

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 25, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending September 22, 2017

Board Chairman S. Sullivan was at Y-12 to observe operations and maintenance activities.

Conduct of Operations: Earlier this month, a Building 9204-2E senior supervisory watchstander identified that workers performing a surveillance operation were using the incorrect procedure revision. Subsequent investigation revealed that a new revision to the procedure became effective in late August but was never placed in a binder that operations personnel utilize to manage working copies of procedures. As a result of this event, engineers evaluated whether use of the old procedure impacted the unit undergoing evaluation and found no issues. Additionally, facility management held a fact-finding meeting and identified several corrective actions to improve control of working copies in Building 9204-2E. Although the resident inspectors believe that identified corrective actions will improve procedure control in Building 9204-2E, they note that additional improvements may be warranted given another recent issue caused by poor management of a working copy of a procedure (see 12/23/16 report).

Building 9212: Tray dissolver units are used in Building 9212 to dissolve uranium oxide in a bath heated by steam coils. The condensed steam inside the coils is drained through the accountable steam condensate (ASC) system. If a breach in the coils occurs such that process solution is allowed to enter the ASC system, a safety-significant interlock detects the presence of fissile solution and isolates the system in order to prevent discharge to downstream, unfavorable nuclear criticality safety geometry components. This week, during tray dissolver operations, the ASC isolation interlock activated in response to a leak of fissile solution into tray dissolver steam lines. Operators secured the system and made appropriate notifications. The tray dissolver ASC interlock last activated in 2015 (see 11/6/15 report). As part of the 2015 event response, engineers identified several breaches in the steam coil installed in one dissolver tray and postulated that the defects were caused by age-related degradation. Maintenance personnel subsequently replaced the degraded steam coil, and the tray was returned to service. This week, operators were utilizing different tray dissolver units prior to ASC interlock activation. Enriched Uranium Operations management suspended additional tray dissolver operations pending a critique meeting next week.

Maintenance Management: CNS Y-12 utilities personnel held a fact-finding meeting this week to discuss opportunities to improve the approach taken to address a leak in the hydrogen utility feed to Building 9212. Last December, utilities operators identified the leak during routine rounds and immediately isolated the system, per procedure. The system remained isolated unless it was needed to support Building 9212 reduction fluid bed system (RFB) operations. During RFB operations, Building 9212 operations management personnel instituted a compensatory measure requiring industrial hygiene (IH) technicians to monitor the hydrogen concentration in the area of the leak. Due to challenges procuring replacement parts and the time required to approve design changes needed for the repair activity, the leak was not repaired expeditiously. During an RFB run last month, IH technicians detected a hydrogen concentration greater than the lower flammability limit and operators immediately shut down the RFB. Maintenance personnel repaired the leak shortly thereafter. The fact-finding meeting attendees acknowledged that the repair should have been given a higher priority and identified a corrective action to evaluate the process used to assign its priority level. They also identified an action to evaluate the compensatory measure process to ensure that compensatory measures do not remain open for an extended period of time without some form of management reevaluation.