

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 15, 2002

**TO:** K. Fortenberry, Technical Director  
**FROM:** D. Grover and M. Sautman, Hanford Site Representatives  
**SUBJ:** Activity Report for the Week Ending February 15, 2002

Tank Farms: Flammable gas concentrations in tank S-111 (which was expected to have significant gas retention) quickly rose after saltwell pumping was initiated at the end of January. Pumping was shut down a week ago when the flammable gas concentration was found to have reached 38% of the lower flammability limit (LFL) in the tank and 35% in the pump pit. Over the last week, hydrogen gas concentrations have fluctuated between 5200 and 6500 ppm (6250 ppm corresponds to 25% of the LFL for tank gas mixtures). Workers removed sealant from the pump pit to increase passive ventilation of the pump pit and hope to hook up a portable exhauster to the tank in the next 2-3 weeks. In the meantime, CH2M Hill Hanford Group (CHG) hopes to resume saltwell pumping at a reduced flow rate (½ gpm versus 3-4 gpm) once hydrogen concentrations fall below 5000 ppm, perhaps as soon as Saturday. Although the normal administrative control stops pumping when 6250 ppm is exceeded, CHG plans to stop pumping if 5500 ppm is exceeded again. (III-A)

Spent Nuclear Fuel Project (SNFP): Mr. Grover reviewed the work package for the repair of the Multi-Canister Overpack Loading System hoist and observed portions of the repair process. Once the SNFP addressed the concerns discussed in last week's report, the resulting package contained enough direction and implemented sufficient controls to safely perform the work. The project is working to revise and test the control software to ensure the limit switch interlocks will be functional in all operational modes to minimize the potential for subsequent damage. (III-A)

Recommendation 2000-2: The preliminary findings of the Transfer Leak Detection System Phase 2 Assessment identified issues with unauthorized work performed during surveillances, lack of feedback on degradation found during surveillances, safety analysis coverage of aging waste facility (AWF) leak detection pits, technical training of systems engineers, and the maturity of the problem evaluation request process. Mr. Sautman met with CHG systems engineers to discuss temperature monitoring of AWF tanks where 25% of tree thermocouples and 47% of air lift circulator thermocouples have failed in the last 5 years. This 30-year old system is prone to moisture and end-of-life failures since the thermocouples are made of iron and the extension wire is directly buried in the ground. Although this safety significant system still meets authorization basis requirements (even with these failure rates), CHG has initiated a study of the number and location of thermocouples needed to support future activities (e.g., waste retrieval) and identify needed upgrades. Inaccurate readings from a failing thermocouple almost led to the performance of unnecessary recovery actions last summer before the problem was identified. (I-C)

T- Plant: Mr. Grover attended the deficiency evaluation group (DEG) meetings to address findings from the Waste Management Project management assessment of T-Plant readiness for increasing the facility hazard classification and removal of Shippingport fuel. The findings were conservatively addressed with formal root cause analyses performed based on new guidance to address DOE concerns that the corrective action management process trivialized readiness activity findings. However, the Site Rep still has concerns with the lack of reference to requirements documents, relying instead on meeting participants level of knowledge, during the process to evaluate whether requirements are properly implemented from their sources to contractor and then project documents. This issue has also been observed in the SNFP DEG process. (I-C, III-A)

cc: Board Members