

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 28, 2010

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 May 28, 2010

Board member Larry Brown and Board staff members visited the Salt Waste Processing Test Facility, 235-F, P and R reactors, and H-Canyon to review current and upcoming operations.

Saltstone: After not operating for most of 2010, operators attempted to resume grouting operations this week. On the first attempt, operators received a low-low mixer flow alarm during the feed transition from the clean cap batch tank to Tank 50, which automatically triggered setback. The next day, the operators successfully performed this transition and were able to grout Tank 50 solution for about 30 minutes before encountering another low-low mixer flow alarm, which shut the system down again. While the first alarm appeared spurious, the flow rate did suddenly drop during the second run. Engineers are currently troubleshooting the system to determine the cause.

Tank 48: Preliminary estimates of the weight of the fluidized bed steam reformer processing modules and shielding are significantly higher than that assumed in the conceptual design. As a result, the building floor may need to be modified to support the increased weight. SRR is seeing if they can reduce this weight by removing the module framing skid and reevaluating their assumptions made in their shielding calculations. In addition, SRR is considering removing the existing building slab-on-grade floor and liner and then excavating down to the existing wall footing so they could install a new reinforced concrete mat foundation, stainless steel liner, and embedded module anchorage/shear keys. If SRR does decide to proceed with a new floor, engineers will need to revise the structure-soil-structure interaction calculations.

Salt Waste Processing Facility: Although a man-lift was parked outside a crane's exclusion zone, the man-lift's counterweight later entered the exclusion zone when a carpenter started the man-lift and pivoted the basket. While swinging the crane boom later, the crane's load weights hit the man-lift. The carpenter in the basket was not injured. Parsons held a safety stand down afterwards.

Defense Waste Processing Facility: SRR is investigating whether other reductants could be used instead of formic acid. The primary goal is to increase the production of glass logs by reducing the time for steam stripping of mercury in the sludge receipt and adjustment tank (SRAT). Key to this is reducing the catalytic production of hydrogen so that the air purge can be reduced enough to allow the SRAT to operate at the design basis steam rate. Furthermore, reducing hydrogen production may eliminate the need for safety significant gas chromatographs and their associated interlocks. Upcoming tests will determine if either glycolic acid or sugar can achieve these goals when used with just enough formic acid to still reduce mercury. A third option under consideration completely eliminates the use of formic acid and just uses sugar. While this option may eliminate hydrogen and ammonia production, models indicate that insoluble mercury chloride compounds may form downstream of the SRAT.

Area Closure Projects: In order to reduce the risk from a seismic event, SRNS has reduced the height of the stack for 235-F from 75 feet to 28 feet (see 4/16/10 report). In addition, the site reps observed the demolition of the K Reactor cooling tower using explosive charges.