

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 6, 2009

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending March 6, 2009

Radiochemical Processing Laboratory: The site rep attended a critique for spill of Pu-238 inside a fume hood that resulted in contamination levels of 140,000 dpm alpha on a wet smear and direct readings of 700,000 dpm alpha. Personnel were performing a leaching experiment for plutonium-bearing ceramic when liquid was noticed around a thermocouple (TC) probe that had been inserted through a port in the small Teflon[®] reaction vessel. Personnel were evacuated and follow-up surveys on personnel and equipment only found contamination inside the hood, which was already posted as a high contamination area/radiation area. There were no releases to the environment and nasal smears of potentially affected personnel were negative. Discussion during the critique demonstrated a breakdown of their Integrated Safety Management (ISM) process, which led to inadequate work planning and selection of controls. The researcher believed the concentration of plutonium was four times less than actually present. The radiological work permit (RWP) used did not address using Pu-238, and the quantity of Pu-239 used in the experiment exceeded the limit of the RWP. The leak test of the vessels was inadequate as it did not include the TC probe. Operating procedures required additional facility management approval, but this did not occur. Personnel demonstrated poor understanding of emergency response when they focused on restarting the experiment as soon as possible to prevent data from being lost, and other workers reentered the room to do other work before all recovery actions were complete. Similar breakdowns with work controls and conduct of operations have been noted in the past (see Activity Reports 4/18/08, 11/2/07, 6/15/07), but it is apparent the lessons-learned and corrective actions from these events have not been effective.

Waste Treatment Plant (WTP): The contractor is writing a new procedure to implement an additional process to facilitate changes to the safety basis (SB). The new process is modeled after the Safety Input Review Committee (SIRC) used at the Savannah River Site (SRS). The SIRC process uses a series of integrated committees to obtain consensus approval from various disciplines and management early in the formulation of the proposed SB change. The SRS process excludes DOE as a voting member but allows them to observe the SIRC meetings. This maintains some level of independence in the DOE review and approval of the change, but it is not known if the process in development for WTP will endeavor to maintain DOE as independent oversight. The new procedure will be completed by the end of this month.

Office of River Protection (ORP): The site rep observed portions of a SB training course provided for new managers and approximately 40 non-safety basis technical support personnel. The multi-day training was effective and addressed requirements for the SB, the SB development process, and what is expected of personnel involved with the review of SB changes.

American Recovery and Reinvestment Act (ARRA): The site reps discussed with both ORP and Richland Operations Office (RL) managers their planned actions for providing the additional oversight that will be required for the accelerated cleanup activities funded by the ARRA. RL plans to hire a few additional federal staff, supplemented with government support service contractors, to help with oversight of new field activities. The expected funding allocation to ORP is significantly less than RL and ORP is planning to make similar changes, but its focus will be on project management and engineering oversight of new design activities.