

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 7, 2021

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** Matthew Duncan and Brandon Weathers, Resident Inspectors  
**SUBJECT:** Oak Ridge Activity Report for Week Ending May 7, 2021

**Nuclear Criticality Safety:** Last week, CNS issued a nuclear criticality safety deficiency due to moisture content sample data that exceeded the limit specified in the certificate of compliance for the ES-3100 shipping package containing the material in the Highly Enriched Uranium Materials Facility. The applicable nuclear criticality safety evaluation required that the ES-3100 shipping package be loaded with containers that meet the certificate of compliance. Numerous CNS reviews did not identify that the moisture content was above the ES-3100 packaging limit. When a CNS statistician recognized the high moisture content in December 2020, other personnel likely overlooked an email with that information. The statistician rejected the shipping package in a database, but a physical hold tag was not applied to the ES-3100. Operators also misapplied the ES-3100 packaging form by using a copy that had partially pre-filled data that is used for a different material form code. The pre-filled form had “historical” entered as the moisture content. During the event investigation, NPO questioned how CNS determined that entering “historical” as a default moisture content was appropriate for any material form codes and whether nuclear criticality safety personnel were involved with reviewing that practice. NPO also raised a question regarding the potential for the packaging non-compliance to be violation of a credited hazard control in the documented safety analysis for the special nuclear material vehicle. CNS created actions at the critique meeting in response to the NPO questions.

CNS plans to send the package to Building 9212 and sample the containers again since there were questions during the event investigation about whether the original high moisture sample data was accurate. Personnel believe that the physical form of the material would have been notably different and visible to the operators if the material had a high moisture content.

**Building 9204-2E:** Following the second discovery of liquid on a two-cylinder chip dolly last week, CNS increased the surveillance frequency from quarterly to monthly (see 4/30/21).

Separately, operators questioned the contents of a can that contained floor sweepings. The operators established administrative control of the area and contacted nuclear criticality safety and radiological control personnel. A qualitative non-destructive assay scan indicated the presence of enriched uranium. Nuclear criticality safety personnel provided guidance to place the can in a bag and handle it in accordance with an applicable criticality safety evaluation. A follow-up quantitative non-destructive assay scan determined that the can contained 0.5 grams U-235. The level of U-235 relative to the total mass of material in the can confirmed it should not contain more than contamination levels of material. The operators demonstrated good awareness to a suspect condition and took appropriate actions.

**Waste Shipments:** CNS successfully shipped the first Y-12 low-level waste to the Nevada National Security Site for disposal under the reinstated Y-12 waste certification program (see 7/12/19, 7/19/19, and 4/2/21 reports). Work required to approve disposal of weapons-related material continues.