

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 5, 2002

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman, Hanford Site Representatives
SUBJ: Activity Report for the Week Ending April 5, 2002

Plutonium Finishing Plant (PFP): PFP began their Standard Startup Review (SSR) for direct oxidation of polycubes. Partially in response to early Site Rep concerns that no dry runs were planned for the SSR, PFP held a crosstable where the operators were able to demonstrate their familiarity with the new polycube-specific charring and thermal stabilization requirements. Mr. Sautman continued discussions on the disposition of a solution mixture containing ~80% carbon tetrachloride, ~20% tributyl phosphate, 17 grams plutonium, and some nitric acid. PFP is proposing to transfer this material into a mixed waste container. The proposed container should avoid pinhole corrosion and filter plugging problems seen at other sites by using a resin coating on the drum and a Rocky Flats-developed corrosion-resistant filter. However, the staff is wary of just repackaging this item and waiting for the Department of Energy to determine a complex-wide solution for solidified organic transuranic waste. (III-A)

Transuranic (TRU) Waste: The TRU Retrieval Project will be retrieving several dozen shipping containers and 110-gallon drums (some fitted with birdcages) that may contain hundreds of grams of Pu as PuO₂-UO₂ powders and fuel rod as well as high Pu-238, 85 wt.% oxide. Mr. Grover is investigating whether it would be more appropriate to disposition this material as excess Pu rather than just normal transuranic waste. (III-A)

Waste Treatment Plant: The Site Reps observed 3 design reviews and 3 Integrated Safety Management (ISM) meetings this week. An ISM discussion about the reactivity of Cs ion exchange resins versus concentration of HNO₃ and KMnO₄ consisted of 3 individuals' memories of 2 year old experimental data. Because of the impending submission of the Preliminary Safety Analysis Report and a lack of experimental data to support complete understanding of the hazard and its impacts on the design, Bechtel has decided to develop controls that assume explosions occur within this system. This represents a bounding condition. Although there was some hope expressed that a better technical basis would be developed to show that explosions were beyond extremely unlikely events, there was no discussion at this meeting that provided sufficient assurance additional research and testing to develop resin reactivity data would be pursued. A review of the project's existing Research and Technology Plan by the staff also did not provide any clear indication that resin reactivity data would be developed either. This would seem prudent since Bechtel reportedly plans to dissolve resins stuck in the columns with acid. (I-C)

Spent Nuclear Fuel Project (SNFP): The SNFP resumed full production last week following nearly 2 months of limited production while maintenance activities were conducted to repair equipment failures and calibration problems. This period of full production will last only 2 weeks as the project enters the scheduled quarterly maintenance outage. During this outage the integrated water treatment system pump for the fuel washing machine will be replaced as it is nearing total failure of the impeller housing gasket. This pump was a replacement for one which suffered a similar failure 2 months ago, which was in turn a replacement for one which suffered an unknown failure 4 months earlier. The project has specified a different gasket material for the pump which is to be installed but has not conducted an evaluation of the failure mechanisms to date. (III-B)

cc: Board Members