DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 24, 2009

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending July 24, 2009

Plutonium Finishing Plant: Two continuous air monitors (CAMs) alarmed in the Plutonium Reclamation Facility during work to remove material from a glovebox. The cause is believed to be a breach in a load-out port sleeve. Two of the 18 workers evacuated had skin contamination levels as high as 1200 dpm alpha and one of these workers showed signs of heat stress. The sole decontamination trailer at PFP was out of service and an alternate location had not been identified. Response activities were also slowed because this work was being completed on the second shift when fewer support personnel were available. Workers declared a "stop work" because the weaknesses noted during the emergency response resulted in safety concerns. The "stop work" was lifted when: temporary cooling was supplied to the decontamination trailer, an alternate decontamination area was set up, and emergency response procedures were revised to include the alternate area.

Waste Treatment Plant: Meetings were held this week to resolve comments on the test plans for experiments to verify operational capabilities of the pulse jet mixers (PJMs). The comments were made by members of the External Flowsheet Review Team (EFRT) and indicated they did not believe adequate suspension of particles in some vessels would occur and design improvements should be investigated during the testing. At the exit briefing an EFRT member expressed that the testing results might not align with the correlations that predict the nozzle velocities required for suspension of larger particles off the bottom of vessels. The EFRT member is planning to observe the testing and review the results.

The site rep walked-down the test stand for PJM mixing testing, which consists of a Plexiglas vessel that is four feet in diameter and can hold eight or 12 PJMs. The project began commissioning of the equipment and is nearing the start of testing. Vessel and PJM design changes are being considered, such as flow diverters, to achieve suspension of heavier particles.

Waste Stabilization and Disposition Project: The contractor performed the dry-runs for loading and shipping the Pu-238 drums (see Activity Report 5/29/09). In a few weeks, DOE is expected to approve the revision to the Safety Analysis Report for Packaging (SARP) that allows the use of the radioisotope thermoelectric generator shipping cask for these drums.

The contractor started planning for retrieval of remote-handled TRU waste from caissons in the 4B burial ground. The current plan includes a minimum of two mobile facilities: one is an enclosure to provide confinement over the caisson during retrieval and the other mobile unit is for repackaging the waste in preparation for disposal at WIPP. The effort is funded by ARRA money, which is driving the start of operations before 2013.

Tank Farms: The contractor completed testing for the anomalies in the valve pit in AP Farm (see Activity Report 7/17/09) and determined that the leak detector operates properly. They also pressure-tested the valves and determined that they do not leak when exposed to normal operating pressure. The contractor had planned to replace these valves using ARRA funds.