

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 31, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending May 31, 2019

Building 9212: Weeks ago, CNS successfully drained and purged the hydrogen fluoride system that was the subject of a small leak within the cylinder enclosure. CNS determined that the most likely source of the hydrogen fluoride leak within the cylinder enclosure was at the hydrogen fluoride cylinder valves (see 4/5/19, 4/12/19, 4/19/19, and 4/26/19 reports). Maintenance personnel tightened the cylinder valve packing nuts in accordance with manufacturer specifications to fix this leak. CNS has also replaced the two failed rupture discs in the vaporizer enclosure and is performing failure analysis. Work to prepare the system for resuming operations has been challenged by failures of the post-maintenance tests for the portion of the system with the replaced rupture discs. The post-maintenance tests indicate that there is a leak in a section of piping and valves between the two rupture discs that is used for calibration. This section of piping is being removed to aid in identifying the leak and will be reinstalled after a repair is made. This leak is separate from the hydrogen fluoride cylinder valve leak that alarmed the hydrogen fluoride detectors on April 4.

Waste Storage: NPO recently issued a letter approving CNS's request to store low-level radioactive waste in model number 9979 containers beyond the one year storage limit for waste with an identified path to disposal that is stated in DOE Manual 435.1-1, *Radioactive Waste Management Manual*. CNS made this request because the 9979 container certificate of compliance was revised in August 2018 and several waste containers that were packaged prior to the revision do not meet two of the new requirements. The revised certificate of compliance requires a minimum nine percent void volume in the inner container and that the shipping period must be no more than 180 days from the date that the inner container is closed. These new requirements are meant to prevent hydrogen gas from reaching the flammability limit within one year of closing the inner container based on the limiting gas generation and gas permeation rates analyzed for the 9979 container. CNS has approximately 130 previously packaged 9979 containers that were not packaged with consideration of the nine percent void volume requirement. CNS is working with the 9979 container design owner, Savannah River National Laboratory, to perform additional testing and calculations that may provide a technical basis for revising the certificate of compliance to allow the existing containers to be shipped without repackaging. An additional non-conformance issue was identified this year related to 9979 containers that have isotopes in the waste that are not listed in the certificate of compliance. An amendment to the certificate of compliance is required for the affected containers to be shipped.

Building 9204-2E: There have been three nuclear criticality safety issues identified in the facility this month, including a repeated issue on the same day. The first minor noncompliance was issued due to the discovery of oil on a HEPA filter housing for a glovebox. The potential for oil in this location was not considered in the criticality safety evaluation. The second minor noncompliance was due to a portion of a portable work table overlapping another piece of equipment in a storage array. Later that same day, the work table was found to again be in an overlapping condition. The storage array event was elevated to a deficiency.