

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 5, 1999

**TO:** G. W. Cunningham, Technical Director

**FROM:** S. Stokes, Acting Hanford Site Representative

**SUBJ:** Activity Report for the Week Ending August 6, 1999

A. Pacific Northwest National Laboratory (PNNL) Building 325: Mr Arcaro toured the Radiochemical Processing Laboratory(Bldg. 325) on August 3 to observe the various hot cells and discuss the work being performed in support of the Tritium Target Qualification Project (TTQP). The TTQP is developing the process for extracting tritium from targets irradiated in the Advanced Test Reactor (ATR), and eventually from targets irradiated in the Watts Bar commercial light water reactor. Bldg. 325's Safety Analysis Report (SAR) currently has a 5,000 Ci limit on in-process tritium. This limit was sufficient for the work on the ATR targets. Work on the Watts Bar targets will require higher limits on tritium, so a SAR change is necessary to incorporate the higher limits. A SAR supplement, allowing as much as 11,000 Ci, is complete and expected to be approved by DOE-RL shortly. Because facility risk is dominated by plutonium and fission product inventory, this increased limit results in a minimal increase in risk from the accidents of concern (fires). The 1999 SAR annual update intends to allow a maximum of 50,000 Ci of tritium (and other gaseous radionuclides on a tritium-equivalent basis). This limit will be implemented differently in that the total amount of material measured as the sum of the fractions of the plutonium-equivalent limit and the tritium-equivalent limit will be controlled at less than one at all times.

B. K-Basin Sludge: Efforts are underway to validate the proposed technical baseline regarding interim storage of K-Basins sludge at T-Plant. Based on discussions with Fluor Daniel Hanford (FDH), efforts to develop the technical requirements and gather the engineering information necessary for validation are just beginning. FDH's preliminary planning suggests that the project conceptual design effort will begin in October 1999 and be completed some time in late FY 2000. FDH is currently developing programmatic agreements between Waste Management Hanford (WMH) and the Spent Nuclear Fuel Project (SNFP) to facilitate the proposed baseline. Sludge treatment and disposal will no longer be managed by the SNFP rather, it will be part of tri-party agreement milestone M-91 which addresses disposal of remote handled Transuranic waste at Hanford. This program is managed by WMH. Mr. Arcaro and Mr. Stokes toured the T-Plant on August 4, 1999 to view the canyon and better understand the changes needed to support sludge storage at T-Plant. Issues identified by T-Plant personnel regard updating their existing safety documentation to support removing spent fuel and allowing sludge storage and the removal of in-cell equipment and other miscellaneous items.

C. Readiness Assessment for Tank SY-101 transfer: The Department of Energy - Office of River Protection (DOE-ORP) has decided to perform a readiness assessment (RA) prior to supernatant

transfers from SY-101 to SY-102. This represents a change of direction for DOE-ORP which originally planned to conduct a formal surveillance. DOE-ORP is currently preparing the RA plan of action and other documents needed to support this change.

D. Tank AN-105 Gas Release Event: Tank AN-105 experienced another gas release event on August 3. A previous gas release event on July 29 was reported last week. The more recent event was smaller—resulting in a peak hydrogen concentration of only 4200 ppm. The vertical temperature profile of the tank waste after each of these events did not change at the location where the temperature is measured. This indicates the events were localized and not massive gas releases from the entire tank. Trended temperature profiles show that the waste has cooled approximately 14 degrees in the last three years and that the non-convective layer is getting larger as the waste cools and solids precipitate. The larger convective layer would tend to trap more gas, but the cooler temperatures will reduce the gas generation rate.

E. Spent Nuclear Fuel Project (SNFP): The Fluor Daniel Hanford Project Director for the SNFP, Nancy Williams, has resigned. Her resignation has been accepted and Bob Wilkinson, currently the critical path manager, will act as project director.

cc: Board members