

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 21, 2004

**TO:** K. Fortenberry, Technical Director  
**FROM:** D. Grover and M. Sautman  
**SUBJ:** Activity Report for the Week Ending May 21, 2004

Tank Farms: Workers inspected the clean out box which was inadvertently used to transfer waste during the last evaporator campaign. (See 4/23/04 report). Contamination levels on the inside of the spray shield were not elevated. It appears that waste leaked from the hot tap(s) installed on the mining legs, which are connected to the primary slurry transfer line. Dried waste was found around the two mining legs, the absorbent padding between them, and streaking down the inside of the 12" encasement line. In addition, approximately 500 ml of waste was found trapped in a plastic cover attached to one of the mining legs. Dose rates near the visible waste were as high as 6 rem/hr (window open) and 2 rem/hr (window closed). The investigation was terminated after the sleeve of one of the worker's anti-contamination clothing became contaminated (20 mrad/hr - too high for individual counts) and exceeded allowable limits. (II)

The root cause analysis investigating why AW-106 was converted into a Waste Group A tank (see 4/16/04 report) identified that the elimination of a number of good engineering practices over the last 5 years allowed solids to accumulate undetected in this tank up until the point that gas retention could become a concern. This combined with decisions to fill AW-106 to within 1" of the level that would convert AW-106 to a Waste Group A tank caused the event to happen when new data found that solids were higher than that measured in 1999. As a result of this incident, CH2M Hill Hanford Group (CHG) performed an assessment of the buoyant displacement gas release event model process, which identified weaknesses with the documentation of assumptions, input data, and calculations. Engineers are also trying to prevent the creation of additional Waste Group A tanks by developing an appropriate operating margin for the energy and buoyancy ratios. The team is also developing recommendations for eliminating physically impossible combinations of parameters used in Monte Carlo runs, improving the quality of key process chemistry parameters, and addressing chemistry changes that can occur during waste retrieval. (II)

An independent assessment of CHG's implementation of the As-Low-As-Reasonably-Achievable program, radiological work planning, and field implementation of radiological controls specified in work planning documents resulted in many findings and observations. In general, there was too much reliance on field radiological support to ensure radiological controls are correctly identified and applied as opposed to clear work definition, hazard identification, hazard analysis and mitigation, and then post job analysis as specified by the Integrated Safety Management System and CHG job planning requirements. (IV)

Sludge Retrieval and Disposition Project (SRDP): The DOE Operational Readiness Review for North Load-Out Pit sludge retrieval commenced this week. DOE line management has required that the project address recent programmatic issues with corrective action management and conduct of operations prior to startup of the activity. (II)