DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 14, 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 October 14, 2011

235-F/Fire Protection: Workers continued to remove combustibles from 235-F including plastic panels, benches, chairs, paper, cabinets and files, etc. SRNS has performed a similar walkdown of 784-A, which houses the SRNL fire pumps, to identify unnecessary combustibles. Workers have already removed plastic curtains there and will be removing additional combustibles shortly.

In response to the Board's recent fire protection review (see September 30, 2011 report), SRNS has developed a Fire Protection Program Improvement Plan and assigned a project manager for this plan. SRNS conducted a causal analysis of the calculation error in the backfit analysis (BFA) of the A-Area fire water system. Not only will SRNS revise this BFA, but they are reviewing other BFAs at SRS and the overall BFA process to identify any other weaknesses. SRNS is also revamping their facility combustible loading inspections and will be conducting material condition inspections of the SRS fire water supply systems. Finally, SRNS management is leading an effort to reduce the number of open fire water supply impairments.

Emergency Preparedness: SRNS recently conducted tabletop drills in H-Canyon and HB-Line focusing on the first 30 minutes after a seismic event (see August 12, 2011 report). The site rep observed the first multi-facility tabletop drill involving H-Canyon, outside facilities, and HB-Line. Representatives from tritium facilities and H-Tank Farms also participated and provided input to the Area Emergency Coordinator (AEC) based on the facility-specific drills they have been conducting. This tabletop focused on the response 30 to 120 minutes after a design basis earthquake. This drill will be conducted for all four operating shifts. A common issue observed by the site rep at seismic training drills across SRS is the need to train the AECs and Facility Emergency Coordinators (FECs) on "triage" techniques. Unlike nearly every other drill involving one event in one facility, the AECs and FECs need to quickly sift through the multitude of simulated alarms, physical damage reports, injuries, and safety basis issues in these seismic drills, prioritize the issues (i.e., severity, available time to respond), and then assign the available resources to address the most immediate issues first.

Modular Caustic-Side Solvent Extraction Unit: A multi-month investigation has concluded that an accumulation of impurities in the solvent is the likely cause of declining Cs-137 decontamination factors (DF). Recent efforts by SRR to remove this yet-to-be-identify impurity by replenishing the caustic wash tank every shift and washing the solvent have caused the DF to more than double and return to more typical levels. SRR also set a new weekly record by processing 56,000 gallons of waste out of Tank 49.

F-Tank Farm: URS personnel discovered an indication of a potential leak site during the periodic inspection of the annulus of Tank 4. The potential leak site is approximately 30 inches above the allowed liquid level for the tank and approximately 60 inches above the current liquid level. Waste has not been stored at the height of the potential leak site in approximately 20 years. The site is adjacent to a weld seam and is approximately 6 inches long. Tank 4 was not previously identified by the contractor as a having any potential leak sites.

URS declared a positive unreviewed safety question determination for the seismic annulus explosion scenario during chemical cleaning of the closure tanks. In the previous scenario, URS assumed that the liquid level in the annulus would not exceed the five-foot high pan since they expected it to leak out of the pan as rapidly as it leaked into the pan. Upon further review, URS could not verify this assumption to be correct. Allowing the outside wall of the tank to be wetted by the acidic chemical cleaning solution would allow increased hydrogen generation and therefore, an increased probability of an explosion as well as an increased consequence should this scenario actually occur. They will not perform chemical cleaning of tanks in either tank farm until further evaluations can be made.