

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Steven Stokes, Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending December 19, 2014

Operational Emergency (OE): The Plant Shift Superintendent (PSS) declared an OE (Alert) due to a small spill of acetonitrile (ACN) in Building 9225-3. The PSS activated the Emergency Response Organization (ERO) and directed manning of the Technical Support Center and Emergency Operations Center. Personnel evacuated Building 9225-3 and occupants in several nearby non-nuclear facilities were directed by the PSS to shelter in place. The spill was discovered when multiple alarms activated in the facility's control room and the PSS office. After Operations personnel visually confirmed the spill without entering the area, the Shift Manager halted operations which stopped the leak and cleared the alarms as vapors dispersed. The spill area was roughly 4 feet in diameter and appeared to have leaked from a vent hood in the vapor recovery system. Y-12 Fire Department (FD) personnel responded and were able to visually inspect the spill and confirmed that the ACN had evaporated after several hours. ERO personnel created a re-entry plan and operators, wearing the appropriate protective equipment and supported by the FD, re-entered the facility and verified that certain valves were in the proper position and no additional leaks had occurred. Re-entries were conducted using remote air monitoring with facility sensors and local air monitoring by the FD using handheld instruments. Upon completion of these re-entries into the facility, the Emergency Director terminated the OE as the conditions inside the facility were confirmed to be stable. CNS Engineering, Operations, and Maintenance organizations are evaluating possible failure modes and creating work packages to start diagnostic investigations into the cause of the leak.

Criticality Accident Alarm System (CAAS): In November 2013, field calibration personnel performed a review that included evaluations of CAAS calibration activities. They noted that the basis for the set points of detectors needed to be enhanced to align with the use of new digital calibration equipment. As a result, Design Engineering personnel developed an analysis to determine the uncertainty associated with Y-12 CAAS detectors. The analysis, which was completed this week, indicates that detector uncertainty is almost 50 percent. Because of this new uncertainty in detector sensitivity, CNS declared a potential inadequacy in the safety analysis (PISA) for the Documented Safety Analyses for all facilities with CAAS coverage and the site-wide Safety Analysis Report. Building 9720-82 was not affected because of its modern design. Building 9720-5 will need additional compensatory measures to address the tighter tolerances assumed in its supporting analysis. The Y-12 Site Manager has implemented a standing order that instructs shift managers how to address the loss of one of two detector stations that provide dual coverage for a given fissile material processing area. CNS safety basis staff will submit evaluations of safety and justifications for continued operations, as appropriate.

Building 9212: In October, an event occurred in which contamination was spread from a ventilation exhaust, Stack 47 (see 11/7/14 report). CNS Engineering and Maintenance organizations are supporting efforts to implement corrective actions. These actions include improving the performance of the primary ventilation exhaust system for the tray dissolvers (Stack 113) by replacing demister filters and sealing paths for in-leakage in the ductwork and housings. The corrective actions also include developing a method to verify adequate air flow is drawn into this primary ventilation system and not out Stack 47, which has no filters. These actions and changes to the operating procedure are designed to maximize the volume of contaminated vapors that are captured by the primary ventilation system, which has a scrubber. CNS senior management has assigned an Action Officer to facilitate implementation and ensure completion of these corrective actions prior to restart of tray dissolver operations.