

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 13, 2012

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending July 13, 2012

R. Raabe was on-site observing the DOE accreditation of the site internal bioassay program.

Cold Vacuum Drying Facility (CVDF): The contractor found a number of errors in completed instrument calibrations, including one for a TSR surveillance. This surveillance was required to process the first multi-canister overpack (MCO) containing knock-out pot (KOP) sludge. The instrument technician omitted a zero when recording the information (i.e., 0.51 Vdc rather than 0.051 Vdc) during the annual calibration of the pressure switch in October 2011. The surveillance procedure does not require a second check of the recorded data or an independent review of the results if no test deficiencies are noted by the technician. The contractor re-performed the surveillance procedure and then processed the MCO that contained KOP material. In addition, they are conducting extent of condition reviews at other facilities.

During the drying process of the first MCO with KOP material, the MCO failed to meet an acceptance criterion for the repeatability of the pressure rebound test (a dryness test). This same type of failure happened while processing the last MCO with spent nuclear fuel (see Activity Report 4/20/12). After recovery actions, workers successfully completed drying the MCO and shipped it to the Canister Storage Building. The contractor is evaluating if they should modify the MCO drying procedure to address this scenario.

Tank Farms: The contractor proposed not crediting safety-significant (SS) relief valves on the waste transfer system. The contractor believes they can do this because their failure modes analysis demonstrated the hydraulic power units (HPUs) that supply power to the turbine-driven transfer pumps will prevent any over-pressurization. The general service HPUs will require a modification to limit their power, but the contractor does not plan to credit these units. This approach is being considered so they can close a Justification for Continued Operation (JCO) concerning the waste transfer system (see Activity Report 11/4/11). Instead of crediting an engineered system, they propose crediting a safety management program for configuration management to ensure the HPU design is not changed without a safety review.

The contractor concluded that the control to prevent overheating waste transfer system lines from C-105 must be designed and operated to Safety Integrity Level (SIL)-1 requirements. The contractor's approach for determining the SIL is not consistent with the DOE-STD-1195 because it uses accident frequency to reduce the SIL. The contractor plans to have the Office of River Protection (ORP) approve their SIL determination process by including it in the draft DSA amendment that will resolve the waste freezing JCO.

Waste Treatment Plant: ORP sent a letter to the contractor that expresses dissatisfaction with the contractor's effort to address concerns about the cathodic protection system for buried piping. The contractor conducted testing on a number of pipe segments looking for defects, but many of the segments had not been exposed to corrosive conditions. If pipes that were not exposed to corrosive conditions are excluded from consideration, the results show a high failure rate, which does not instill ORP with confidence that the piping will last its intended life.