

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 7, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending August 4, 2017

Board member J. Connery visited Oak Ridge to hold discussions with federal and contractor personnel on the status of activities at ORNL facilities and the Y-12 maintenance program. Board member J. Connery also observed portions of a staff review of the Y-12 Building 9204-2E and 9215 Complex electrical infrastructure.

Staff members P. Foster, A. Gwal, and R. Oberreuter were at Y-12 to review the Building 9204-2E and 9215 Complex electrical infrastructure. K. Deutsch, R. Jackson, S. Thangavelu, and M. Wright were in Oak Ridge to observe an NNSA final design review of the Uranium Processing Facility project.

Building 9212: Enriched Uranium Operations (EUO) personnel held a fact-finding meeting this week to evaluate the circumstances surrounding an event in which an operator identified a cracked lid on a 150 mL plastic sample bottle containing uranium oxide. The operator who identified the crack in the bottle immediately backed away from the container and contacted the area supervisor. Nuclear criticality safety (NCS) staff provided the shift manager several options for NCS-approved configurations that would contain a potential leak from the bottle. In accordance with this guidance, the shift manager directed EUO personnel to wrap the bottle in a plastic bag. EUO operators subsequently identified 23 additional sample bottles with cracked lids. These bottles were also dispositioned in accordance with NCS guidance. During the fact-finding meeting, EUO management noted that there was no defined disposition path for the materials contained in these sample bottles and that this issue extended to hundreds of sample bottles in storage at Building 9212. As such, many of these sample bottles have been in storage for more than a decade, with a few in storage for more than 20 years. The fact-finding meeting attendees identified an action to define a disposition path for existing and newly generated sample bottles.

Building 9225-3: CNS held a fact-finding meeting to discuss an unexpectedly large accumulation of acetonitrile (ACN) in a vessel that is part of the vapor recovery system. Several years ago, the CNS emergency response organization responded to a spill of ACN in Building 9225-3 that originated from the same tank (see 12/19/14 report). During normal operations this week, chemical operators identified an abnormally high reading on the vessel's level indication and, in response, avoided a spill by safely pumping the excess liquid to a different vessel as required by their operating procedure. During the fact-finding meeting, facility personnel noted that the excess accumulation occurred after a chemical operator did not align system valves in accordance with the operating procedure. Additionally, attendees identified several corrective actions to prevent recurrence including improvements to the operating procedure and to the human-machine interface used by chemical operators to manipulate system valves.

Criticality Accident Alarm System (CAAS): The Building 9212 shift manager entered the appropriate Technical Safety Requirements limiting condition of operation after the Plant Shift Superintendent's office received multiple alarms related to the facility's CAAS annunciation capability. Recently, CNS has responded to multiple issues related to degraded legacy CAAS annunciation (see 3/17/17 report) and detection (see 4/28/17) components. In this case, system engineers identified a failed component in the facility's Emergency Notification System, which serves to amplify local CAAS alarms. Maintenance workers replaced the failed component with no incident.