

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 17, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending July 14, 2017

R. Arnold was at Y-12 to augment resident inspector coverage.

Fire Protection: This week, the resident inspectors observed a vital safety system (VSS) material condition and reliability assessment of a safety-significant wet pipe fire suppression system in Building 9206. The field walkdown component of the assessment was comprehensive and consistent with CNS Y-12 procedures. The system was generally found to be in good condition and performing reliably, as it had passed all technical safety requirement surveillances in the three year period since its last assessment. However, the system engineer did identify areas with piping that showed signs of corrosion and areas with sprinkler heads that showed signs of corrosion or had small amounts of paint splatter. Some of these issues were identified during the last VSS assessment, which occurred in March 2014. Following this year's assessment, Y-12 infrastructure personnel indicated that replacement of these heads was a high priority item. In addition, the system engineer identified a room adjacent to one of the main Building 9206 fissile material storage areas that had an excessive amount of combustibles due to an accumulation of empty safe bottles. The Building 9206 operations manager stated that a fire protection assessment identified this issue more than one year ago. The CNS Y-12 issues management system shows that actions to address this issue are delayed pending funding.

Prior to this week's walkdown, the resident inspectors met with CNS Y-12 engineering management to discuss observations from previous VSS walkdowns and CNS management's plans to improve the VSS assessment process. During the meeting, the resident inspectors questioned whether there is sufficient management oversight of VSS walkdown findings, especially those that remain unaddressed for extended periods of time. The concern stemmed from a five-year-old VSS assessment-generated request for ultrasonic wall thickness measurements on an area of Building 9212 fire suppression system piping that showed signs of corrosion. The sprinkler head issues identified again during the Building 9206 VSS assessment serve as an additional example. CNS management plans to improve its oversight of open VSS issues by requiring that VSS assessment results be covered in facility health review committees.

Nuclear Criticality Safety (NCS): This week, non-destructive analysis (NDA) personnel completed laboratory NDA measurements of the uranium holdup in the sand gathered from the reduction sand separator (see 7/7/17 report). The measurements indicated that a total of 2.3 kg of ²³⁵U holdup was in the sand separator, approximately 850g of which was collected from the unfavorable NCS geometry body of the sand separator and the balance from favorable geometry transfer lines. NCS staff had drafted a new addendum to the NCS evaluation for reduction operations using preliminary NDA field measurements. This week's laboratory NDA results were largely consistent with these field measurements, therefore NCS staff believe the draft control strategy will be valid to support resumption of reduction operations. NCS staff thus plan to finalize the addendum shortly. The addendum identifies several new controls, including explicit requirements to periodically change out the container that collects waste sand and the need for periodic NDA measurement of the sand separator. In light of these new controls, CNS upgraded the reporting category of this event to reflect a condition involving the loss of one or more NCS documented controls such that a criticality is possible from the loss of one additional control. Enriched Uranium Operations personnel plan to resume reduction operations next week, pending successful implementation of the controls derived in the new NCS addendum.