

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 28, 2011

**TO:** T. J. Dwyer, Technical Director  
**FROM:** W. Linzau and R. Quirk, Hanford Site Representatives  
**SUBJECT:** Hanford Activity Report for the Week Ending January 28, 2011

Supplemental Treatment Project: The visibility of this project has increased with the recent Office of River Protection (ORP) direction to the Tank Operations and Waste Treatment Plant (WTP) contractors to evaluate options for beginning hot operations in the WTP Low Activity Waste (LAW) facility in late 2016. The Supplemental Treatment Project has a treatment subsystem that would be the source of feed to the LAW facility until the WTP Pretreatment facility is on-line. ORP directed the Tank Operations Contractor to submit the critical decision (CD)-1 package for the treatment subsystem to DOE Headquarters by September 30, 2011, and submit the CD-1 package for the non-WTP immobilization subsystem by April 30, 2012 (see Activity Report 4/30/10).

Last week, the contractor completed a preliminary technology readiness assessment for all of the options for supplemental treatment in support of CD-1. The contractor concluded that all of the options being evaluated were at a technical readiness level (TRL) of four or above, except for caustic side solvent extraction (CSSX). If CSSX is the selected treatment option, the contractor will have to do additional development to get it to a level four prior to CD-1 approval per DOE guidance.

The site rep questioned why one of the immobilization technology options, Fluidized Bed Steam Reforming (FBSR), was assigned a TRL of four when one of its critical elements, the monolithing system, was only rated as TRL-3. The contractor expects this critical element will be at a TRL-4 in the near future and believe they have the latitude to assign an overall TRL of four to the FBSR.

Tank Farms: The contractor concluded that the failure to leak test safety-significant jumpers at the code-required pressure is an unreviewed safety question (see Activity Report 1/21/11).

The contractor engineering organization recommended to senior management that single-shell tank SX-104 should be reclassified from an “assumed leaker” to a “sound” tank. The assessment team members who made this recommendation concluded the inventory loss was caused by evaporation; this had been hypothesized in the past, but they believe previous reviewers may have misinterpreted the impact of interstitial liquid levels.

Sludge Treatment Project: The site rep observed portions of the control decision meeting held to evaluate potential changes to the controls described in the Conceptual Safety Design Report. Recent draft accident analyses indicate the consequences to workers and the public are lower than previously assumed. The control decision team, which included personnel from engineering, nuclear safety, operations, fire protection, and radiological controls, was engaged and the topics were thoroughly discussed. It appears that contractor management will retain many of the previously defined safety systems as safety-significant controls.