

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 8, 2022

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Frank Harshman, Clinton Jones, and Brandon Weathers, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending July 8, 2022

**Building 9204-2E:** CNS determined the inoperable criticality accident alarm system issue (see 6/24/22 report) met the criteria for a potential inadequacy of the safety analysis. The declaration was based on the potential that the installation of these additional indicator lights may have created: 1) an accident of a different type (failure mode or mechanism), or 2) a situation where a non-safety system is capable of failing a safety system, that has not been adequately evaluated in the Safety Analysis Report. A temporary modification was completed to remove the remaining indicator lights to prevent reoccurrence.

**Conduct of Operations:** CNS is creating a facility operations management (FOM) specific training on conduct of operations and performing an independent evaluation of the conduct of operations program in Building 9204-2E in response to the recent criticality accident alarm system issue and elevated turnover of employees. CNS will use the Building 9204-2E assessment as a template to evaluate other FOM organizations and NPO plans to shadow the assessments.

**Special Nuclear Material Vehicle (SNMV):** A resident inspector met with CNS personnel to discuss his observations after reviewing a revision of the SNMV vehicle crash analysis. CNS made a significant change to the assumptions used for the vehicle crash when the SNMV is transporting chip dollies (which contain enriched uranium chips and a liquid). To accommodate the desired chip dolly loading limit on the SNMV, CNS performed a calculation to determine the forces that the cargo restraint straps and pins were expected to experience in a vehicle crash. The resident inspector had several interactions with CNS to discuss whether the acceleration values were appropriate. The resident inspector ultimately questioned whether CNS was adequately implementing inspections of the cargo restraint straps prior to use. The criticality safety evaluation only designated this inspection as an “operational best practice.” The inspection is at the discretion of production personnel to implement on a facility-by-facility basis in the facility-specific loading procedures. An inspection is also required by the site-level SNMV load verification form. The resident inspector found that the SNMV load verification form did not designate the cargo restraint strap inspection as important for nuclear criticality safety. He also found that some facility-specific procedures refer to a container and material handling procedure that covers many aspects of fissile material handling. Without elaborating on the precise requirements in the facility-specific procedures, a general reference to the container and material handling procedure may result in the user not being cognizant of the intended information.

**Aging Infrastructure:** The Y-12 analytical chemistry laboratory (Building 9995) continues to be challenged with a number of temperature and humidity issues as a result of a material deficiency in its chill water system. These issues are specifically impacting the gas chromatograph instrumentation and the thermal ionization mass spectrometry instrumentation in the isotopic laboratory. CNS’s attempts to mitigate temperature and humidity effects utilizing portable air condition units have not been completely effective.