

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 1, 2012

**TO:** T. J. Dwyer, Technical Director  
**FROM:** W. Linzau and R. Quirk, Hanford Site Representatives  
**SUBJECT:** Hanford Activity Report for the Week Ending June 1, 2012

Sludge Treatment Project (STP): The contractor completed their Readiness Assessment (RA) for processing the Knock-Out Pot (KOP) material. The RA team concluded that KOP processing can proceed after the project's self-identified and two minor RA team pre-start items are completed. The RA team leader praised the completeness of the contractor's readiness preparations and the thoroughness of the documentation for the associated Management Self-Assessment. Neither the Richland Operations Office (RL) oversight team nor the site reps identified any significant issues during the RA.

Interim Hanford Storage (IHS): The site rep observed the contractor's control decision meeting for the conceptual design of the IHS Facility. The IHS will be used to store the immobilized high-level waste (IHLW) canisters from the WTP until the final off-site repository is available. A Safety Design Strategy is being created to document the controls and it will be released with the CD-1 package. The facility will have five-foot-thick concrete walls to reduce the dose to workers from the 4,000 IHLW canisters that are expected to be produced during the first 10 years of WTP HLW facility operation. The contractor believes no safety SSCs will be required, but TSR-level administrative controls for criticality and combustibles may be required. A primary concern is that the IHLW canisters not be damaged during storage, such as by spalling concrete, because this may make shipment off-site more difficult, and this design goal seems to be more limiting than standard nuclear safety requirements. The structural concrete could overheat after an extended loss of ventilation, so the ventilation system may be identified as a defense-in-depth system. The contractor is expected to design the facility to seismic design criteria 2/limit state C requirements. The site rep, Office of River Protection (ORP) nuclear safety analyst, and the contractor discussed the potential need for crediting a control on the crane maintenance bay shield door because worker exposures could be as high as 46 rem per hour when the it is open.

Tank Farms: The contractor held a meeting to discuss the proposed readiness review for the next time they process waste in the 242-A evaporator. The contractor concluded that a RA is required because it has been more than a year since the evaporator processed waste. Additionally, a significant number of modifications were completed since the evaporator last processed waste and a new DOE-STD-3009 CN-3 compliant DSA will result in a number of changes to safety SSCs. It is likely that the contractor will request that the ORP RA and the contractor RA be conducted in parallel.

Waste Treatment Plant (WTP): Contractor management said that they expect additional testing will be required to address concerns on erosion and corrosion. This is consistent with a memorandum from the Vessel Completion Team (VCT) in which they recommend additional testing. The memorandum indicates that additional testing is required because there is limited test data and some of the previous wear measurements exceed what was predicted by the project's wear rate algorithm. The VCT's recommended testing includes tests to address the: synergy between erosion and corrosion; different nozzle configurations and materials; erosion of different piping configurations (bends, tees, and elbows); and simulants with glass former sand.