DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 15, 2001

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending June 15, 2001

Spent Nuclear Fuel Project (SNFP): Last week there was a failure of a retaining ring fastener on the MCO process port 3 valve operator which led to the breach of a safety class system. The project concluded the failure was due to an overstressed retaining ring and implemented a corrective action to verify the ring's condition prior to processing each MCO. A review by Mr. Grover of the SNFP fastener design identified that it did not meet the manufacturer's specifications for sizing of the slot where the retaining ring sits on the valve operator shaft. The differences could make the retaining ring more likely to disengage when forces are applied to it. This issue was brought to the attention of Department of Energy- Richland and Fluor-Hanford personnel. Subsequently, the SNFP instituted additional administrative controls to reduce the probability of another system breach and to mitigate the consequences of the event. (III-A)

Plutonium Finishing Plant (PFP): PFP began repacking selected plutonium alloy items into pipe overpack containers. Mr. Sautman also observed the Recommendation 2000-2 Phase 1 assessment for the remaining vital safety systems at PFP. In general, this went well but Mr. Sautman strongly encouraged the engineers to adequately discuss past problems with maintaining negative pressure and concerns with the steam turbines as they relate to the safety significant zone pressure controls.

When questions began being raised about moisture reabsorption in magnesium hydroxide cake, PFP decided to continue to use the supercritical fluid extraction (SFE) data, but with a larger safety margin. However, recent data has raised so many questions about the accuracy of the SFE data, the Site Rep believes it is questionable to use SFE data for demonstrating compliance with vault storage criteria - even with a safety margin. In addition, recent data has indicated that loss-on-ignition data taken since the dry air system was shutdown does not account for moisture reabsorption. In the Site Rep's opinion, PFP needs to reevaluate their compliance with their special nuclear material storage operating specifications in light of these issues. (III-A, I-C)

Tank Farms: A facility representative has raised questions about increases in the count rates for the AY-102 annulus continuous air monitor. Because AY-102 contains high heat waste from C-106, the annulus is kept at a higher negative pressure than the primary tank to increase the airflow and cool the tank. The increasing count rate could indicate a leak in the primary tank. Another possibility is that a leaky gasket is allowing contamination to migrate through a pipe connecting the primary tank to a pit connected to an annulus riser, which reportedly caused a similar event in the past. An Unreviewed Safety Question Determination is being conducted. In addition, this issue has also highlighted other tanks where the annulus is kept at a higher negative pressure than the primary tank, which is not desirable. (1-C)