DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 6, 2009

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending November 6, 2009

Board staff members R. Arnold, S. Lewis, J. MacSleyne, and R. Verhaagen, and outside expert D. Volgenau were on-site conducting a review of work control at the Tank Farms. A. Poloski observed a program review meeting on vessel mixing at the Waste Treatment Plant.

Tank Farms: While transferring waste from double-shell tank AN-101 to AP-105 (see Activity Report 10/23/09), the contractor failed to correctly perform radiological monitoring surveys that were developed to check for waste leaks. The detailed radiological monitoring plan, a corrective action for the S-102 spill, provides specific locations where dose readings are to be taken as well as a value that, if exceeded, could indicate a leak, and requires the pump to be shut down . The worker assigned to conduct the surveys was poorly briefed and supervisors failed to request the results from the periodic surveys. Therefore, nobody noted that the dose rates had exceeded the shutdown criteria during operations last week, and the Senior Supervisory Watch only noted the discrepant condition this week after hours of operation above the limit. Upon noting the discrepancy, personnel were directed to re-enter the farm and verify the dose values, but operators did not immediately secure the transfer as required by the procedure.

The contractor's inadequate understanding of the AN-101 pump starting characteristics led to errors in the design of a low-flow pump trip and resulted in two failed attempts to start the pump. Design and procedure changes will be implemented this weekend before the planned restart of the transfer on Monday. The continuing problems with the design, operation, and safety strategy for this portion of the waste transfer system have caused the site reps to have increased concern.

Waste Treatment Plant: The Office of River Protection (ORP) approved the safety basis (SB) change package related to the revised material at risk and hydrogen control strategy (see Activity Report 10/16/09). The ORP Safety Evaluation Report (SER) contained four conditions of approval (COAs) that limit the implementation of the approved changes. The SER states that the COAs were written to ensure timely resolution of comments to support the project's design schedule. ORP concluded that there is adequate assurance that the safety design will not be adversely affected by the approved changes, but the site rep believes the quantity of outstanding comments gives indication that some adjustment in the approach may be required in the future.

Plateau Remediation Contractor: The site rep observed the contractor's Safety Leadership Workshop, which is intended to improve the safety culture, but some of the material presented was inconsistent with that objective. Instructors made analogies, omissions, and inferences that reinforced the concept that nuclear safety requirements hinder safe completion of work and cause overly complex procedures. A senior contractor manager committed to ensure the training is realigned with its original intent and management expectations.

The contractor completed the investigation into the drop of an interim storage cask at the Canister Storage Building complex (see Activity Report 10/9/09) and determined that the cause was human error with a potential contributing cause of a mechanical deficiency.