

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 6, 2012

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending January 6, 2012

W. Linzau was out of the office this week.

Tank Farms: The contractor concluded six months ago that the ventilation exhaust flowrates from four of the double-shell tanks (DSTs) were less than detectable, and three of these were among the five tanks that can spontaneously release significant quantities of flammable gas. Analysis of the data also shows that fugitive in-leakage, i.e., not going through the HEPA-filtered supply, was so great in two of the tank farms that most of the inlet supply dampers had to be shut in order to maintain a vacuum in the tanks. It is unclear why the ventilation exhaust systems were not rebalanced to ensure there was sufficient and measurable flow from all the tanks. Despite the Board's focus on issues with the DST ventilation systems for more than a year, Office of River Protection (ORP) managers were not aware of this situation until the site rep identified it to them. Even with the less than detectable ventilation flow in these tanks, ORP engineers noted that the flammable gas levels have been within allowable levels whenever they were measured.

Last week, the contractor initiated retrieval of waste from single-shell tank C-112 waste to DST AN-101 using both a standard supernatant sluicer near the top of the tank and a new design, the extendable reach sluicer system (ERSS). The articulated ERSS allows the spray nozzle to be moved closer to the waste and it was believed that this approach would expedite retrieval of the waste. The ERSS developed a hydraulic oil leak inside the tank after several days of operation. An ORP nuclear safety engineer questioned if routine use of the ERSS with a known hydraulic leak was acceptable because the criticality prevention specification identifies a leak of up to 300 gallons of the oil as an off-normal condition. This person also noted that continued use of the ERSS when it was leaking oil required a criticality safety evaluation. The contractor agreed that they would not routinely use the ERSS for operations that result in a leak. After the site rep raised additional questions concerning the formality of this agreement, the contractor agreed to revise the procedure to restrict the specific operations of the ERSS that result in the hydraulic oil leak into the tank.

The contractor has named a project manager for resolving the justification for continued operations (JCOs) for both waste transfers during low temperature conditions and transfer line over-pressurization events due to water hammer. Both of these JCOs expire in August 2012.

Plutonium Finishing Plant (PFP): The contractor has been installing a fire protection and alarm system as well as a criticality alarm system for the building that houses the facility ventilation exhaust fans. When testing has been successfully completed, which may be as soon as next week, the temporary operational restrictions for combustible loading and criticality can be lifted (see Activity Reports 3/11/11 and 9/23/11).