DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 19, 2014

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending September 19, 2014

H-Canyon: The general purpose evaporator is used to concentrate low-level radioactive solutions. Recently, an operator selected (and confirmed) the wrong valve on the distributed control system while recirculating solution and inadvertently transferred some of the solution into a concentrate hold tank. This set off an alarm minutes later and the operator stopped the transfer. Normally, a previously performed system alignment check would have ensured that a second valve would have prevented this inadvertent transfer. However, another operating procedure included a step to change this valve's position, but did not include a step to return it to the desired position afterwards.

This week, SRNS declared a violation of an onsite safety assessment (transportation safety basis) after workers at F/H Laboratory found that one of the tungsten pigs used to ship high dose rate, dissolved spent fuel solution samples was missing a required gasket. (Meanwhile, they later reported finding two gaskets on another pig lid). SRNS also had to delay the start of their dissolution campaign of Material Test Reactor fuel after an engineer identified that an instrument used to measure specific gravity was being used outside of its allowable range.

HB-Line: After engineers installed a temporary bypass for the precipitator's agitator interlock, SRNS precipitated and filtered a second batch of concentrated plutonium solution without further problems. (See 8/29 and 9/5/14 weekly reports). Since the precipitator's capacitance level instrument continued to provide readings that were biased high, HB-Line staff focused on more reliable readings from up and downstream tanks. This week, SRNS attempted to conduct the second batch of dual ion exchange resin column operations. Shortly after elution started, the raffinate colorimeter's reading quickly spiked in the negative direction (possibly due to mixing of the concentrated decontamination cycle acid with the weaker elution cycle acid). This caused the colorimeter to experience an open circuit detection alarm and shut down the processing program. The next day, SRNS completed elution of the columns one at a time. A laboratory worker's gloves were also contaminated when they tore their glovebox glove on the tip of a caliper. The site rep also identified that an analysis to determine the minimum shift crew to perform Technical Safety Requirement responses did not include an operator to perform independent verifications of valve manipulations required to establish an alternate purge method for Phase II process vessels. SRNS corrected the evaluation.

Tank Farms: The Tank 37 transfer jet is clogged and encased in the surrounding saltcake. (See 9/5/14 weekly report.) The cleaning of this jet is important to the operation of the 3-H evaporator. This week SRR attempted to mine the salt around the dip tubes to allow lifting of the pump, but failed when the dip tubes could not be moved using the allowed force. SRR will attempt to lift the dip tubes using an alternative technique this week. If they cannot be moved, SRR will try other methods to mine the salt around the jet so that is can be cleaned.

Savannah River National Laboratory (SRNL): Last week an alert SRNL engineer discovered a rectangular trap in the high activity drain line. (See 9/12/14 weekly report.) This week site personnel declared a positive Unreviewed Safety Question when it was discovered that a criticality event had not been adequately analyzed for this situation.