

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 1, 2008

**TO:** T. J. Dwyer, Technical Director  
**FROM:** M. P. Duncan and M. T. Sautman, Site Representatives  
**SUBJECT:** Savannah River Site Weekly Report for Week Ending August 1, 2008

**H-Canyon:** Because the H-Canyon flowsheet would not dissolve all of the compounds present in highly enriched uranium (U) oxide from Lawrence Livermore, this material is being dissolved at HB-Line before being transferred to H-Canyon. Although this material is filtered at HB-Line and solids have been seen accumulating on the filters, there is the potential that the receiving tank in H-Canyon currently contains undissolved solids containing fissile material because these filters are not credited. (Some solids were seen in a tank sample). However, the H-Canyon Double Contingency Analysis assumes that only trace quantities of U solids will be present. As a result, processing was stopped and all activities involving the tank restricted. Once it has been determined to be safe to do so, the tank will be agitated to allow representative samples to be taken that will hopefully confirm that the filters removed most of the undissolved U solids. Engineers are evaluating the safety of the current configuration and the possible addition of a neutron poison. In addition, a preliminary calculation indicates that even if all the solids were U, their mass would be significantly less than the areal density limits of the tank. A Potential Inadequacy in the Safety Analysis was declared and a Justification for Continued Operations is being drafted. The cause of this flow sheet oversight is also under review.

**K-Area:** A construction worker insulating piping on the roof accidentally allowed a plastic bag to be sucked into the K-Area Interim Surveillance supply fan inlet air register. This temporary blocking of the air flow set off five alarms, including the safety significant (SS) Low Differential Pressure Alarm and triggering a SS interlock. This started the standby exhaust fan and shut down the supply fan. A Limiting Condition for Operation was entered. This activity had not been discussed at the Plan of the Day meeting nor had it been authorized by the Shift Manager although the work package required the control room to be contacted prior to commencing work. Although the workers were not assigned to the facility, they did not walk down the work site beforehand nor were they told about the nearby air intake. The roughing filter was also replaced because the workers did not take any precautions to prevent the metal debris they were generating from being sucked into the inlet. In light of other recent events (see 6/27/08 report), all construction work in K-Area has been stopped.

**Tank Farms:** After transferring ~71,000 gallons of saturated (or nearly saturated) salt solution from F to H Tank farms, the transfer pump shutdown when the flow dropped from 31 to <1 gpm. During the subsequent vent and drains over the following 5 days, operations had to deal with plugged dip tubes, unexpected drain back volumes and locations, and drains that stopped unexpectedly and then resumed on their own the next day. It appears that slow flow rates may have resulted in salt-out that blocked the line, but which broke free over time.

**Depleted Uranium Oxide (DUO):** Many of the DUO drums noted in the Board's March 7, 2002 letter were shipped off-site years ago and approximately 5400 drums from 221-21F are to be shipped this Fall. A Site Rep walkdown of the two remaining F-Area DUO facilities found many drums in 221-22F with significant corrosion. While there is not the extensive drum tilting seen previously, a few of the wooden slats between drums have failed or were missing and a few drums exhibited some minor buckling.

**Contract:** Savannah River Nuclear Solutions began their management of part of the site.

**Solid Waste:** The last legacy transuranic waste drum was vented this week.