

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 12, 1999

**TO:** G. W. Cunningham, Technical Director

**FROM:** R. Arcaro, & D. G. Ogg, Hanford Site Representatives

**SUBJ:** Activity Report for the Week Ending March 12, 1999

Mr. Arcaro was on leave Thursday and Friday.

A. Plutonium Finishing Plant (PFP): On March 10, PFP personnel discovered an inaccurate criticality analysis in one of the vault Criticality Safety Evaluation Reports. The analysis assumes that activation of the vault sprinkler system will have no appreciable effect on the reactivity in the vault. However, upon review, plant personnel found that there could be an increase of reactivity to  $k=1.04$  at a water density of approximately 0.05 g/cc in the air. At higher water densities the plutonium storage cans are overmoderated, and the reactivity rapidly declines. As a precaution, PFP management suspended vault activities, isolated the sprinkler system and posted a fire watch near the vaults. PFP personnel will perform a USQ screening. In the meantime, plutonium stabilization activities continue ahead of the currently approved schedule.

B. Spent Nuclear Fuel Project (SNFP): Late last week, SNFP engineering discovered improper boundary conditions in a cask drop analysis for the south load-out pit of KW Basin. This is the location where MCO transfers in and out of the basin will occur. The analysis mistake leads to greater damage to the basin floor and a larger leak rate after a cask drop accident. Thursday, project personnel conducted a value engineering study to identify and discuss alternatives including, but not limited to, further analysis, drop mitigation, and leak mitigation. The team concluded that a combination of drop mitigation and leak mitigation is most desirable, but that completing the necessary action could cause as much as a two-month delay in the project. The site representative notes that several similar design and analysis mistakes have occurred on the project and has inquired with senior project management about efforts to identify and correct the root cause of these mistakes.

C. Tank Waste Cross-Site Transfer: On March 10, Mr. Arcaro observed the start-up of the new cross-site transfer system. The new system is a six-mile long, coaxial pipeline designed to allow the transfer of waste from the west tank farm to the east. Tank 102-SY, the source tank, is nearly full. It is the only tank in the west area designated to receive wastes from the single shell tanks. This constraint, and the need to remove 750,000 gallons from 102-SY in preparation for the retrieval of 101-SY later this year, necessitated the transfer. By the end of the week operators had transferred nearly 100,000 gallons and the transfer was proceeding at approximately 50 gallons per minute. The full transfer is expected to last until the end of next week. The diversion box and vent station sump alarm intermittently halted transfers, but camera inspections of the sump indicated no liquids. No other significant difficulties have been encountered.

cc: Board members