

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 23, 2010

TO: T. J. Dwyer, Technical Director
FROM: D. L. Burnfield, Site Representative
SUBJECT: Savannah River Site Weekly Report for Week Ending July 16, 2010

David Gutowski and Ramsey Arnold, were on-site this week to assist in the site rep duties.

HB-Line: SRNS conducted a demonstration of the upcoming HB-Line Low-Assay Plutonium (LAP) operations. Twelve LAP drums, each containing less than 600 grams of plutonium with approximately 20% Pu-238, will be processed. SRNS has evaluated the radiological hazards and doses associated with each, reviewed lessons learned from similar operations done throughout the DOE complex, and trained four shifts of workers. Training includes practicing each step of the operation using full-scale mockups including opening the two outer drums and cutting and unloading the inner source capsule and two Al containers. SRNS plans to demonstrate readiness to a Facility Operations Safety Committee (FOSC) the week of August 9th and start operations the following week.

SRNS is developing two new technologies to improve the processing of Pu/U oxides in HB-Line. Vacuum salt distillation selectively removes corrosive chloride salts from Pu/U oxides by evaporating the salts at high temperature under vacuum. SRNS plans to implement a half-scale design during October while the full-scale design, which has a batch size of 1,500 grams, is planned for spring 2011. SRNS is also exploring sodium peroxide fusion as another potential process improvement. Peroxide fusion changes Pu oxide into a more soluble compound, which can be dissolved under much milder conditions than are currently used in HB-Line. The process will need substantial development before any implementation.

Quality Assurance: During receipt inspection, SRNS identified a suspect part they had procured as a spare part for use in safety class or safety applications at F and H Tank Farms. The specific component, (a forged flange) is welded onto a 4 inch flanged pitot traverse station. ASME B16.5 requires the flange to be marked with the manufacturer's name or trademark. The flange was not marked as required. They were marked with China as the country of origin. DOE's Suspect/Counterfeit Item (S/CI) Awareness Training manual directs that parts with such markings be treated as suspect.

SRNS found a similar spare part in store's inventory; inspected it and found it to be acceptable. In addition, three of the eighteen parts that are currently installed were verified to have acceptable flanges. SRNS could not immediately gain access to the remaining fifteen; they will individually verify each part during the upcoming corrective actions. The Department of Energy Office of the Inspector General was appropriately notified by the SRNS.

The site rep met with engineering to discuss the current SRNS programmatic effort to upgrade their commercial grade dedication directives. In approximately 2004, the site contractor attempted to reduce cost by revising directives to be more requirements centered. In the process of revising the quality assurance directives, the site concentrated on the implementation of the requirements of the ASME NQA-1 and reduced reliance on the guidance. Recent revisions of NQA-1 have changed much of this guidance into requirements. The site now is attempting to come into compliance with the recent changes.

F Tank Farm: The staff walked down the preparations for the current transfer of material between tank 7 and tank 6. In order to finish the close out of tank 6, heavy particles that settled in the tank are to be slurried using supernate from tank 7 and then transferred to tank 7 using the normal underground transfer lines. However, to transfer the supernate from tank 7 into tank 6 an above ground hose-in-hose transfer line must be used. This transfer will result in a high dose rate movement of material and potentially significant doses to the workers.