DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 29, 1999

TO: G. W. Cunningham, Technical Director

FROM: R. Arcaro and M. Sautman, Hanford Site Representatives

SUBJ: Activity Report for the Week Ending October 29, 1999

Ralph Arcaro was out of the office Wednesday through Friday.

A. 233-S Plutonium Concentration Facility: Bechtel transmitted the Unreviewed Safety Question and revised safety analysis for 233-S. The material at risk for a process hood fire has been increased from 11 grams to the estimated total process hood inventory of 2225 grams of Pu-239 to address uncertainties in the amount of loose plutonium in the hood. This raises the dose to a worker 100 m away to 77.5 rem, assuming a ground-level release and the failure of exhaust filters. Final analytical results from last month's sample indicated a total of 6.4 g total fissile material (Pu + Am) in the 48 g sample. Bechtel's best guess of the amount of loose plutonium in the L-16/L-18 vessel area is between 150 and 250 grams Pu. A Technical Safety Requirement administrative control has been proposed requiring completion of dry cleanup of the process hood floor prior to initiating process hood dismantlement activities. It was also discovered Monday morning that the 233-S exhaust fans stopped operating sometime last weekend. No spread of contamination was detected, but the cause for the shutdown has not been determined yet. (3-B)

B. Facility Tours: Mr. Sautman toured REDOX, U Plant, and F Reactor (with Mr. Arcaro). Bechtel has cut a hole through the U Plant canyon wall and constructed a small tent inside the canyon. This allows viewing of the canyon deck and the numerous pieces of contaminated equipment stored on top of the cells.

Although much of REDOX has been deactivated, tanks D-10 and D-13 still contain 1420 and 5560 gallons of radioactive liquid waste, respectively. In 1982, a personnel error during a transfer of fission product waste from 222-S to tank farms via D Cell caused these tanks to overflow. Although the spilt solution was removed, solution was left in these tanks. Bechtel and DOE claim that passive venting will control any hydrogen generated by radiolysis in the tanks. However, when asked how much the liquid level has changed, a Bechtel engineer replied that there had not been any. Mr. Sautman has requested more information about these tanks because if there has not been any evaporation after 17 years of venting, it raises doubts about the adequacy of the design to remove any hydrogen generated. (3-B)

cc: Board members