DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 16, 2011

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending December 16, 2011

Staff members P. Fox, A. Gwal, and M. Horr were on-site to review the electrical design and construction of the Waste Treatment Plant. In addition, staff member J. Troan was on-site to observe a contractor corporate assessment of work controls at the River Corridor Contractor.

Tank Farms: The contractor concluded that the root cause for the unreviewed safety question (USQ) (see Activity Report 10/7/11) for plutonium (Pu)-rich particles being larger than that assumed in the Criticality Safety Evaluation Report (CSER) was a lack of information regarding Pu waste streams when the CSER was written in 1994. The root cause analysis (RCA) team identified a similar concern with uranium (U)-233, but they concluded that isotopic separation of U-233 was not credible.

The contractor completed another RCA for the USQ related to waste transfer system design temperature discrepancies, waste freezing, and solids precipitation/deposition. The contractor identified three root causes related to weaknesses in engineering procedures and training of personnel. These led to inadequate functional requirement documents and errors in the DSA.

The contractor is attempting to use Raman spectroscopy to characterize the waste in single-shell tank C-111. The goal is to determine the chemical makeup of the solidified waste, which has proven to be very difficult to sample and retrieve.

The contractor held a critique for an incorrect lock-out/tag-out (LO/TO) for maintenance of an annulus level detector (Honeywell Enraf) for a double-shell tank in SY Farm. Workers believed they had adequately isolated power to the device but found 120Vac power during their safe-to-work check and stopped work. Subsequently, engineers found a drawing that clearly identified both sources of power. The critique team questioned if the eight-criteria lockout was an appropriate control even if there was only one source of power to the level detector.

Presentation on Seismic Monitoring: The site rep observed a presentation sponsored by the Mission Support Contractor that discussed seismic monitoring in the region, event notifications, and the work done by the Pacific Northwest Seismic Network (PNSN). The Hanford site has five strong-motion seismic sensors. The signals generated from these and other sensors across the region are continuously monitored by experts from the University of Washington as part of the PNSN. When seismic events occur, various organizations are notified, including Hanford's Emergency Operations Center.

Canister Storage Building: The contractor held a critique to investigate a concern expressed by a Richland Operations Office facility representative (FR) with regard to compliance with the LO/TO procedure. Workers were doing maintenance on the rail clamps (brakes) for the canister handling machine and appropriately locked-out the electrical power. The FR questioned if the installation of a locking bolt into the brake assembly was an additional lock-out that required formal control. The bolt is part of the manufacturer's design that allows the brake shoes to be replaced and the project is evaluating if a LO/TO tag is required on the bolt.