DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 30, 1999

TO: G. W. Cunningham, Technical Director

FROM: R. Arcaro, Hanford Site Representative

SUBJ: Activity Report for the Week Ending July 30, 1999

Board Members A.J. Eggenberger, H.J.C. Kouts, and J.E. Mansfield and Technical Director G.W. Cunningham as well as staff members R. Tontodonato, S. Stokes, and M. Sautman were on site this week.

A. Plutonium Finishing Plant (PFP): Stabilization operations have been suspended pending the resolution of a halon system discharge which occurred on July 28. Investigation by plant personnel identified the cause of the discharge as an electrical fault in a pull station located in room 228C. Plant recovery actions include repair of the pull box; however, until this occurs, the halon system is inoperable and stabilization operations will not continue. Plant personnel are awaiting parts to complete their repairs.

Several mechanical problems slowed stabilization activities this week. Heater controller problems in the furnaces and the halon system actuation mentioned above drastically limited thermal stabilization activities. The engineers continue to recover the prototype calciner from the water/oil mixture contamination. The drying of the calciner was delayed because of various equipment problems including a failure of the power supply to the off-gas chiller and heater element failures. This down time illustrates the need to ready additional stabilization operations despite the reported unavailability of operators to run them. During such down times, having additional stabilization processes available will minimize the operators' idle time and maximize the rate of reducing the risk of continued plutonium storage. (III.A.1.a)

B. Tank Farms: A gas release event of approximately 162 cubic feet of gas occurred in Tank AN-105 on July 29 resulting in a peak hydrogen concentration of 7,100 ppm. The Tank Farms authorization basis assumes that a hydrogen concentration of 6,250 ppm is 25% of the lower flammability limit (LFL). This release was the largest in AN-105 since a similarly sized release occurred in April 1997. The largest measured release in this tank (peak at 17,000 ppm) occurred in 1995. The gas release behavior of Tank AN-105 has been historically erratic but had seemed to decrease in the past two years. Even though gas releases above 25% of the LFL are rare, this situation illustrates the changing behavior of the tanks and the need to continue to monitor for flammable gas as required by the authorization basis. (III.A.2)

.C. Spent Nuclear Fuel Project: DOE is more seriously considering operational controls to prevent a drop of a fuel cask in the South Load-out Pit rather than the redesigned platform to mitigate the consequences of a drop. A proposal incorporating additional controls and possibly additional leak mitigation measures will be presented to the DOE Site Manager. (I.A.3)

cc: Board members