

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 3, 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 September 3, 2010

**F-Canyon:** On June 14, 2010, a transuranic (TRU) waste remediation worker punctured his finger while working in a heavily contaminated enclosure (more than five billion dpm  $\alpha$  were found on the worker's glove). At the time of the puncture, the worker was inserting survey flags into a can of waste to provide positive identification that the can had been punctured. DOE initiated a type B accident investigation six weeks later on July 28. In the final report of the investigation, DOE states that the worker is expected to receive between 5 and 50 rem committed effective dose (CED) and between 166 and 1657 rem committed equivalent dose to the bone surface. The Investigation Board (IB) found that the worker was not wearing the number of gloves prescribed by the Radiation Work Permit and the enclosure gloves were not the specified thickness. The IB also found that good housekeeping was not routinely performed. For example, extraneous tools and other items were found, a piece of duct tape appeared to be covering a hole in the enclosure, and inadequate labeling and storage of secondary containers of chemicals were noted. The IB further found that the hazard analysis process contained weaknesses and that the computer program used to perform the analysis allowed completion without obtaining the concurrences of all the required subject matter experts. The training of workers and radiological protection inspectors was found to be deficient since there was no specific determination made that they understood the special hazards associated with Pu-238. The IB concluded that an evaluation of more robust controls is warranted prior to processing drums with higher Pu-238 content. The IB notes that contractor management did not directly observe the tasks being completed, but used television cameras to view the operations. In this particular case, the cameras did not provide adequate coverage of the entire process including the insertion of the flags into the cans. The contractor has stated that additional cameras will be used as well as direct observation. The IB did not discuss the contractor's and DOE's failure to ascertain the need to use the flags, one of which punctured the finger, prior to changing the scope of the task to require using them.

**Solid Waste Management Facility (SWMF):** Following the spill of TRU waste on Pad 16 that occurred on July 16, SWMF personnel issued a standing order pausing handling and movement of selected TRU waste containers. The resumption of these activities was to occur only after lessons learned from the spill were adequately implemented. SWMF is preparing a recovery plan based upon the hazards associated with each activity. To date, the plan for recovering operations associated with the contaminated Pad 16 and TRU pad low risk drum mining has been issued. Activities associated with a) TRU pad high risk drum mining, b) dry culvert low risk drum mining, c) dry culvert high risk drum mining, d) wet culvert de-watering and drum mining, and e) miscellaneous TRU container handling are still being planned.

**Readiness Reviews:** Facility self assessments (FSA) commenced for both the new californium shuffler (used for measurement of special nuclear material) in K-Area as well as spent fuel/3009 Documented Safety Analysis at H-Canyon. Recent training for the K Area FSA team and the upcoming Readiness Assessment team at H-Canyon emphasized recent lessons learned about lines of inquiry (see August 13 and 27 reports).

**Modular Caustic Side Solvent Extraction Unit (MCU):** After slightly elevated Isopar™ levels were detected in the strip effluent (SE), SRR shut down MCU in mid-July in order to replace the SE coalescer and disposition the elevated Isopar™ solution in the SE hold tank (SEHT). SRR plans to transfer the SEHT contents to the Defense Waste Processing Facility in small batches that have confirmed sample results. SRR expects to resume normal MCU processing at the end of September.