DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 21, 2010

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending May 21, 2010

Board staff members C. Butch, J. MacSleyne, J. Troan, and R. Verhaagen were on-site reviewing the work planning and control used by the plateau remediation contractor.

Waste Treatment Plant: The contractor conducted a Safety Input Review Committee (SIRC) meeting to discuss the recently completed severity level assessment that quantifies the unmitigated consequences from design basis events in the Pretreatment facility. The assessment indicates that a hydrogen explosion in the headspace of a process vessel would cause dose rates to exceed 25 rem committed effective dose equivalent (CED) to the public and 100 rem CED to the collocated worker (CLW). These values are assumed because waste solids coating the interior surfaces of the vessels would contribute to the dose during an explosion event, but quantification of how much is contributed is not feasible without developing empirical data. In addition, the analysis determined that the worst case spray leak would cause a dose of 329 rem CED to the CLW and that an event involving the uncontrolled addition of steam used to heat waste in a vessel would yield a CLW dose of 986 rem CED. During the SIRC meeting, members indicated that some of the initial conditions used in the analysis were inconsistent with the normal operating parameters in the process flowsheet. The contractor plans to revise the calculation once these inconsistencies are understood and as needed as the design matures.

Plutonium Finishing Plant (PFP): In response to the safety shutdown initiated by contractor management last week, management met with workers to solicit suggested improvements that could be made to resolve the increasing number of safety and conduct of operations concerns noted by the PFP managers. The suggestions were reviewed by management on Tuesday and on Wednesday supervisors flowed down the directed changes, but the messages received by the workers were not consistent. This apparent miscommunication led to a worker initiating a "stop work." Another "stop work" was initiated because workers were concerned that alpha contamination found in the main facility ventilation duct level could be an indicator of potential beryllium contamination in areas believed to be free of the metal.

Beryllium Contamination: Senior site DOE managers held a series of meetings with workers to discuss actions that are being taken to improve the beryllium safety program. The DOE Office of Health, Safety and Security recently conducted a review of the beryllium program at Hanford and identified a number of problems, which are captured in a report that is expected to be issued in the near future.

100K Project: A questioning attitude by a field work supervisor led to the conclusion that work to characterize the K East reactor core and shielding was performed for several weeks without first completing a step with a hold point. The procedure to collect a core bore had a step that invoked steps in the associated sampling procedure. These steps were to install and then verify proper installation of a glovebag used for size-reducing the sample before sending it to the lab for analysis. The verification step had a hold point, but this was not completed before boring the reactor. Corrective actions include breaking the procedural tie between the two procedures.