DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 4, 2011

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending March 4, 2011

Tank Farms: This week, the Office of River Protection (ORP) directed the contractor to restore the ventilation systems for the double-shell tanks (DSTs) to a safety-significant (SS) status. The systems had been SS until ORP approved a downgrade last year. The Board, in a letter dated August 5, 2010, noted that it was inappropriate to downgrade the safety pedigree of these systems, and last fall, a DOE Headquarters review reached a similar conclusion as the Board (see Activity Report 12/17/10). The ORP letter directs the contractor: to submit a safety basis amendment by the end of June 2011 to designate the existing DST ventilation systems as SS; to measure and verify the ventilation flow from each DST to ensure it is adequate for removing flammable gases; and to perform a gap analysis to identify any discrepancies between the existing system and the functional/performance requirements. Additionally, the contractor was directed to procure and install backup power systems by the end of February 2012. ORP also directed the contractor to upgrade the DST ventilation systems, as necessary, to support future DST mixer pump operation.

The contractor is revising the DSA for the 242-A Evaporator to conform to current standards and ORP guidance for worker protection. The contractor's nuclear safety manager told ORP that any permanently installed equipment that is used for specific administrative controls will be SS.

Waste Treatment Plant: The contractor started a hazard and operability analysis (HAZOP) of vessel mixing associated with controlling hydrogen accumulation in the Pretreatment facility. The purpose of the HAZOP is to identify the key parameters that must be controlled to provide a high level of confidence that mixing is working to release hydrogen that could accumulate in settled solids. The parameters to be examined were separated into three groups: operating parameters, such as mixing time and pulse jet mixer overblows; fluid parameters, including particle size, waste viscosity, and hydrogen generation rate; and processing parameters, such as transfers, leaching, and filtration. Each of the parameters will be evaluated to determine the effect of perturbation and to identify the hazards requiring controls. The contractor decided to conduct a HAZOP specifically for mixing because it is credited in multiple systems and this effort will simplify the HAZOP process for other systems in the Pretreatment facility.

100 N Area: A fact finding was held this week to determine the sequence of events that led to a contaminated water sample being stored outside a posted area and the failure of its seal. Samples of various materials from the site, including this water sample, had been sent for analysis and were returned to the project for re-introduction to the source waste streams. The worker assigned to do this task left the samples in a locked, but un-posted Conex box last weekend. Record low temperatures on the Hanford site last weekend caused the water sample to freeze and subsequently leak into the surrounding bag. In addition to the mishandling of the sample, workers demonstrated poor response actions when the leak was discovered. Instead of declaring a spill and requesting immediate radiological control technician support, the workers waited until after lunch to take the appropriate actions for a potential spill.