DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 17, 2017

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman, Resident Inspector
SUBJECT: Savannah River Site Resident Inspector Report for Week Ending Nov. 17, 2017

H-Canyon/HB-Line: SRNS intended to mix the jet heel in a H-Canyon tank with cold chemicals and transfer the solution to HB-Line for use in flushing the Phase II process vessels. The Evaluation of the Safety of the Situation (ESS) stated that this would involve less than 250 total grams of plutonium (Pu). (See 10/6/17 weekly report). Confirmed sample results determined that ~500 grams of Pu were actually transferred to HB-Line when H-Canyon sent over only 1/3 of this flush solution volume. While this mass exceeds the value in the ESS, it does not pose a criticality safety risk for HB-Line. If there were an accidental release at HB-Line, this could result in a larger dose consequence than DOE recently approved, but this mass is significantly smaller than the inventory that had been at HB-Line until recently. A review of tank transfer data at H-Canyon indicates that the liquid level indicator is not indicating the accurate liquid volume (in terms of weight factor). During the previous transfer in January, the data indicate the tank was not really pumped down to the jet heel, but instead left behind a larger heel containing the extra Pu mass. In light of this extra mass, engineers are currently evaluating whether this tank should have been subjected to long term evaporation criticality safety controls between January and November. The review also found that the amount of jet dilution experienced during earlier transfers was not always within the expected 3-7% range, but ranged between 0 and 30%. When negative weight factors were indicated on the liquid level transmitter, operators would also write down a value of zero instead. SRNS plans to dilute the remaining solution in H-Canyon with 1000 liters of high molarity acid. Meanwhile, engineers are trying to determine the cause for the bad readings and the extent of condition.

Salt Waste Processing Facility: DOE allowed Parsons to start receiving chemicals at their warehouse after addressing 15 findings from a recent assessment. The resident inspector observed the pre-job briefings and receipt of 600 gallons of solvent used for salt processing to observe the rigor of operations. While the unloading that was observed went well, delays were encountered when the truck driver became lost for several hours and an unresolved question about placarding resulted in the truck temporarily being detained by guards at a SRS gate.

A recent DOE assessment on control of equipment and system status resulted in four findings and 3 improvement items. DOE concluded from the findings that "Parsons attempt to keep updated Equipment and System Status files has failed within one month of completion of corrective actions." DOE directed Parsons to address how they are ensuring sustained implementation and effectiveness of corrective actions. DOE performed a causal analysis on 26 events and found that human performance less than adequate was the most common causal code and provided Parsons several recommendations. Furthermore, a DOE quarterly trend analysis found prevalent weakness in procedural compliance and no improvement in previously identified potential negative trends involving fire protection and conduct of operations.

Tank Farms: SRR is repairing the leak on the 3 H Evaporator pot, but is encountering problems with the welder not consistently producing good beads. (See 2/19 and 2/26/16 weekly reports).