DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 6, 2004

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site February 6, 2004

Sludge Retrieval and Disposition Project (SRDP): A review of the hazard evaluation for the revised work scope of the sludge retrieval, limited to North Load Out Pit (NLOP), was conducted this week. The hazard evaluation approach consisted of a determination of which previously identified hazards are not applicable to the NLOP activity, a reevaluation of the assigned frequency, consequence, and risk bin classifications of the remaining hazards, and an evaluation of which previously required systems, structures, and components as well as controls are no longer applicable. However, the hazard evaluation did not review the changes to the scope of work to determine if new hazards were introduced. A clear example of a missed hazard is the retrieval of floor and canister sludge which could result in gas generation rates that would require controls along the lines of those that were determined to not be applicable. A review of the safety analysis submitted to DOE confirmed that no controls are in place for this hazard. An inadequate hazard evaluation was a likely contributing factor to a Potential Inadequacy in the Safety Analysis identified during reviews in response to the failed operational readiness review, raising concerns with the effectiveness of corrective actions for these problems. (IV)

Tank Farms: The Double Shell Tank Waste Level Increase Expert Panel released their recommendations. The panel recommended an operating limit of 449 inches subject to video annulus surveillance during the first fill to heights above 422 inches, performing additional material balances, having the ability to lower the primary tank waste level if leaks are detected, and having all annulus leak detection and ventilation equipment operating. The panel also recommended that a series of nondestructive examinations and analysis be performed for one tank in each tank farm prior to increasing the waste height in that farm to verify the design assumptions. The allowable bulk waste specific gravity was lowered to 1.51 to offset any increased loads on the tank due to higher waste levels. (III)

Waste Treatment Plant (WTP): The Office of River Protection completed their review of the adequacy of the WTP black cell design. The team concluded that the black cell design can meet the required 40-year operating life provided Bechtel National Inc. continues to implement their design/construction processes effectively and resolves their recommendations and open items. The team's concerns include:
1) the technical basis for the selection of the materials of construction and the establishment of the corrosion and erosion wear allowances are not defensible because the rationales are not clear or the technical basis for allowances is not traceable to the supporting documentation,
2) the design processes used to establish the spare and redundancy requirements are either not defined or not consistently applied, thus resulting in potential single and common cause failure modes for plant operations, and
3) the design documentation generated for the piping does not completely and accurately depict the interfaces between the black and hot cell. (III)