

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 30, 2011

**TO:** T. J. Dwyer, Technical Director  
**FROM:** M. T. Sautman and D. L. Burnfield, Site Representatives  
**SUBJECT:** Savannah River Site Weekly Report for Week Ending December 30, 2011

**Process Safety:** The site rep reviewed the Defense Waste Processing Facility (DWPF) alarm and interlock activation history for the last 8 months. Based on this review, the site rep requested a meeting to further discuss the following observations and find out if there was ongoing maintenance or other activities that may be responsible for the frequency of these alarms.

- Limiting Conditions for Operation (LCO) limit the hydrogen concentration in the Sludge Receipt and Adjustment Tank (SRAT) and the Slurry Mix Evaporator (SME) to 60% of the lower flammability limit (LFL). These hydrogen limits were exceeded 20 times during this period, reaching up to 64.5% of the LFL for up to 12 minutes. On one occasion it took the operator nearly 27 minutes to acknowledge the alarm.
- During one two-day period, the LCO-related SRAT and SME low air purge flow alarms activated more than a dozen times, including the low-low alarms.
- High-high-high slurry level alarms at the SRAT and SME are being recorded every few days, sometimes multiple times a day, and it is not clear why operators are not controlling the level when the high or high-high alarms are going off beforehand.
- Various high pressure, high and high-high temperature, and melter glass level high and high-high alarms are going off routinely, sometimes multiple times a day, although that does not seem to be the intent of the operating procedures.

The site rep began a similar review (see 12/2/11 report) for H-Tank Farms, reviewing fire impairments, maintenance backlog, preventive maintenance that was canceled or extended, nonconformance reports, and equipment with calibration problems.

**2011 Year in Review Part Two:** SRR's accomplishments this year included the following:

- Poured ~250 canisters at DWPF bringing the total to more than 3320.
- Reduced the DWPF recycle stream by 180,000 gallons.
- Processed ~1 million gallons of salt solution through the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit, bringing the total to more than 2 million gallons.
- Processed over 2 million gallons through the Saltstone production facility and began the Enhanced Low Activity Waste Disposition outage to improve reliability at Saltstone.
- Completed construction of Saltstone Disposal Unit 2.
- Isolated Tanks 5, 6, 18, and 19 in preparation for closure.
- Completed the preliminary design for Enhanced Chemical Cleaning (ECC) Unit 1 and completed conceptual design for ECC Unit 2.
- An external technical review concluded that the Small Column Ion Exchange (SCIX) technology readiness level was 5 with the exception of an integrated test. The SCIX project was laid up pending the results of ongoing next generation solvent testing.