

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 14, 2000

TO: K. Fortenberry, Technical Director

FROM: M. Sautman and S. Stokes, Hanford Site Representatives

SUBJ: Activity Report for the Week Ending July 14, 2000

A. Spent Nuclear Fuel Project (SNFP). Resolution of the spray leak from a hand-hold cover on one of the three sand filters in the integrated water treatment system (IWTS) that occurred on 7/3/00 will take at least until 8/3/00 since core drilling of the shield wall will be required. As a consequence, starting the readiness assessment for phases 3/4 IWTS testing and the overall spent fuel operational readiness review have also been delayed. The current start dates for these activities are 8/7/00 and 8/16/00 respectfully. However, since these dates do not fully reflect the recent decision to core drill the shield wall, further delays are likely to result. (1-C)

B. Department of Energy - Richland (DOE-RL) Integrated Safety Management (ISM) Verification Review. The results from the DOE-RL ISM verification review conducted between June 19-29 revealed four significant opportunities for improvement. These include: (1) mechanisms for full implementation of DOE P 450.5 need to be better defined and implemented, (2) roles and responsibilities need additional definition and understanding by federal staff, (3) the Richland Integrated Management system (RIMS) needs sufficient additional discipline and rigor, and (4) the DOE-RL requirements management process needs to be improved. Additionally, DOE-RL succeeded in implementing only 3 of the 5 objectives necessary to fully implement integrated safety management. (1-C)

C. Plutonium Finishing Plant (PFP): The technical staff held a videoconference to discuss safety concerns with the proposed operating parameters for polycube direct oxidation. Site Rep calculations indicate that the combined concentration of flammable gases in the off-gas could be in the range of 1.7 to 2.6% during routine operations. The lower flammability limits (LFL) for the individual gases at room temperature range between 1 and 1.4% and Le Chatelier's rule estimates a LFL for the mixture of 3.8%. In addition, the furnaces will be operated at temperatures that exceed the autoignition temperatures of the flammable gases. The staff questioned whether the flammable gas concentration would be kept to less than 25% of the LFL in accordance with National Fire Protection Association (NFPA) standards. Initially PFP personnel stated that this was only a recommendation and would not have to be met. Fortunately, the PFP Director later stated that this requirement would be met. Subsequent review of NFPA standards by the Site Rep indicates that the polycube furnaces appear to meet the definition of a Class A furnace in NFPA 86, Ovens and Furnaces. Using a formula in the standard also indicates that the actual lower explosive limit (LEL) for the 500° C furnace operating temperature is 37% less than the commonly used room temperature LEL. These issues do not mean that direct oxidation cannot be performed safely, but that the proposed operating parameters (e.g., airflow rate, charge size)

will likely need to be modified. (3-A)

D. 233-S: Nearly all the process hood panels have been removed. Although a fixative has been applied to all the hood equipment, contamination levels still exceed 10 million dpm/100 cm² in spots. On swing shift Tuesday, workers attempted to remove the glovebag separating the entire first floor portion of the process hood from the viewing room. This was a hazardous activity involving work in high radiation, high contamination, and airborne radioactivity areas. Workers were unable to complete the activity due to multiple continuous air monitor alarms (triggered at 500 derived air concentration). Afterwards, the Site Rep attended pre-job discussions about their recovery plan and observed decontamination efforts. The Site Rep continues to be concerned about the level of management oversight during hazardous activities. During the swing shift evolution, the only management presence was the immediate workers' supervisor at the work scene and the radiation control manager (available outside the work area). 233-S does not have formally qualified shift managers nor do they require any of their employees with building emergency director (BED) training to be present when nuclear work is being conducted. While the supervisor happened to have BED training, it was not prudent to rely on an individual at the work scene to be incident commander since he is at risk of a being a casualty or otherwise unavailable during an accident. (3-B)

cc: Board Members