DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 23, 2009

TO: T. J. Dwyer, Technical Director
FROM: W. Linzau and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending October 23, 2009

Tank Farms: The contractor plans to use a non-safety-related (general service) variable frequency drive (VFD) to protect the safety-significant (SS) waste transfer lines and isolation valves from over-pressure during transfers from double-shell tank (DST) AN-101. The system had SS relief valves, but they were determined to be inoperable because they are not code compliant (see Activity Report 8/28/09). Therefore, the contractor decided to limit system pressure with a VFD on the transfer pump, but the VFD and supporting software do not have a safety pedigree. When the site rep questioned this control strategy, the Office of River Protection (ORP) confirmed that they believe the design complies with the approved DSA and will not object to using this new equipment for waste transfers. It is unclear why transfers with this system will be allowed when it appears to violate the basic tenets of nuclear safety in which only qualified equipment can be credited for a safety function. There are no near-term safety drivers to complete these transfers.

During operational acceptance testing, the AN-101 pump was shut down because flow rates were higher than expected. While following the procedure to restart, the pump unexpectedly started when VFD power was restored, but before the start button was pushed on the control cabinet. The shutdown and restart sequences in the procedure did not prevent this unexpected pump start.

The ORP Safety Review Board is reviewing major changes to the Tank Farms DSA that were formally submitted by the contractor last month. The changes are intended to: implement recent ORP direction related to criteria for SS controls (see Activity Report 5/1/09); make the DSA compliant with the requirements for specific administrative controls (SACs) invoked by change notice three to DOE STD 3009; support closure of a Justification for Continued Operation for inadequate commercial grade dedication; and provide the basis for closing three Unreviewed Safety Questions. The reduction in the number of controls is largely possible because the exposure criterion for collocated workers was increased to 100 from 25 rem TEDE. Major changes include the downgrade of the DST ventilation system, leak detectors, and master pump shutdown system from SS to less than SS.

Plutonium Finishing Plant (PFP): The contractor drafted changes to the DSA and TSRs to align with the plans for D&D. A major component of the changes is the new definition of operationally clean. The proposed changes to the DSA define operationally clean as areas in a Hazard Category (HC)-2 facility where contamination levels and hazards have been reduced to the point where confinement, ventilation, and fire suppression systems are no longer credited to maintain a low nuclear safety risk. Though no longer credited, these systems may still be required to meet non-nuclear fire protection and environmental requirements. The operationally clean requirements will be implemented in a SAC. The site rep anticipates the changes will soon be approved by the contractor and will be submitted for Richland Operation Office (RL) review.

Plateau Remediation Contract (PRC): The contractor provided RL a continuing safety improvement action plan in response to a self-identified pattern of events that indicate a weakness in the ability of their workforce to recognize conditions outside of analyzed hazards and work protocols. The plan describes many practical actions to strengthen their organization, such as hiring a conduct of operations mentor and five additional field safety personnel.