

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 30, 2001

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending March 30, 2001

Tank Farms: In response to the Board's reporting requirement, tank farms instituted a program to determine when tanks needed to be sampled to ensure the waste still met chemistry specifications to limit corrosion. Although a preliminary analysis concluded that none of the tanks were at risk, a recent reanalysis of the data determined that three additional double-shell tanks require prompt sampling and may already be out of specification. In addition, ultrasonic testing of AY-101 determined that corrosion has reduced the thickness on the interior side of the primary liner as much as 19.4% at a band corresponding to a former waste level. The waste was out of specification for years at that level. The current waste level is below this band. The actual thinning may be substantially larger since there was extensive pitting on parts of the annulus side of the primary liner and this pit depth was not quantified by this analysis. (1-C)

Plutonium Finishing Plant (PFP): PFP will miss their commitment to have all metal items in bagless system transfer cans by March 31 by approximately 5 weeks. A higher-than-expected rate of self-ignitions and equipment problems have contributed to the delay. Recent equipment problems have included the failure of overhardened cutter wheels and weld tips fusing to the can. The standard startup review for the outer can welder is scheduled to start Monday. While PFP still expects to meet their milestone for having all of the metal items in outer 3013 cans by August 31, the milestones for packaging alloy items and thermally stabilizing and packaging the corrosion products will likely be very tight. Mr. Sautman observed testing of Pu-Al alloy turnings that showed no response when heated or mixed with water. Assuming that testing of the other alloy items show similar results, the proposal to reclassify some of the alloys as residues would be justified. PFP has completed repacking all Rocky Flats ash residues in pipe overpack containers (POCs) and hopes to start repacking Hanford ash shortly.

In light of recent issues with supercritical fluid extraction and moisture absorption/adsorption, PFP and the Department of Energy (DOE) are considering the following strategy. $Mg(OH)_2$ precipitation would continue, but the precipitate cake would just be dried on a hot plate, tested for moisture content, and packed into food pack cans. Once the Project W-460 furnaces, which are equipped with dry air, are available, thermal stabilization and packaging of the precipitate cake would restart. Meanwhile, existing furnaces (without dry air) would be used for thermally stabilizing high purity oxides, alloys and possibly accelerating the start of polycube stabilization. Lean solutions would either be precipitated or solidified and then disposed as waste in POCs. The Site Rep believes this strategy is acceptable as long as the time for how long dried precipitate cake (which still may contain chemically bonded water) can safely be stored in sealed food pack cans is evaluated and made a control. (3-A)

cc: Board members