DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 20, 2004

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending August 20, 2004

Waste Treatment Plant (WTP): Citing a very low probability of success in pursuing their current approach, the Department of Energy (DOE) directed Bechtel to design and construct the WTP in compliance with DOE and industry codes and standards related to structural steel fire protection without the use of equivalencies. This was the subject of past Board correspondence.

Bechtel plans to dilute the gas generated from the cesium ion exchange column to below the limiting oxidant concentration (LOC) rather than below the lower flammability limit. However, staff review of the design has identified that it does not appear to comply with NFPA 69, *Explosion Prevention Systems*, requirements for safety margins and checking oxidizer concentrations. Furthermore, the LOC Bechtel is using is less conservative than that found in NFPA 69 and other identified issues question the conservatism in the design's technical basis. (III)

Tank Farms: The draft root cause analysis for the 244-CR vault extremity exposure identifies several instances of procedure violations, wrong assumptions, overconfidence, proceeding in the face of uncertainty, poor communications, and inadequately implemented past corrective actions. An Enhanced Work Planning (EWP) session was conducted for the overall project in 2002. This activity was 1 of 3 high risk work packages that were considered after the fact to be addressed by a second EWP session (conducted in 2004) on a fourth work package although one of the corrective actions from a significant pit contamination last year was to do separate EWPs for each work package. During the event, a first line Radiation Control manager was present as a compensatory action for previous radiological events, but he approved the job continuing with out-of-range radiation meters and without enacting the high radiation area controls in the Radiation Work Permit (RWP). Most of the workers, including one of the field work supervisors (FWS), were not notified of the out-of-range radiation readings. The second FWS, who knew the meter was off-scale, somehow believed he was still within the RWP limiting conditions. CH2M Hill Hanford Group (CHG) is now emphasizing putting workers in a safe condition when Radiation Work Permit limits are exceeded rather than primarily focusing on putting the equipment in a safe condition. (II)

The Site Rep questioned the reliance on administrative controls in the preliminary control strategy for the new Contact-Handled Transuranic Mixed Waste Processing Unit. For example, rather than preventing gas accumulation in the feed receipt tank by mixing the waste, the control is to track the length of time waste is in the tank and then to rely on monitoring or process control plans when performing activities that could induce a gas release. CHG plans to reexamine their control strategy in light of several Site Rep observations. (IV)

Spent Nuclear Fuel Project (SNFP): The site rep observed the placement of approximately 6 feet deep of grout in the K-East basin discharge chute. This effort will cap the construction joint between the reactor and basin which is a the site of past basin leaks and a structural vulnerability in case of a seismic event. (II)