

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 9, 2012

**TO:** T. J. Dwyer, Technical Director  
**FROM:** D. Gutowski and R. Quirk, Hanford Site Representatives  
**SUBJECT:** Hanford Activity Report for the Week Ending November 9, 2012

W. Linzau completed his assignment as a Hanford Site Representative and was replaced by D. Gutowski. Board staff members J. MacSleyne, D. Owen, and J. Troan were on-site to review the implementation of work planning and control practices at the Plutonium Finishing Plant (PFP).

**Plutonium Finishing Plant:** Worker distraction resulted in two separate problems; one led to workers failing to comply with a criticality control during size-reduction of pencil tanks and the other led to the improper switching of exhaust fans. The work instructions for size-reducing the pencil tanks required work supervisors to maintain a running inventory of the fissionable material as they processed the tanks. Once a threshold value was reached, the workers were to remove fissile material from the work area and then the supervisor was to rezero the inventory. The work supervisor was distracted by other tasks and did not ensure the need to rezero the inventory was adequately addressed during a meeting held to discuss technical issues specific to size-reducing this tank. Later that day, the supervisor authorized workers to proceed with size reducing the tank. There was no threat of a criticality event because workers had effectively removed the fissile material from the work area after processing each of the previous pencil tanks. But due to inadequacies in the work instructions, the work supervisors did not rezero the inventory after those cleanup activities.

The improper switching of the ventilation exhaust fans resulted in a transient condition that impacted building zone pressures for a brief time. In support of post-maintenance testing, a worker had been briefed to start one exhaust fan and then shutdown another. The worker, who stated they may have been distracted by other unrelated problems earlier in the shift, started the correct fan but stopped the incorrect exhaust fan. This resulted in two modulating exhaust fans in operation, which permitted the ventilation supply flow to overwhelm the exhaust flow. Normal ventilation conditions were restored and subsequent radiological surveys demonstrated that there was no measureable loss of confinement.

**Waste Treatment Plant:** The contractor nuclear safety manager stopped the ongoing hazard analysis meetings until corrective actions are implemented for problems noted by the Board's and DOE headquarters' staffs. The contractor is revising associated procedures and processes to ensure the hazard analyses are comprehensive, consistent, accurate, repeatable, and defensible.

**Tank Farms:** The Office of River Protection approved changes to the safety basis that will close two long-term justifications for continued operation (JCOs). The JCOs addressed problems with freezing and solids precipitating in the waste transfer lines as well as water hammer events that could exceed the design pressure of the waste transfer system components (see 9/21/12 Report). The contractor is adding safety-significant thermocouples for monitoring temperatures but is removing safety-significant pressure relief valves. New and revised specific administrative controls (SACs) include protecting the waste transfer system from both freezing and overpressure events. The contractor is also developing another change to the safety basis that would permit continued operation of the Mobile Arm Retrieval System (MARS) for single-shell tank C-107 because the new time-to-freeze analysis does not bound the existing MARS design.