

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 12, 2013

TO: S. A. Stokes, Acting Technical Director
FROM: D. L. Burnfield, Site Representative
SUBJECT: Savannah River Site Weekly Report for Week Ending April 12, 2013

Tank Farms: Tank farms personnel classify the waste tanks by the time to LFL as Very Slow, Slow or Rapid Generation Tanks. SRR places specific controls on the tanks based upon this classification to prevent an accident from hydrogen deflagration. Tank Farms personnel use the Waste Characterization System (WCS) to maintain an accurate measurement of the Curie content as well as other factors that contribute to the classification of the tank. Tank 22 is one of the tanks that receive the recycle material from DWPF. A component of this material is sludge. The sludge contributes to the heat loading of the tank through radiolytic decay. Each time SRR measures the sludge they are required to update the WCS and determine the current classification. For the last several years, SRR did not update the Curie content in the WCS as required. This may have resulted in a failure to reclassify the tank from Very Slow to Slow. SRR has entered the appropriate limiting conditions of Operations (LCO 3.8.1 B) and has stopped all transfers into or out of the tank until further remedies can be determined.

As part of the cleaning of the 2H Evaporator to remove a gravity drain valve pluggage, SRR removed the Tank 38 back flush valve (BFV) and sent it to 299-H for cleaning. (See 4/5/13 report.) SRR maintenance personnel at the 299-H were in the process of reassembling the BFV, which weighs approximately 1,100 pounds and is approximately 4 feet tall when the BFV tipped over onto the storage cell floor. Because the storage cell is highly contaminated, the maintenance personnel were wearing supplied air suits. When the BFV fell, it landed on and partially severed a mechanic's breathing air hose. The mechanic immediately exited the area doffing the plastic suit top as trained.

SRR continues to observe ground water in-leakage into the annulus of Tank 11. They have begun periodic pumping of the annulus to maintain the water level below 2 inches. This should allow the ducting to dry and increase the flow of dry air through the annulus.

Defense Waste Processing Facility (DWPF): The Interarea Transfer System is used to transfer high-level waste sludge slurry from H-Tank Farm to DWPF. Part of this system is a jacketed line, which connects 512-S, the Low Point Pump Pit (LPPP), and DWPF. In the Final Safety Analysis Report for DWPF, SRR considers a spill from this line to be the bounding accident associated with this system. They postulate that a transfer line spill of 15,000 gallons of sludge to the LPPP and 15,000 gallons of 512-S feed would result in a dose of 0.22 rem TEDE to the maximally exposed offsite individual (MOI). During review of the proposed accident scenarios, SRR determined that a slightly higher dose from an explosion of material trapped in the jacket of the transfer line is possible. Based upon this determination, SRR has declared a positive unreviewed safety question.

F&H Labs: A laboratory technician processing waste samples into a hot cell in the F&H labs contaminated his lab coat to 40,000 dpm β/γ and his shirt to 40,000 dpm β/γ . SRNS reviewed the facts associated with this event and believes they have found the potential cause. The facility manager plans to reenact the event to determine any corrective actions that may apply.