

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 27, 2012

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending April 27, 2012

Board staff member J. Kimball and outside expert R. Quittmeyer were on-site to observe the kickoff meeting for the probabilistic seismic hazard analysis of the Hanford site.

Office of River Protection: The integrated project team (IPT) for Tank Farms (TF) and WTP contractors, known as the “One System,” tasked an external team to identify the differences between WTP and TF safety basis documents and procedures. A goal for this two-month assessment was to improve the integration of the WTP and TF safety bases. At the outbrief, the team identified 25 findings and made a number of recommendations to the IPT, including: establishing a frequency basis for screening out hazards to workers, allowing the removal of defense-in-depth (DID) features from the DSAs without DOE approval, classifying systems that support safety systems as non-safety, and treating some hazardous chemicals in the facilities as standard industrial hazards. The team appears to have gone beyond their tasking by suggesting that the IPT pursue relaxing requirements in DOE standards for both developing DSAs and integrating safety in the design.

Tank Farms: The contractor discovered that a riser for single-shell tank C-102 was significantly eroded in its below-grade section. The wall of the riser and a transfer pipe sticking into the riser both had significant through-wall holes due to erosion. This was identified during an inspection in preparation for installing a new sluicer to retrieve waste from this tank. The project excavated soil down to the location of the hole, but stopped as dose rates increased. Workers measured gamma dose rates of 1 rem/hour on contact with the soil adhered to the riser and 350 mrem/hour at 30 cm. The contractor is re-planning their work package for replacing the upper section of the riser to take into account the higher than anticipated dose levels. It is unclear if the existing riser will have sufficient strength and integrity to support welding a new section to it.

Waste Treatment Plant (WTP): The contractor completed a management assessment of the PDSA for the Analytical Laboratory (Lab), Balance of Facilities, and the High-Level Waste Facility. This assessment addresses recommendations from the Construction Project Review Team to determine which changes to the PDSAs are not supported by a technical basis and if functional requirements are preserved as design inputs. The assessment resulted in 10 overarching findings that were based on roughly 150 observations. The first finding was that all of the PDSAs have weaknesses in traceability from hazard and accident analysis to safety classification of components, derivation of functional requirements, and the identification of safety system boundaries. Another finding notes that open technical issues affecting the design and the safety basis are not acknowledged in the PDSAs. An example of the observations is that some safety controls in the Lab PDSA are not in the as-built facility. The specific example provided in this observation was the vessel that collects drains from the hot cell was fabricated to commercial standards, but it is credited as a safety-significant control for reducing the frequency of hydrogen events and DID confinement.

Spent Nuclear Fuel (SNF): The contractor moved the Multi-canister Overpack with SNF from the Cold Vacuum Drying Facility to its storage location in the Canister Storage Building.