

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 22, 2006

TO: K. Fortenberry, Technical Director
FROM: R. Quirk and W. Linzau, Hanford Site Representatives
SUBJECT: Activity Report for the Week Ending September 22, 2006

Board staff member S. Stokes was on-site this week to review safety issues associated with hydrogen gas generation in the Waste Treatment Plant.

K Basins Closure (KBC): The hose-in-hose transfer system was operated continuously for 24 hours for the first time circulating purified basin water between K East and K West. During nighttime operations it was determined that additional lighting was necessary.

The site rep was briefed on the sand filter replacement system, which is planned for installation as early as January 2007. The system is fabricated and will be installed as a skid on the basin floor. It will use replaceable cartridge filters to collect particles as small as 10 microns. The operational concept calls for controlling the accumulation of radioactive material on the filters based on differential pressure across the filters but not dose rate. The hazard analysis recognizes the potential for generating remote-handled TRU waste.

Tank Farms: The Demonstration Bulk Vitrification System (DBVS) Expert Review Panel reported in their final brief that there were no flaws in the design that cannot be resolved. A number of nuclear safety issues must be resolved before radioactive waste is processed in the DBVS, including the confinement strategy, the implementation of integrated safety management, and ensuring that off-normal events are addressed. The technical risks that require resolution include the forms of technetium, the complexity of the process, balancing the off-gas system, and the performance of the sintered metal filters. One area of concern was that the off-gas emergency bypass filter system could quickly load with particulate during upset conditions leading to filter failure and a subsequent release of contaminants to the atmosphere.

During a walkdown to evaluate the packaging of small quantities of plutonium in the 222-S building, the site rep noted that the lid of a double-bagged can had not been re-sealed with tape after a recent inspection. The contractor later told the fac rep that the lid would be re-taped.

Waste Treatment Plant (WTP): The site rep discussed with the contractor deficiencies found in the design of piping penetrations in the High Level Waste facility (see Hanford Activity Report 9/1/06). The installed configuration of the penetrations did not match the analyzed configuration for 101 of these penetrations. The project concluded that 91 of the penetrations will not require modification and the remaining 10 are being inspected to confirm the installed dimensions.

Facility Representative Coverage: The Richland Operations office hired two people who will begin the qualification process for facility representatives.