

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 25, 2005

TO: Kent Fortenberry, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending November 25, 2005

K Basins: The root cause analysis continues to be developed for the Technical Safety Requirements (TSR) violation that was declared on September 27, 2005. The TSR administrative control that was violated is implemented by a process standard that gives instruction for monitoring of the basin sludge levels. The process standard requires that the level of containerized sludge be checked daily. If the level is one inch or more higher than the previous recorded level, water is required to be injected into the sludge to displace entrapped hydrogen gas. Multiple KE Basin personnel failed to follow procedures for displacing hydrogen gas potentially trapped in the containerized sludge. There were at least 24 occasions between July 12 and September 21, 2005, when the recorded sludge levels increased by one or more inches but the required safety actions of water injection were never completed.

During a walkdown of the facility this week, the site rep questioned why the sludge levels were not being monitored in a partially full container. The process standard does not require monitoring in this container because it still has settler tubes installed. The settler tubes will not be removed until the filling of the container is completed. Filling this container has been halted for two months and gas could be accumulating. The justification for delaying the level monitoring is provided in the basis for the process standard, but both the site rep and the facility representative questioned the lack of monitoring given the extended cessation of sludge vacuuming. This issue is being investigated by Fluor Hanford.

Demonstration Bulk Vitrification System (DBVS): The latest full-scale test (Test Melt 38B) at an off-site location was terminated on November 22, 2005, after completing the addition of only five of the planned eight loads of simulated waste. The entire test was expected to last six days but was stopped after seven days because there were indications that the Tri Mer off-gas scrubber would require corrective maintenance before all eight loads of simulant could be added. The most significant test aberrations noted were a few brief periods when the pressure in the melter was higher than atmospheric pressure. The melter was designed to be under a vacuum during the entire melt process. Small puffs of smoke were seen near the melter seals when the melter vacuum was lost. It is likely that another full-scale melter test will be required to fully resolve some of the goals for test 38B as well as address the positive pressure transients.

Single-Shell Tank S-112 Waste Retrieval: The testing of the Remote Water Lance (RWL) in tank S-112 continued this week. The hard heal waste in one quadrant of the tank was liquified in six hours. A significant quantity of insoluble silt-like waste settled back to the tank bottom before it could be pumped to double-shell tank SY-102. The concurrent operation of the RWL and waste retrieval by pumping is not allowed by procedure. CH2M Hill Hanford Group will investigate if it is safe to break up and agitate the waste while the retrieval pump is operating. If this can be done safely, procedures will be modified and additional waste could be retrieved.

cc: Board Members