

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 24, 2025

TO: R. T. Davis, Acting Technical Director
FROM: Frank Harshman and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending January 24, 2025

Building 9212: A resident inspector attended the investigation and critique for an event where an unexpected amount of material was discovered during a ventilation filter replacement. The ventilation filters are routinely changed out when differential pressure across the filters reaches a pre-defined action level. Operators were required to take measurements inside the filter housing for upcoming unrelated maintenance during the change out. This necessitated the use of a flashlight not normally utilized during routine filter changes. The operator observed material sitting on a previously unknown horizontal surface inside of the filter plenum while utilizing the flashlight. At the time, there was no procedural requirement to inspect the filter housing or associated ducting when changing the filters. The operator's initiative to inspect the housing during the measurements was the sole reason the material holdup was identified. Building personnel were unaware of the accumulation and the horizontal surface, and thus this area was not included in routine nondestructive assay surveillances or scheduled for periodic cleanout. The horizontal surface was not indicated on the ventilation system drawing which contributed to this issue. The shift manager (SM) entered the procedure for abnormal condition involving fissile material, established an administrative boundary in the work area, made a building announcement, and informed nuclear criticality safety (NCS) personnel of the issue. CNS held a planning meeting with all relevant stakeholders to determine the path forward. NCS personnel, with SM concurrence, directed the cleanout of the filter housing utilizing small vacuums and NCS compliant containers. Operators commenced cleanout of the filter housing which took approximately 8 total hours over two shifts to complete due to the amount of material present. Nondestructive assay technicians measured the material and found it to contain approximately five percent fissile material. The quantity of fissile material was below the limits permitted in the criticality safety evaluation. CNS created a number of actions as a result of the event investigation and critique, including revising the filter change-out procedure to include inspection, and cleanout tasks and conducting an extent of condition review of similar ventilation configurations.

Aging Infrastructure: The operations center received a report of water coming out of the ground adjacent to Building 9215. Utilities operators investigated and determined the source to be an underground potable water main. At Y-12, the potable water system also provides water for fire suppression systems in the facilities. CNS elected to delay the excavation and repair of the water line due to concerns of overexposing the piping to freezing temperatures. The SM verified sufficient fire suppression water pressure in Building 9215 and determined that the fire suppression systems were operable even with the leaking piping. Once temperatures became more favorable, the SM entered the appropriate limiting conditions for operation (LCO) for the loss of fire suppression that is experienced during the repair. CNS completed the excavation and repairs of the underground water line. The SM exited the LCO once operability of the fire suppression systems could be verified. Y-12 has experienced several recent water line breaks due to the age of the underground piping (see 05/23/2023, 07/12/2024, and 11/15/2024 reports). CNS has identified 26 water pipe sections as high-risk and is systematically replacing the piping.