

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 23, 1999

TO: G. W. Cunningham, Technical Director

FROM: R. Arcaro, Hanford Site Representative
M. Sautman, Hanford Site Representative

SUBJ: Activity Report for the Week Ending December 24, 1999

A. Tank 101-SY Transfer: Lockheed Martin Hanford Company completed a transfer of 89,000 gallons of waste out of Tank 101-SY on Sunday, December 19. Following the transfer, a mixer pump run was attempted, but a mismatch between pump suction and discharge pressures caused the pump run to be terminated. On Sunday evening, approximately 30,000 gallons of water was added to the top of the tank. Then another approximately 30,000 gallons of water was added beneath the crust. Following the water addition, large areas of free standing water were visible on the waste surface. Over the next few days, however, the crust reformed. During the back dilution, pump pressures started to read normally. A mixer pump run was completed satisfactorily on Tuesday, December 21. Of interest, is that the total drop in level does not correspond exactly to the volume of liquid and gas removed from the tank. Additional evaluation is needed to understand this discrepancy. Overall, this activity represents a major success in the tank farms. The waste surface is no longer in imminent danger of reaching the top of the tank. Additional transfers and back dilutions are expected to prevent gas retention all together. (3-A)

B. Plutonium Finishing Plant (PFP): PFP, Pacific Northwest National Laboratory, and DOE-Richland personnel conducted a Kepner-Tregoe analysis to decide whether pyrolysis followed by thermal stabilization or thermal stabilization alone should be used for stabilizing polycubes. The analysis favored thermal stabilization by a wide margin due to safety, radiation dose, and reliability concerns with pyrolysis. Although it was useful to get input from operations, radiation control, and laboratory personnel, the "decision analysis" was not really used to determine a recommendation, but rather to justify a previously made decision. The technical staff has not yet received the experimental data or safety calculations used to support this decision. Pipe and go was excluded as an alternative due to skepticism about being able to resolve blending issues and the radiation dose associated with blending activities. The feasibility of pipe and go for polycubes, however, is included in an ongoing evaluation of the use of pipe and go for all the residues at PFP. (3-A)

cc: Board members