

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 21, 2017

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and Z. C. McCabe, Resident Inspectors
SUBJECT: Savannah River Site Resident Inspector Report for Week Ending April 21, 2017

HB-Line: HB-Line personnel found a toolbox in the Phase 3 glovebox with a volume greater than 4 liters, which is not in compliance with one credited criticality safety control. The credible criticality event of concern is prevented by two separate controls that limit the mass of plutonium metal in the glovebox and the neutron reflection. The reflection control prohibits containers with a volume greater than 4 liters from being brought into the glovebox and also limits the total amount of liquid permitted in the glovebox to less than or equal to 4 liters. When HB-Line personnel discovered this container there was no plutonium metal or liquid in the glovebox. SRNS personnel have determined that they did not fail a criticality safety control in this instance, but rather determined the container in the glovebox to be a degradation of the reflection control. HB-Line personnel are planning to remove the toolbox from the glovebox next week after they procure the necessary sleeve to bag it out. The toolbox was likely in the glovebox when the criticality safety control was implemented in 2012.

H-Canyon: During dissolver charging operations, crane operators were unable to verify that they had pulled the correct bundle of spent fuel from the cask car containing multiple bundles. After calling a time out, they determined that they had pulled the wrong fuel bundle and suspended the charging activities. One crane operator had originally engaged the correct bundle but was then incorrectly convinced to engage and pull another bundle that was planned to be dissolved later. Additionally, the crane operators noted the poor video quality from the crane cameras as a contributing factor to the error. Although not a direct cause that led to the incorrect bundle being pulled from the cask car, discussions during an issue investigation revealed some issues with the dissolver charging procedure. Some steps of the procedure used do not actually direct the crane operators to perform the appropriate actions. H-Canyon personnel are currently working on revising the procedure, but consider it adequate for continued use under increased management oversight until the procedure can be revision is complete.

Target Residue Material (TRM): H-Canyon personnel started processing the first shipment of liquid Highly Enriched Uranium (HEU) this week. Each container of HEU is pulled from the shipping cask into a shielded “pig” that provides radiological shielding for H-Canyon personnel. After loading a pig, radiological protection (RP) identified an unexpected hotspot on the side of the pig indicating that the pig was not providing adequate radiological shielding. RP labeled the hotspot before H-Canyon personnel relocated the pig so the hotspot would be facing the wall. H-Canyon personnel did not identify any similar issues on the other pigs and are planning to use the one spare pig for future evolutions. All of the containers have been removed from the cask and H-Canyon personnel have begun transferring the HEU into H-Canyon for processing.

Readiness Reviews: The resident inspector provided feedback to SRNS on proposed changes to their readiness level determination procedure. Comments focused on the definition of program work and continuous operations as well as documenting the justification for decisions.