DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 23, 2010

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending December 24, 2010

Tank Farms: The contractor installed a 48-inch diameter riser after cutting out a 55-inch diameter plug from the top of single-shell tank (SST) C-107 (see Activity Report 12/17/10). The work was completed with only minor upsets and the cumulative radiological dose to the workers was significantly less than anticipated. The tank's ventilation system did not have enough capacity to maintain airflow into the tank, but no release of airborne contamination was detected. The concrete and steel from the removed plug will be tested for the ongoing SST integrity assessment. Testing and training on the Mobile Arm Retrieval System is continuing and the contractor expects to install the equipment in this tank in a few months.

During post-riser installation housekeeping activities, a worker received skin contamination, 85,000 dpm Beta-Gamma per probe area, on his neck and similar levels on his personal clothing. A second worker, not involved with the riser work, was apparently cross-contaminated when the workers removed their protective clothing; he had 70,000 dpm Beta-Gamma per probe area on his ear. Both skin contaminations were successfully removed by radiological control technicians (RCTs). The apparent cause for the contamination was the worker moving a waste bag (without an RCT survey) from one conex box to another in the tank farm. Moving the waste bag, which contained legacy waste, was not included in the work package nor was it addressed in the prejob briefing. Additionally, the Radiological Work Permit for the job required only intermittent coverage by RCTs, but no further definition of what" intermittent" means was provided. The farm is posted as a contamination area, but the conex boxes in the farm have not been routinely surveyed by RCTs even though they are routinely accessed. Post-event surveys resulted in RCTs marking both conex boxes as high contamination areas.

Plutonium Finishing Plant: The contractor is still evaluating the safety impacts from the positive USQ related to the significant quantities of fissile material found in a pipe (see Activity Report 12/17/10). One compensatory action was to lock and post a sign on the doors to the facility noting that there was a potential criticality non-conformance. The site rep noted the three external doors were locked, but only two had handwritten paper signs and they were badly torn. It is appropriate to use the simple signs immediately after the USQ is declared, but they should have been replaced with more robust signs in the four days since the USQ was declared.

River Corridor Closure Project: DOE completed a report that documents its observations of a mock-up demonstration of fixative application for ventilation ducts in Building 324. One of the criteria to shut down the hot cell ventilation system prior to D&D is to stabilize contamination in the ducts. After the last plan to apply fixative failed (see Activity Report 11/12/10), the contractor now plans to apply fixative by using foggers at the duct entrances. Because of the difficulty in conducting visual observations of the highly contaminated ducts, DOE agreed that confirming adequacy of the process by observing the testing in mock-ups was appropriate. The report concluded that the testing demonstrated the fogging process would adequately fix the contamination but has two recommendations: ensure the tested HEPA filters had coating in the folds through destructive examination, and lessons learned from the Type B Accident Investigation Report for the Separations Process Research Unit are rigorously applied.