

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 3, 2002

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending May 3, 2002

Waste Treatment Plant (WTP): Messrs. Stokes, Bamdad, Contardi, Feldman, Quirk, Sautman, and Wong conducted a review of the Bechtel National Inc. (BNI) safety basis development process as well as severity level and design basis event calculations for the High-Level Waste Facility. Due to the number and significance of the issues identified, the staff is planning to brief the Board on the findings. In addition, Messrs. Stokes and Sautman met with Harry Boston and the head of the Office of Safety Regulation (OSR) to discuss these concerns as well as BNI's authorization basis improvement proposal. OSR has rejected most of the proposed changes. (I-C)

Spent Nuclear Fuel Project (SNFP): The project exceeded the Limiting Condition for Operations required shipping window for a loaded Multi-Canister Overpack (MCO) cask and had to take required actions at the K-West Basin and Cold Vacuum Drying Facility (CVDF). A factor in exceeding the shipping window appears to be the inadequate performance of a prerequisite action for the cask sealing procedure to verify that the CVDF is prepared to receive the MCO. (III-A)

T-Plant: Discussions were held with DOE-Richland and Fluor Hanford (FH) engineering to discuss the results of the FH review of the T-Plant fuel grapppler design (see April 19, 2002, activity report). This review evaluated several design assumptions regarding the behavior of the bolted joint which is the limiting component of the grapple using references that only cursorily discuss bolted joints in tension. This has resulted in an incorrect evaluation of the effect the weight of the fuel assemblies has on the tension in the bolts. The review also did not question the assumption that all bolts are torqued equally or verify that the method of assembly was performed in accordance with design parameters. Typically individual bolts in a multi-fastener joint will vary, sometimes substantially, based on uncertainties in the torquing operation and joint geometry. After incorporating these omissions into the design calculation it is doubtful that the existing grapples will comply with the margin of safety requirements as built. (III-A)

Plutonium Finishing Plant (PFP): Micrometer measurements of lid deflection initially seemed to indicate that a recently welded bagless transfer system can was pressurized to as much as 150 psi. However, later measurements of lid deflection gave confusing indications of increasing and decreasing pressure. Furthermore, leak testing found no leaks and multiple digital radiographs did not indicate any deflection. It is now suspected that there has not been any pressurization. The lid is slightly askew and asymmetrical which may have resulted in erroneous micrometer measurements.

PFP's procedure accounts for moisture reabsorption in a vented convenience can inside a humid glovebox by extrapolating the rate of moisture reabsorption between sampling and final weighing to the time between final weighing and welding as long as the latter period is shorter than the former. Considering that vented cans have gone as long as 318 and 608 hours before final weighing, the staff considers it to be questionable to extrapolate this moisture reabsorption rate for possibly hundreds of hours without being required to reweigh the can before welding. (III-A)

Personnel: Pete Knollmeyer has left the Department of Energy-Richland for another job.