

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 6, 2007

TO: K. Fortenberry, Technical Director
FROM: R. Quirk and W. Linzau, Hanford Site Representatives
SUBJECT: Activity Report for the Week Ending April 6, 2007

K Basins Closure (KBC): The Pacific Northwest National Laboratory (PNNL) released their test report of the Sludge Treatment Project (STP) oxidation process. Results from the testing indicate a potentially significant problem because the sludge mixture used to emulate the sludge from settler tubes formed a very stiff solid that adhered to the Teflon test vessels. This phenomenon is postulated to be caused by cementation during the oxidation process.

KBC personnel continue to evaluate the design of the STP and significant redesign of portions of the systems are probable. Their evaluations are considering the recommendations from the recent assessment by management and outside experts (see Hanford Activity Report 3/9/07), the PNNL test report, and experience from the Hose-in-Hose transfer system. The Richland Operations Office directed the contractor to resubmit an integrated Preliminary Documented Safety Analysis because of the anticipated changes to the design to resolve noted deficiencies and changes necessary to meet the requirements of DOE Order 420.1A. It is likely that there will be a significant delay in meeting the commitment to the Board for completing the treatment of sludge by November 2009 per the revised implementation plan for Recommendation 2000-1.

The booster pump in K East Basin, P-112, failed this week during sludge transfer operations. This pump is the replacement for a pump that failed in a similar manner in late February 2007. Both pumps developed a hole in the discharge side of the pump casing.

Tank Farms: The site rep walked down the AP Tank Farm with a facility representative and managers from Waste Feed Operations to discuss the preparations for increasing the level in AP-108 next week. The procedure for emergency pumping of the annulus of tanks in AP Tank Farm will be revised in response to questions raised by the site rep.

A Closure Operations worker declared a stop work for activities involving retrieving equipment that will require beta shielding. The weight from the lead shield and awkward manipulations required to install the shielding caused a new potential hazard. The stop work will remain in place until acceptable controls are determined for both the radiological and ergonomic hazards.

Canister Storage Building: A technician shut down aerosol generators during HEPA filter testing when flames were observed coming from the outlet of the test equipment. This type of generator (heated oil "smoke" generator) has a history of this type of failure but continues to be used because they provide the large volume of aerosol required for the tests. An investigation of the event is ongoing and may be related to a loss of nitrogen gas to the aerosol generators.

Waste Treatment Plant (WTP): Repairs commenced on a commodity support beam that was mistakenly cut during removal of temporary concrete support beams (see Hanford Activity Report 6/30/06). Repair calculations, work area, and the new removal process appeared to be adequate.