

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 21, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending June 21, 2019

Emergency Management: Last week, CNS successfully restarted operations involving the use of hydrogen fluoride without issue. CNS completed the after action report for the hydrogen fluoride event that resulted in declaration of an operational emergency further classified as an alert in April (see all April and 5/31/19 reports). Of the 65 applicable emergency response objectives, 62 were met. There were two deficiencies and eleven improvement items. One deficiency was that implementation of building evacuation and assembly station operations procedures could be improved. For example, at least one building was directed to perform an “orderly evacuation”, which is not a formal protective action. The other deficiency was that the incident commander did not request approval from the plant shift superintendent—who was the emergency director at the time—prior to relinquishing command to a shift manager in Building 9212. CNS and NPO appear to have thoroughly evaluated the response to the event and developed action items that should improve future responses. There were thirteen distinct action items; several are expected to be completed within the next month and most are expected to be completed by the end of the year.

Radiological Protection: There were four non-reportable (i.e., minor) personnel contamination events in the past two weeks. For the two that warranted it, CNS held good fact finding meetings to determine what happened and consider whether changes are warranted to reduce the likelihood of similar events. CNS tracks the rate of personnel contamination events. As of the end of May, there were 28 events over the last 12 months. There were 27 events over the previous 12 month period—two were reportable. This is below recent historical levels. For the past year, the rate of personnel contamination events per 10,000 radiological work permit entries has been approximately 1.

Last week, an analytical laboratory technician in Building 9995 performed routine metal splitting and breaking using tweezers on a small sample of depleted uranium chips. The technician noticed something unusual in his mouth and spit out a small piece of metal debris. Radiological control personnel responded and took appropriate actions. This week, in preparation to transfer enriched uranium dissolved in nitric acid between two wings in Building 9212, a chemical operator opened a valve which sprayed solution onto his anti-contamination clothing. Some of the acidic uranium solution landed on his cheek. He had also been wearing goggles. Radiological control personnel responded and took appropriate actions. The plant shift superintendent conservatively called for an ambulance and the operator went to the onsite medical department where he was fully decontaminated. The operator was not harmed.

Nuclear Criticality Safety (NCS): DOE published an [operating experience summary](#) regarding the multiple discoveries of unexpected accumulations of uranium in processing equipment at the Y-12 National Security Complex in 2017 and 2018. Operating experience summaries are an excellent way to share lessons learned with personnel at other DOE facilities.