

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 12, 2011

**TO:** T. J. Dwyer, Technical Director  
**FROM:** W. Linzau and R. Quirk, Hanford Site Representatives  
**SUBJECT:** Hanford Activity Report for the Week Ending August 12, 2011

Office of River Protection (ORP): The site rep observed an outbrief by the panel members who reviewed a Differing Professional Opinion (DPO) related to the waste mixing problems in a number of vessels in the WTP Pretreatment (PT) facility. The DPO, written by an ORP scientist, identified flaws in the model used to analyze mixing in the non-Newtonian vessels (NNVs), voids in the design basis for the NNVs, and inadequacies in the tests that support the design of the NNVs, and as such, concluded that completing the fabrication of the vessels was premature. The panel members agreed that the technical issues raised by the scientist were correct but concluded that welding the heads onto the vessels, the remaining step before the vessels can be shipped to WTP, was a project management risk decision. The panel members noted the open technical issues need to be properly identified and tracked to resolution before the NNVs are installed in the PT facility. The panel members suggested that DOE investigate if there are other aspects of the design that are not properly supported by research and engineering or verified with prototypic testing. Additionally, they questioned if there are systemic or management flaws that led to the need for the scientist to initiate the DPO.

Tank Farms: C Tank Farm was evacuated when the insulating foam glued to a glycol heater on a new ventilation exhauster started smoking. The Hanford Fire Department (HFD) extinguished the fire and no contamination spread was detected. The exhauster had been undergoing tests prior to being connected to the headspace of single-shell tank C-107, and had been shut down so workers could go to lunch. The response by workers and managers appeared to be generally adequate except for the half-hour delay in calling 911 to notify the HFD. The tank farms emergency response procedure for a fire identifies calling 911 as one of the first action steps. The failure to promptly call 911 is a recurring problem at Hanford (see Activity Reports 8/10/07, 3/21/2008, 2/12/10, 7/30/10, and 10/22/10) and had also been recently noted by ORP facility representatives during a drill in the tank farms.

ORP approved the safety design strategy (SDS) for upgrading the ventilation systems for the double-shell tank (DST) to safety-significant (SS). The SDS notes that the project will be completed in two phases – documentation updates to the DSA and later field improvements.

618-10 Burial Ground: Contractor senior management determined that additional evaluation of the hazards at the burial ground is required before continuing with normal operations. The project has been finding more anomalies, such as various sized bottles of waste, and they have been working on a process to safely treat these anomalies (see Activity Report 7/29/11). The evaluations include a re-assessment of the Facility Hazard Characterization to ensure the project is still below the Hazard Category 3 limits. In addition, they are revising procedures to fill gaps in the process steps in which workers could make decisions without sufficient analysis of the hazards. The project will continue to excavate and remediate the soil but have committed to leaving waste containers covered until they complete their evaluations and corrective actions.

U Plant: The contractor successfully moved the D-10 tank to a shipping cask, installed the lid and on Wednesday shipped it to the Central Waste Complex (see activity Report 7/22/11).