

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 17, 2006

**TO:** K. Fortenberry, Technical Director  
**FROM:** R. Quirk and W. Linzau, Hanford Site Representatives  
**SUBJECT:** Activity Report for the Week Ending November 17, 2006

Staff members D. Burnfield and J. Troan, and outside expert D. Volgeneau were on-site this week conducting a review of the Washington Closure Hanford work control program.

K Basins Closure: Operational problems with the Hose-in-Hose transfer system prevented transferring large volumes of sludge from K East to K West Basins. The problems include low pressures in a mechanical seal reservoir and at the pump suction. The cause of the low pressure at the pump suction is believed to be blockage of flow at the outlet of the sludge consolidation container (container 101). The project developed and implemented procedures to clear the blockage in the outlet but have been unsuccessful in pumping sludge for more than short periods of time. The project now thinks that the blockage may be caused by debris in the outlet rather than an accumulation of sludge. The project is evaluating whether to switch to container 102 to help understand the cause of low flow conditions.

Waste Treatment Plant (WTP): The site rep met with the new Chief of Process Engineering to discuss the plans for testing of the ultra filtration system and the pulse jet mixers (PJMs). The position of Chief Process Engineer was created to manage production of process models, research and technology reports, and process analysis studies. The process engineering group is developing issue response plans that address the comments from the External Flowsheet Review Teams report that was completed in February 2006. In addition, the group is conducting studies to evaluate changes to the design that are being considered to increase plant capacity.

PJMs are designed to mix the waste in large vessels in the Pretreatment and High Level Waste facilities. The design criteria for the vessels include the loads associated with the overblow of one of the PJMs in a vessel, which can have up to 12 PJMs. The PJMs will have to be operated synchronously in order to ensure adequate mixing, but synchronous operation could result in multiple overblows occurring simultaneously. The project is planning to conduct testing of full- and half-scale PJMs assemblies to determine the forces when multiple overblows occur. The testing is scheduled to start next month.

T-Plant: The project completed grouting of three of the large-diameter containers (LDC) that were used to ship the sludge from the north load-out pit of K East Basin. The grouted containers will be shipped to the Environmental Restoration Disposal Facility early next month. The fourth LDC has not been grouted because it will not meet the ERDF acceptance requirements. This container will be stored in one of the canyon cells until future upgrades to the facilities allow processing of large-size containers. These upgrades to T-Plant are not expected to be completed for several years.

Washington Closure Hanford: The project has created the new position of Deputy General Manager, which has been filled by N. Brosee. Similarly, the position of Director of the Integrated Work Control Program is being filled by S. Sax.