

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 6, 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 6, 2012

Office of River Protection (ORP): Both sides of ORP (WTP and Tank Farms projects) met to discuss the previous decision to allow garnet to be added to a tank and the future use of garnet. A water jet with entrained garnet was used to cut a hole in the top of tank C-107 to allow larger retrieval gear to be installed. During the review prior to the cutting activity, ORP staff from the WTP side had concerns that garnet in the feed would have adverse effects on WTP systems. They raised questions on how garnet would increase erosion and other questions, such as the plant's ability to mix the garnet and its effect on filtration. These concerns were not addressed prior to the approval of the use of garnet to cut the tank and, during this meeting, it was determined that a critique needs to be held to understand what failures in ORP's decision-making process left these questions unaddressed. In addition, the Tank Farms contractor is preparing to use garnet on another tank, C-105, and participants agreed that the joint contractor group, known as the "One System" team, should re-evaluate the use of garnet, particularly in light of the recent questions about WTP margins for erosion.

Waste Treatment Plant (WTP): DOE-WTP sent a letter to the contractor that requests the cost and a schedule to update the Criticality Safety Evaluation Report with the information from a report on the plutonium oxide content of the Tank Farms. In October 2011, the contractor requested direction on how to address the changes to the assumptions about plutonium that will be in the feed to WTP based on information in a report nearing completion at that time. In March 2012, the contractor's nuclear safety group wrote a project issues evaluation report that documented a concern that they were still using assumptions about plutonium that were no longer technically defensible. It is unclear why DOE is only now directing the contractor to take action and why they are only requesting the cost and a schedule to apply the new information when the problem was widely recognized in February 2011 (see Activity Report 2/18/11) and the confirmatory report was completed in October 2011.

Tank Farms: ORP directed the contractor to install code-compliant flow monitoring instrumentation in the exhaust duct from each double-shell tank (DST) as the first step in the upgrade of the ventilation system to safety-significant (SS). The installation requires welding threaded fittings to the ducts and the contractor is considering requesting a waiver to a Technical Safety Requirements (TSR) administrative control (AC) for ignition controls to complete this work. The waiver would be for the five DSTs that can experience spontaneous flammable gas release events, and the safety basis specifies ignition controls as a significant contributor to defense-in-depth for preventing deflagrations in the head spaces of these tanks. The contractor is proposing compensatory measures during the welding, such as ensuring the flammable gas concentration in the DST meets AC requirements before welding begins.

The contractor is evaluating the required reliability of SS controls for the 242-A Evaporator. Their procedures to determine the required reliability is based on a draft version of DOE-STD-1195. The contractor is concerned that the approved standard will not allow using the anticipated frequency of events when determining the required reliability. They are considering using the same procedures as WTP, which allows using the frequency to reduce the reliability.