

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 22, 2001

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending June 22, 2001

Spent Nuclear Fuel Project (SNFP): Mr. Grover and Board outside expert Mr. Boyd reviewed conduct of operations at the SNFP. Discrepancies were identified between the sitewide technical procedure standard and the SNFP administrative procedure for technical procedure use and compliance. These have allowed procedures to be performed out of sequence without formal documentation. In addition, a procedure which implements TSR administrative controls and contains a verification signature was not required to be at the work location. Issues were also identified in the areas of on-shift training, operations rounds, and facility Long-Term Order implementation. (III-A)

Emergency Preparedness Exercise: The Site Reps observed the annual Hanford field exercise that involved a hot cell fire, a gasoline truck fire that breached the filters, and a contaminated injured worker at the Waste Encapsulation and Storage Facility. In general, the response at the event scene went well. Although the incident commander was ready to declare a general emergency based on visible debris exiting the stack, an alarming stack continuous air monitor, and no pressure differential across the filter, it took about 35 minutes to convince the site emergency director to do so. This was partially due to misinterpreting a saturated air monitor as having measured 0 counts. The control of the dose assessment center was weak with information not being adequately relayed resulting in a failure to issue timely protective measures to some areas of the site. In addition, the radiological hazards assessor appeared unfamiliar with the assessment software used by the dose assessment center. (I-C)

Plutonium Finishing Plant (PFP): PFP believes that based on characterization data on plutonium oxide particle size and reanalysis of the leak path factor that the consequences of a fire in 2736-ZB can be reduced to 2.12 rem to the public and 131 rem to collocated workers. Successful efforts to reduce combustibles and add engineered controls may eliminate the possibility of a flashover. The staff will be reviewing the analyses and combustible controls in early July. PFP also completed repacking plutonium alloy items into either pipe overpack containers or inner 3013 cans, but, has not been able to stabilize the corrosion products yet. (III-A)

Tank Farms: A corrosion evaluation has highlighted the risk of pitting corrosion at the waterline due to pH differences between the waste surface and the aqueous film above. In addition, the OH⁻ concentration in the sludge's liquid has been consistently lower than that in the supernatant and the increased risk of pitting corrosion in the sludge layer appears to be confirmed by electrochemical noise corrosion probe data from AN-105. While caustic additions are expected to fully mix in the supernatant within days to a few weeks, modeling indicates that the time it will take for caustic to mix in the sludge ranges between 0.4 - 1.0 years for AY-101 to 2 - 5.5 years for AY-102. Core samples from tank SY-102 show evidence of an organic layer. (III-A)