

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 10, 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 June 10, 2022

Radiological Protection: A Building 9206 chemical operator was contaminated when splitting a liquid sample that exceeded the offsite shipping criteria for enriched uranium gram quantity. This was a legacy sample that had settled into separate liquid phases. Prior to splitting the sample, the operator agitated the bottle to ensure the solution was homogenous. When the chemical operator opened the bottle, it sprayed liquid on his chest. Due to the operator using the wrong radiological work permit, and subsequently incorrect personal protective equipment, elevated activity was detected on the employee's personal shirt, badge, and dosimeter. The badge had the maximum measured activity of 20,657 disintegrations per minute per 100 cm² alpha. The contaminated individual submitted nasal smears and the results were less than the minimum detectable activity. This is the ninth personnel contamination event at Y-12 this calendar year, all of which were below the DOE Occurrence reporting threshold.

One of the corrective actions from this event was to create a new procedure to govern processing sample bottles. CNS found that the current procedure type (job performance aid) does not provide enough detail for this activity. A resident inspector had previously sampled various Y-12 technical procedure types and noted several observations regarding the job performance aid procedure type (see 4/22/22 report). Specifically, the resident inspector found that the space limitation of a single page for job performance aids can present challenges when a more detailed procedure would be beneficial. CNS will replace the existing job performance aid with a more thorough operating procedure.

Building 9204-2: Two Cell Operators were performing routine cleaning/skimming of a cell and placing the salvage in a shim pot. As the salvage was being placed into the shim pot it began a reaction which is an expected condition. The operators attempted to neutralize the reaction with lithium salt. The salt failed to stop the reaction and flames continued to grow. The operators closed the cell lid and placed the lid on the shim pot in order to get it under an argon purge. The argon purge did not appear to be working so both operators immediately left the cell platform to retrieve coke. A small "pop" occurred moving the shim pot lid ajar. While operators were returning to the platform to extinguish the flames with the coke, the shim pot lid was ejected. The lid landed near the center of the platform approximately 2 feet from the shim pot. Material was dispersed on the platform, surrounding cell area, and operator's flame retardant cell suits. Operators immediately evacuated the area and called the onsite emergency services. No one was injured during this event. Building 9204-2 is a less than hazard category 3 facility that is adjacent to Building 9204-2E.

Nuclear Criticality Safety: CNS decided to enter the formal event recovery and notification process to investigate the storage violations in Building 9995 (see 6/3/22 report). As noted in the prior DNFSB weekly report, the resident inspectors questioned why this event was not screened into the formal investigation process. NPO also raised questions about that decision. CNS held the initial investigation meeting on Monday and will reconvene next week.