

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 18, 2009

**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 December 18, 2009

**H-Canyon:** The Site Rep observed crane operators unload boxes containing transuranic waste from a large steel box (LSB), tilt them onto their side, and then reload individual boxes into standard large boxes. Riggers attach chokers around the six wooden boxes in the LSB before the warm canyon crane lifts them out. Because the wooden boxes rest on wood beams, the boxes can rock back and forth. The riggers get their chokers under the ends of the box by rocking the boxes or by having the crane lift/pull one end of the box. At times, a rigger stood on the box while the crane lifted one end of it or the rigger had one foot on one box while pushing his other foot on a different box to rock it. Because the riggers were trying to maintain their balance on top of 6' high boxes that would sometimes suddenly drop a few inches or jerk upwards, the Site Rep discussed this practice with a manager in the crane control room. Other managers watching the video afterwards had similar observations. At the post-job discussion, riggers were told to minimize standing on the boxes and to use poles more. The crane operator was unable to communicate with the person-in-charge by phone and had to rely on a less convenient radio. In addition, the micro-drive was not functioning on the warm canyon crane. The Site Rep also observed crane operators charge material to a dissolver. The hot canyon crane once unexpectedly lost power while moving a bundle, which was quickly restored.

**H-Tank Farms:** Operators initiated valve lineups for a Decontaminated Salt Solution Holding Tank (DSSHT) to Tank 50 transfer procedure while the Modular Caustic Side Solvent Extraction Unit (MCU) was in extended shutdown. Meanwhile, a normal operations alignment was performed in preparation of MCU startup which also required two DSSHT pump outlet valves to be opened. When the transfer to Tank 50 was completed, the two outlet valves were closed although they were still needed to be opened for the MCU startup. When the next shift tried to start the pump, the pump was deadheaded. These two procedures were not setup to be run concurrently.

**Facility Representative Program:** The Site Rep observed a NNSA oral board. The conduct of the board and the candidate's performance met Site Rep expectations. (See 1/30/09 report).

**235-F:** During the transfer from the E5 Exhaust Fan (EF) 1 to the E5 EF 2 the EF 2 discharge damper appropriately began to open and the damper on EF 1 started to close. The operator verified that EF 1 came to a complete stop and that the pressure reading was in range. The operator observed that the output for the inlet damper was about half of the normal value, but that EF 1 was free-wheeling backwards. The operator notified the maintenance first line manager (FLM), the Shift Operations Manager (SOM), and engineering and called a time out. They decided to stop EF 1 in order to preclude potential equipment damage. While troubleshooting the problem the recovery team found one of the solenoids for the EF 1 damper actuator had failed. This failed solenoid resulted in that actuator trying to open the damper while the other damper actuator was trying to close it. Maintenance loosened the set screws on the actuator trying to open the damper to allow the other actuator to close the exhaust damper. The air from the good solenoid drove the actuator upward, which closed the damper, and the EF stopped rotating. As long as the damper remains closed for EF 1 and EF 2 remains operational, the system is in stable condition. However, the solenoids appear to be aged equipment and the reason behind the design of the dual actuator system is not clear. The temperature of the good solenoid is significantly elevated indicating that it may be prone to failure as well and it was not known if it would open the damper for EF 1 should EF 2 trip off line. Alarms will notify facility personnel should the differential pressure drop below the approved set-point. Actions are being taken to prepare for the prompt replacement of the failed solenoid and to determine if all of the solenoids as well as the actuators should be replaced as time permits.