DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 12, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending February 12, 2021

Radiological Protection: In response to the reportable personnel contamination event in January, NPO issued two performance problems to CNS (see 1/22/21 report). In that event, a chemical operator contaminated his forearm after decontaminating empty cans that had previously contained uranium oxide. While reviewing the radiological work permit, CNS discovered that a revision in 2014 had removed a requirement to wear an apron and sleeves. However, the job hazard analysis continued to require it and the operator was wearing an apron and sleeves. The first NPO performance problem is due to the radiological work permit specifying personal protective equipment that was inadequate for the work conducted. The second performance problem questioned whether workers consistently choosing to wear personal protective equipment beyond what was required in the radiological work permit indicated a cultural problem due to a lack of a questioning attitude and accepting inadequate work control documents. CNS owes NPO a response to the performance problems within 45 days.

Three personnel contamination events have occurred since the three events in January. In the first event, an assembly person working in Building 9204-2E contaminated their company shirt. Radiological control personnel did not find any indication of skin contamination. In the second event, a chemical operator had contamination on their company pants after working in a depleted uranium foundry. In the third event, a Building 9212 chemical operator had contamination on their company shoes. Radiological control technicians investigated the route that the operator traveled from the work area to the radiological buffer area and discovered elevated activity on the underside of an item that had been bagged to prevent contamination. The technicians found a tear in the bag. The item in the bag was difficult to manage due its weight and an edge of the item wore through the bag and possibly contacted the floor. The measured levels of contamination in all of these events were below the occurrence reporting threshold.

Building 9212: CNS entered the new information process for an overdue preventive maintenance activity for a wall thickness inspection on the hydrofluorination bed (HFB) process gas heater in the oxide conversion facility. The process gas heater is part of the HFB primary confinement system that is a credited passive design feature for safety. Since discovering the issue, CNS performed the preventive maintenance activity and did not find any signs of degradation. Based on the satisfactory inspection results, CNS concluded that a potential inadequacy of the safety analysis did not exist. The oxide conversion facility was already in an outage when the overdue inspection was discovered. Remaining outage activities include replacing the rupture discs, which were subject to a temporary modification (see 8/21/20 report).

CNS completed the permanent isolation of the primary intermediate evaporator and secondary intermediate evaporator systems. CNS has permanently isolated three systems this year, including the out of service muffle furnace that was isolated last month (see 1/15/21 report). Other than the personnel contamination event due to an item breaching a bag that was used to cover it (noted in the radiological protection entry above), no other issues were reported.