

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 25, 2011

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending February 25, 2011

Board staff member S. Sircar and outside expert W. Yeniscavich were on-site observing the single-shell tank integrity meeting.

Plutonium Finishing Plant (PFP): A Richland Operations Office (RL) team is conducting a detailed review of radiological work planning and practices at PFP. The review is in its second week and will likely be completed in a few weeks. One preliminary observation is the radiological controls planners did not perform an adequate analysis of the expected levels of airborne contamination in the enclosure used to size-reduce gloveboxes. Consequently, there was inadequate documentation to support using the selected respiratory protection equipment.

Waste Receiving and Processing Facility (WRAP): Late last week, workers were exposed to elevated airborne contamination during drum repackaging activities in the facility's process area. The process area has a glovebox that is used to sort TRU waste and fill 55-gallon drums, and it is believed that the release to the room occurred during the switch-out of drums. Workers exited the area when a continuous air monitor (CAM) alarmed, but six workers had elevated readings on their lapel air samplers with the highest reading being 9.87 DAC-hours. The site rep noted a number of issues, including that it took six days to hold a critique and it took almost seven days to re-enter the area to secure equipment left running. In addition, the Duty Operations Supervisor said that he had to follow three different procedures to respond to a CAM alarm.

209-E Facility D&D: The site rep conducted a walkdown of the 209-E Critical Mass Laboratory to observe ongoing decontamination and preparations to size-reduce contaminated equipment. The facility was used to conduct criticality experiments with plutonium and uranium solutions but has been shut down since the early 1980s. The contractor is stabilizing the contamination in the facility and has constructed a mock-up of a boxed confinement system that will be used to size-reduce large slab tanks (tanks with a thin rectangular cross-section that provided a criticality-safe geometry). The site rep observed poor housekeeping in a specific location and pointed it out to the contractor and RL personnel present during the walkdown.

Waste Treatment Plant (WTP): The contractor is conducting a hazard operability analysis (HAZOP) of the ultra-filtration system. They hired an experienced facilitator who is using specialized software to document the process and provide the formal record of the results. The contractor's nuclear safety manager previously suspended HAZOPs to correct weaknesses in the process (see Activity Reports 10/29/10 and 12/3/10) and it appears this process is more rigorous.

Sludge Treatment Project: The contractor completed the training of operators on the actual equipment and processes that will be used to pretreat the knockout pot sludge. The pretreatment process is designed to separate the less dense material in the sludge, such as fragments of aluminum wire, from the higher density material, such as uranium metal. The training, completed in the Maintenance and Storage Facility, resulted in a number of suggested enhancements that will be evaluated for incorporation into the design and procedures before the equipment is used in the K West Basin.