DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 10, 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 10, 2012

Board Staff members J. Abrefah, D. Gutowski, P. Meyer, and A. Poloski, were on-site to discuss the results from spray leaks testing and the accident analysis for the Sludge Treatment Project.

618-10 Burial Ground: The contractor completed the stabilization of the drum that had the pyrophoric reaction (see Activity Report 6/29/12). The site rep noted the pre-job briefing was very well conducted and supervisors quizzed the workers extensively (more than 20 separate questions) on all aspects of the job and their responsibilities. The stabilization of the drum took less than 30 minutes and no energetic reactions were observed. The contractor plans to follow their normal waste handling procedures to dispose of the remaining waste now that material in the drum appears to be stabilized.

Plutonium Finishing Plant: Contractor management stopped all intrusive work on systems or transfer lines that could contain chemical hazards after workers discovered concentrated nitric acid in a waste transfer line that was being size-reduced. While cutting the transfer line with a band saw inside a glovebag, the workers noted black liquid being sprayed by the saw blade. They stopped, consulted with subject matter experts, and modified their personal protective equipment (PPE) to address the new chemical hazards. After donning the additional PPE, they changed the saw blade that had been damaged by the acid and finished the cut. At that time they noted the acid had damaged the glovebag and gloves. Contractor management will not release similar work packages until the safety and health manager verifies that new controls are addressed. The new controls for similar work are based on assuming all liquids are greater than 50 percent nitric acid and the glovebags will have either a double floor or catch basin.

Tank Farms: The contractor identified a problem with equipment used to retrieve waste from single-shell tank C-107. They have retrieved approximately 200,000 of the 250,000 gallons of waste from the tank. The contractor recently noted waste seeping from the rotary union (RU) of the Mobile Arm Retrieval System (MARS), which is located inside the containment box above C-107. The DSA requires the RU not leak because it is part of the safety-significant primary pressure boundary of the waste transfer system. The contractor requested that the Office of River Protection (ORP) approve a change to the safety basis to allow this leak while they remove the remaining waste. The contractor has convinced ORP managers that during the remaining life of the equipment the leak will not degrade to a fine spray. Other unresolved safety-related problems with the tank farms waste transfer systems noted during the last year include: components freezing or overheating, blockage of relief valves, and water hammer.

The contractor successfully completed testing that will allow them to increase the waste levels in double-shell tanks AP-101 and AP-105. These are the third and fourth of the eight tanks in AP farm that will have their operating capacity increased by approximately 100,000 gallons.

Sludge Treatment Project: The contractor initiated their final design review for removing the sludge from the engineered containers in the K West Basin into 25 sludge transfer system casks. The design review should be completed in approximately two weeks and the contractor expects to submit the Preliminary Documented Safety Analysis to DOE in January.