

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 31, 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 March 31, 2017

Savannah River National Laboratory (SRNL): Before moving a legacy container labeled “Window” that was believed to not include a trackable quantity of material, SRNL personnel performed a non-destructive assay and found that it contained roughly 20 grams of Pu-239 equivalent. SRNL personnel have since appropriately updated their MAR (material at risk) tracking system and barricaded the room where the container is located until they can determine a path forward.

K-Area Complex (KAC): For MAR tracking purposes in the Assembly Area, KAC personnel developed the parameter, K-Area Bounding Isotopics (KBI). KBI is based on normalizing material to a representative isotopic distribution in the KAC. Each container type has a specific limit on the amount of equivalent grams of KBI that it can contain in the Assembly Area. When the Assembly Area limit for 6M containers was determined and established, KAC personnel failed to verify that the actual content of the 6M containers currently in another part of the facility were below the KBI limit. Recently, KAC personnel revised a procedure to allow 6M drums containing Highly Enriched Uranium (HEU) to be transported through the Assembly Area to the Californium Shuffler to perform the DOE directed measurements (see 3/24/17 report). During a review of the procedure prior to moving the material into the Assembly Area, KAC personnel determined that the HEU content of multiple 6M containers exceeded the KBI inventory limit. Further investigation revealed that the KBI limits were assumed to be conservative and based on a dated calculation that supported a previous facility mission. Shuffler measurements for these drums cannot be completed until the safety basis limits can be revised and approved, which may impact the timeline for the removal of the Californium Shuffler polyethylene. MAR is not tracked through KBI in other areas of the KAC. The HEU containing drums are within the safety basis MAR limits for the area in which they currently are.

Tritium: Tritium personnel failed to meet the Technical Safety Requirements (TSR) minimum staffing requirements, which resulted in a TSR violation.

Commercial Grade Dedication (CGD): SRNS has increased the number of dedicated CGD engineers from 6 to 11, many with commercial nuclear experience. They have also gained access to the expertise and databases of the Electric Power Research Institute. SRNS has also established contracts with key vendors (i.e., diesel generators) to gain access to proprietary design information to allow the identification of the critical characteristics that provide reasonable assurance that the item will perform its intended safety function. These initiatives have improved their efficiency such that the average time to develop a CGD package is approximately half of what it was a year ago and the backlog of CGDs is starting to shrink after growing to more than 160 (see 7/15 and 7/29/16 reports).

Saltstone Disposal Unit 6: The resident inspector observed level-of-knowledge interviews and a drill for the contractor's Readiness Assessment.