

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 10, 2004

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending September 10, 2004

Tank Farms: The Contact-Handled Transuranic Mixed Waste Treatment, Packaging, and Storage Facility will consist of 5 - 8000 gallon receipt tanks, 2 - 10,000 liter dryers, 2 - 18,000 gallon liquid effluent holding tanks, waste packaging module, and an off-gas treatment exhauster. During a teleconference call, the Board staff challenged the site's position that a Preliminary Documented Safety Analysis was not required per the nuclear safety rule because this facility was not a new facility or a major modification to tank farms (even though they plan to perform an Operational Readiness Review). (IV)

A preliminary analysis indicates that if a phosphate gel layer formed in a tank, it would not allow gas to be released through buoyant displacement gas release events (BDGRE), but rather continue to accumulate until the gel yields. As a result, the contractor plans to focus on developing process controls that will prevent gels from forming. (II)

For the first time, the contractor has developed a detailed flowsheet to analyze the retrieval of the 12-100 series tanks in C Farm. This integrated analysis has identified a number of process and programmatic risks: 1) the increase in the solids thickness combined with the expected supernatant height could increase the risk of BDGREs in 2 receiver tanks, 2) one of the receiver tanks' heat load would exceed the current limit by a factor of 3.4, 3) the potential for phosphate gel formation, and 4) the need to increase waste specific gravity and tank fill heights. The Site Rep will be meeting with the Chief Engineer since the contractor intends to address some of these issues by increasing the allowable heat load and reducing conservatism in their BDGRE model. (II)

Plutonium Finishing Plant (PFP): The Site Rep attended an Automated Job Hazard Analysis (AJHA) session for a work package allowing removal of some deactivated, cut, de-terminated, or de-energized circuits during electrical walkdowns of inactive process lines. The team considered electrical hazards not to exist for this work because the work package only authorized removal of de-energized circuits. When questioned if nearby energized equipment could pose a hazard, personnel responded that condition would be outside the work package and work would be halted. However, the AJHA does not recognize this potential hazard or controls to verify the assumed conditions are as anticipated prior to commencing work. There also appears to be an overreliance on prepackaged questions in the AJHA software hindering a questioning attitude to discuss potential hazards or abnormal conditions. (IV)

K Basins: During the transportation of K-East basin water from the basin to the Effluent Treatment Facility, water leaked out of the water tanker contaminating its exterior. A critique into the event identified inadequate instructions for preparing the trailer for use may have played a part. Fluor Hanford is also evaluating whether a vacuum breaking valve may have failed. Surveys of the transportation route did not identify any contamination release. (II)