

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 3, 2012

**TO:** T. J. Dwyer, Technical Director  
**FROM:** W. Linzau and R. Quirk, Hanford Site Representatives  
**SUBJECT:** Hanford Activity Report for the Week Ending August 3, 2012

Board staff members D. Bullen, T. Chapman, D. Gutowski, M. Helfrich, S. Lewis, M. McCoy, N. Rapp, M. Saitta and J. Troan were on-site to discuss Emergency Management Programs and Tank Farms projects. S. Sircar observed a meeting on testing non-metallic materials used for waste transfer systems. R. Raabe observed the DOE assessment of the site's bioassay program.

Plutonium Finishing Plant (PFP): Workers were preparing to separate two gloveboxes but had to evacuate the room when two continuous air monitors (CAMs) alarmed. The workers were wearing two sets of personal protective equipment (PPE) and respirators. Contrary to the work instructions, workers had not sealed all of the flange boundaries nor removed all potential interferences before loosening most of the bolts on the flange between the two heavily contaminated gloveboxes. Just prior to the CAM alarm actuating on a high DAC rate of change, workers had cut off another piece of potential interference on the bottom of the glovebox. Workers believe that vibrations from the cutting operation flexed the gasket in the loosened flange, releasing significant quantities of flighty contaminated material. At the time of the alarm, the remote reading CAMs indicated 16 and 31 DAC. Five of the personnel that exited had contamination on their outer set of PPE but no skin or nasal contamination was found. The CAM readings continued to rise after personnel exited and went as high as 542 DAC. The contractor project manager has suspended the work package and appears to be taking strong action to prevent recurrence.

Waste Encapsulation and Storage Facility (WESF): The project determined that a Potential Inadequacy in the Safety Analysis (PISA) exists due to the possibility that high radiation fields could have degraded the concrete of the storage basins. The contractor conducted literature studies to understand the phenomena and determined that limited concrete degradation is possible based on the radiation fields, but no evidence of degradation has been observed. The contractor's PISA evaluation notes that "although there is likely sufficient conservatism in the WESF pool structure design, this is not documented in the safety basis" and will require "further structural evaluation or analysis."

River Corridor Closure Contractor: The contractor briefed Richland Operation Office (RL) and the site rep on the drum with pyrophoric materials that ignited during the stabilization efforts (see Activity Report 6/29/12). The project conducted several evaluations involving the nuclear safety, industrial hygiene, and radiological controls organizations. The project revised their procedure to resume drum stabilization and the additional controls include an enlarged isolated work area (airborne radiation area), increased air monitoring, and the use of a water fog downwind of the work area to reduce the possible spread of contamination.

RL completed a reactive surveillance of the contractor's programs for fall hazard identification, protection, and controls. The surveillance report notes 12 findings and three observations. RL writes that the contractor "needs to remain diligent in ensuring that corrective actions from previous events continue to be effective." The contractor had implemented corrective actions after a significant injury in July 2009 when a worker fell 50 feet (see Activity Report 7/3/09).