

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 26, 2010

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending November 26, 2010

W. Linzau was off-site this week.

Plutonium Finishing Plant (PFP): Late last week, a worker received a slight abrasion to his finger that was found to have a small amount of alpha contamination. The worker was using a reciprocating saw to cut a four-inch stainless steel pipe in a glovebox when the non-serrated edge of the saw blade wore through HexArmor[®] and glovebox gloves as well as two pairs of surgical gloves. The worker stopped the saw when he noted his finger was warm and told other workers that he may have a breached glove. Work team members responded correctly to the breached glove event. Tight working conditions in the 24-inch-deep glovebox led the worker to hold the saw in an awkward position and he was not able to see his hand on the backside (top) of the saw's protective collar. Options for completing the pipe cut are being evaluated as workers and managers continue to be challenged by D&D activities in the various PFP buildings.

River Corridor Closure Project: The site and facility representatives walked-down Building 324 and then met with the project engineer to discuss near term plans for dealing with the high radiation doses found under B cell (see Activity Report 11/19/2010). The contractor: is developing a 3-D model of the B cell, the surrounding soil and sample results; does not plan to install more sample tubes under B cell in the near future; and believes PNNL will be able to provide isotopic information using the existing sample tubes.

Office of River Protection (ORP): ORP issued the *River Protection Project System Plan*, revision 5, which describes the technical basis for the budget and schedule for treating and disposing the 53 million gallons of tank waste. This revision of the plan does not reflect significant changes made after the assumptions for this revision were finalized (see Activity Report 4/30/10). As such, this revision assumes significant quantities of aluminum will be removed by a new facility before the waste is pumped to WTP. Additionally, the plan does not include any new feed characterization tanks to mix and sample waste, such as in the planned Waste Retrieval Facilities, prior to delivery to WTP. The Plan notes that additional storage or treatment options will be necessary if single-shell tank retrievals, besides those in C, A, and AX farms, are to take place between 2018 and 2025, and "because (double-shell tank) DST space is so limited, small perturbations or uncertainties in assumptions, waste feed delivery plans, or actual field operations can cause large shifts in near-term plans as the available space approaches zero."

Waste Encapsulation and Storage Facility: The contractor declared a PISA after a member of an HS-64 review team noted that flammable gasses could accumulate in the facility faster than had been analyzed for a seismic event. The existing analysis notes that hydrogen created in the pool by radiolysis is at a saturated condition prior to the event and both building ventilation and pool cooling are lost as a result of the event. The contractor had assumed some form of ventilation would be able to be restored before flammable gas concentration increased to 25 percent of the lower flammability limit (LFL). However, analysts failed to note that gas solubility decreases as the water temperature increases, resulting in a faster release of the dissolved hydrogen and shorter time to LFL. The contractor is developing an unreviewed safety question determination.