

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 5, 2004

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman
SUBJ: Activity Report for the Week Ending March 5, 2004

Waste Treatment Plant (WTP): Based on the latest preliminary data, Bechtel National Inc. (BNI) researchers have recommended to Engineering that pulse jet mixers (PJM) and recirculation pumps be used during normal operations for 2 tank configurations with spargers in idle mode. During a design basis event, the 16 to 36 spargers would switch to full operation supplemented by intermittent pulsing from the PJMs. One unresolved issue is the significant impact that PJM pulsing has on the ventilation system.

BNI is evaluating the credibility and potential controls for addressing a boiling liquid expanding vapor explosion due to an accident involving the anhydrous ammonia storage vessels. An explosion may damage the Emergency Diesel Generator and Important-to-Safety (ITS) Emergency Switchgear buildings, both located within 150 m. The loss of normal and emergency power results in loss of ITS purging and mixing, which can lead to hydrogen explosions inside the Pretreatment and High-Level Waste buildings.

The staff had discussions on the Submerged Bed Scrubbed Condensate Receiver Vessel weld issues and the closure of issues identified in the Black Cell Design Adequacy report. Although BNI initially did not classify either of the weld issues as significant, they are now performing root cause analyses for both topics, which the staff believed was needed. Based on their draft closure plan, the responses by BNI and the Department of Energy, and the current procurement status, it is not clear to the staff whether the open items and recommendations identified in the black cell report will have much of an impact. (III)

Spent Nuclear Fuel Project: The heavily degraded fuel now being processed is continuing to adversely affect operations at the basins. Clouds of sludge are being generated in the basin water while manually handling the fuel, at times sufficient to halt work due to visibility problems. This has increased the concentration of alpha contamination activity in the basin water to the point that the K-West basin has been posted as an Airborne Radioactivity Area (ARA). (II)

Sludge Retrieval and Disposition Project (SRDP): Fluor Hanford (FH) had recommended that North Load Out Pit sludge removal have the contractor as the startup authority. This week DOE notified FH that this activity would require an Operational Readiness Review (ORR) with the Office of Environmental Management as the startup authority. Also, the scope of the review was expanded to include Building 325 waste processing as well as K-Basin sludge retrieval and transportation. The basis for the determination included suspension of the April 2003, Sludge Water System ORR due to premature declaration of readiness; the subsequent determination of programmatic problems in engineering, readiness preparation, and nuclear safety issues; and the interface between prime contractors and subcontractors involved in the activity. (II)