

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 19, 2010

**TO:** T. J. Dwyer, Technical Director  
**FROM:** D. L. Burnfield and M. T. Sautman, Site Representatives  
**SUBJECT:** Savannah River Site Weekly Report for Week Ending February 19, 2010

**Department of Energy – Savannah River (DOE-SR):** Due to recent budget cuts, DOE-SR froze critical hiring actions for two facility representatives, two facility engineers (i.e., Safety System Oversight), and a nuclear criticality safety specialist. Budgets cuts have also caused a shortfall for training required by the Technical Qualification and Federal Technical Capability programs.

**Operations:** Workers experienced four industrial events, which could have had worse consequences:

- **H-Canyon:** Workers hung temporary labels on two, unlabeled pumps that were undergoing troubleshooting. Unfortunately, the Component Location Identifier (CLI) database incorrectly swapped the east/west designations for these pumps. The workers who hung and independently verified the pumps before hanging the labels focused on the “east” and “west” designations on the drawing and label and did not notice that one of the numeric digits in the CLI did not match between the drawing and label. Later, different workers installed a single point lock out on the correct pump at the motor control center (MCC), which only listed the numbers, not east or west. They verified no voltage was present and lifted the leads in the MCC cubicle. When they went to the pump to lift its leads, they detected voltage on it because they were working on the wrong pump due to the incorrect labels. Corrective actions include determining the extent of condition and increasing the rigor of hanging labels.
- **C-Area:** A dust cap ring interfered with the locking mechanism for a breathing air hose connection. This allowed a worker’s hose to pop off the breathing air manifold. During another activity, a piece of slag burned through a welder’s fire-resistant coveralls and his plastic suit, but he was not burned.
- **F-Tank Farms:** While the site rep was watching crane activities in a Tank 6 riser, a 6’ steel choker with a shackle attached (total weight 10 – 20 lbs) fell off an auxiliary hoist hook. It dropped between 15 and 25 feet through a manned hut and into the tank riser. The cause is unknown, but the crane operator had bumped the choker on the main hoist headache ball about 15 minutes earlier to untangle the choker. This may have allowed the choker to unlatch, despite the presence of a safety latch on the hook.

**Fire Department:** SRNS issued a purchase order for two new fire engines. The projected delivery date is January 2011. (See 1/20/10 Board letter.)

**Tank 48 Fluidized Bed Steam Reforming:** A SRR Senior Review Group (SRG) recommended that the roof of 241-96H be raised 8 feet to allow for a taller Denitration and Mineralization Reformer (DMR). Testing found that the total carbon in the product was 15 wt% versus an anticipated 6-8 wt% because fine carbon particles were elutriating from the DMR. A taller and wider DMR would reduce the flow velocity and reduce carbon carryover. The SRG is also requiring the addition of a wet separation process to reduce the amount of carbon being sent to tank farms and ultimately to DWPF.

Corrosion coupon testing of proposed materials of construction identified that some of the proposed materials for the DMR and Carbon Reduction Reformer (CMR) experienced unpredictable and aggressive pitting or sulfidation after short periods of exposure. Sulfidation in gaseous environments is more likely to occur in reducing environments like that found in the DMR and CRR and can be accelerated by sodium, which is present in the feed. The contractor is now planning to use refractory lined metallic vessels to isolate the vessels from the sulfidizing environment.

**Defense Waste Processing Facility (DWPF):** DOE rescinded the 897 g/m<sup>3</sup> fissile concentration limit for high level waste canisters and directed that sludge batch preparation transition to a 2500 g/m<sup>3</sup> plutonium limit. (See 11/21/08 report).