

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 17, 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 September 17, 1999

A. Spent Nuclear Fuel Project: The Primary Clean Machine (PCM) wash basket was installed this week. With the exception of minor punchlist items, this installation completes the construction of the Fuel Retrieval System.

The SNFP intends to exercise the Integrated Water Treatment System and the Fuel Retrieval System using dummy fuel beginning in October 1999. Operations to verify the operability of the equipment, viability of procedures, and to train operators with actual spent nuclear fuel will begin around March 2000. The contractor intends to perform as yet undefined "management reviews" prior to each of these activities. Consistent with the Board's letter of August 26, 1999 and with DOE Order 425.1A, *Startup and Restart of Nuclear Facilities*, an Operational Readiness Review (ORR), particularly prior to operations with radioactive material, seems more appropriate. If the ORR is graded commensurate with the hazards of the activity, the impact on the operation of these systems should be minimal.

B. Tank Farms: The Site Reps and staff member Ilisa Pyatt toured the C Tank Farm just prior to a sluicing operation. Approximately 5 feet of high-heat sludge have been sluiced out of tank C-106. Nearly one foot of sludge remains. The efficiency of sluicing operations has been reduced during the last few campaigns, resulting in only two to three inches being removed in each twelve-hour operation. The pump that removes the waste slurry often cannot be lowered sufficiently because flexible hose used in the operation collects underneath the pump.

C. Unreviewed Safety Question at 233-S: The technical staff has previously expressed concern that the plutonium characterization for the 233-S process hood is based on very limited data. Last Friday, the first entry was made into a panel of the hood. The Am-241 radiation dose rate measured by an inserted meter was off-scale (i.e., > 2 rem/hr). Piles of "burnt plastic and powdery stuff" were seen underneath the vessel involved in a 1960's era fire. Analysis of a 100 ml sample of this material found a maximum of 20 g of Pu-239 present. This is more Pu than what was assumed to be present in the **entire** hood (11 g dispersible Pu). As a result, an Unreviewed Safety Question was declared and work was stopped. In addition, the criticality evaluation may need to be reexamined since it assumed that no fissile material would be present outside the piping or vessels. Additional radiological controls may be needed for the unexpectedly high radiation dose rates. Mr. Sautman has reviewed photographs of the work site and will be walking down 233-S when he returns to Hanford. The technical staff is also preparing a summary of all the 233-S issues for the Board.

cc: Board members