DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 5, 2001

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJECT: Activity Report for the Week Ending January 5, 2001

Tank Farms: Four of the low activity waste (LAW) tanks are flammable gas tanks with a saturated liquid layer on top of undissolved and insoluble solids. The retrieval strategy for these tanks is to install a transfer pump and decant the existing clarified supernatant to a staging tank using in-line water dilution. After the LAW has settled and been characterized, the clarified LAW would be decanted from the staging tank to the waste treatment plant (WTP). Water would then be added to the source tank and a mixer pump installed to dissolve the soluble salts remaining in the source tank before direct transfer to the WTP. Decanting is expected to produce several rapid gas releases from waste pockets that become buoyant, potentially causing the tank vapor space to approach or exceed 25 percent of the lower flammability limit. CH2MHill Hanford Group (CHG) plans to address these releases by monitoring the flammable gas concentrations in the vapor space, slowing or halting decanting when a gas release event occurs, and allowing the ventilation system to return the flammable gas concentrations to nominal conditions. CHG has chosen this strategy because they believe that direct decanting can remove the gases from the solids layer with the same degree of safety as mechanical mixing while avoiding a 2 to 6 month mixing and resettling period. However, the staff has some potential concerns with this strategy and will discussing these concerns with the Office of River Protection and CHG in more detail.

The series of small gas release events resulting from direct decanting is also expected to inject some solids into the liquid phase, although this volume of solids is expected to be smaller than that carried as a result of incomplete settling after mechanical degassing. A staging tank will be used to allow these entrained solids to settle from the initial source tank batch to make sure the 2 percent solids limit is not exceeded. Testing indicates that the waste after salt dissolution can be transferred to the WTP without intermediate staging and decanting. (III-A)

Spent Nuclear Fuel Project: The cold vacuum drying facility has continued to conduct training on multi-canister overpack (MCO) processing to correct conduct of operations deficiencies identified during operational readiness reviews (ORRs). The training initially performed all sections of the operating procedure including equipment setup, processing, equipment disconnect, and preparation for shipping. Subsequent training has simulated the processing step to maintain sufficient remaining capacity in the process water conditioning system holding tank to allow continued operations. Draining this tank was one of the activities not authorized by the DOE ORR because the project was redesigning the particulate filter for the system. The 5000 gallon tank currently is 20 percent full with each MCO adding approximately 150 to 200 gallons. (III-A)

cc: Board members