels. However, CNS determined the new flood hazard estimates were not potentially bounded by the current safety analysis for criticality safety concerns at Building 9720-5 and declared a potential inadequacy of the safety analysis, consistent with the recent DOE guidance on increased NPH estimates. CNS has implemented storage restrictions in certain areas of Building 9720-5 and is further assessing the results of the flood study. The acting resident inspector conducted a walkdown with CNS personnel of the affected storage areas and observed material retrieval activities that were being conducted to bring the areas into compliance with the new restrictions. On a separate walkdown, the acting resident inspector, accompanied by CNS personnel, validated container stacking heights for select storage cages to verify compliance with posted height restrictions. The height restrictions ensure adequate criticality accident detection and fire protection sprinkler coverage.