

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 9, 2009

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending January 9, 2009

Waste Treatment Plant: The Office of River Protection (ORP) assembled a team to evaluate a reduction of the design basis material at risk (MAR) (see Activity Reports 1/2/09, 12/19/08, and 10/31/08). The team developed recommendations for ORP that include replacing the “super tank” concept with a MAR value based on combining the two highest waste fractions in the tank farms and then applying a margin of safety. The team believes this combined waste stream will bound all potential source values that can be in feed batches to WTP, and will simplify controls strategies at WTP, but will not force additional processing, such as blending, of waste batches before delivery. The team recognizes that it is not possible to quantify the uncertainty of the existing tank characterization data and is promoting the use of waste acceptance criteria to preclude delivery of waste above the new design basis MAR. If this proposed strategy is implemented, the responsibility to ensure waste is below this new MAR value would reside with the Tank Farms Operations Contractor (TOC). It appears the team understands that the capability to mix and collect high-confidence samples of tank waste (sludge and supernate) for feed batches does not currently exist in the tank farms and that this capability would have to be created. In addition, the team suggests that the TOC have processing contingency plans in case batches are found that exceed the proposed waste acceptance criteria for WTP.

The project issued the final report for the Broad Based Review (BBR). The review started over a year ago as a corrective action for continuing problems implementing requirements in the design, procurement, and construction of WTP (see Activity Report 10/3/08). The team checked almost 8,000 separate instances in which requirements were implemented and noted 312 flowdown deficiencies. These deficiencies were grouped into four categories but, to date, only two problems were in the most significant group that will require modification to hardware, design, or a correction to inspection records. The majority of the identified problems were inconsistent or poor documentation. The BBR team also reviewed corrective action program documents and determined that of the approximately 4,000 documents reviewed, corrective actions were not adequately implemented for 53 issues but none impacted the safety of permanent equipment.

Tank Farms: ORP completed a review of the contractor’s ability to safely recommence the retrieval of waste from single-shell (SST) tank C-110. This is the first retrieval that will be performed by the new contractor. The ORP Director of Tank Farms Operations led table-top discussions with the crews from two shifts and checked the knowledge of radiological control and industrial health technicians, operators, supervisors, and managers in the areas of the authorization basis, procedures, and upset conditions. ORP concluded that the personnel have an adequate level of knowledge.

The contractor held a workshop this week to evaluate improvements in the WTP feed delivery plan. The final report from the workshop should be completed in about a month and will address suggested improvements in the area of optimizing the SST retrieval sequence, improved mixing and transfer pump designs, chemical waste conditioning, and changes to the waste sampling methodology. Key challenges to sampling include obtaining better rheology characteristics of the sludge and determining when the waste is homogenized.