

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 25, 2013

**MEMORANDUM FOR:** Timothy Dwyer, Technical Director  
**FROM:** Jonathan Plaue, DNFSB Site Representative  
**SUBJECT:** LLNL Activity Report for Week Ending January 25, 2013

**DNFSB Staff Activity:** On Thursday, the Board's staff held a teleconference with Livermore Site Office (LSO) and laboratory contractor personnel to continue discussions on the recently approved safety basis update for the Waste Storage Facilities.

**Tritium Facility:** The Facility Manager recently reported that initial results from the analysis of the particulate sampling filters installed in the building exhaust stacks indicated tritium levels near background. The contractor installed these filters to enhance the monitoring of the stack debris (see weekly report dated December 7, 2012). The Facility Manager expects additional data points and a final report in the next few weeks. The contractor is also developing a work package to perform video inspection of the stacks to identify the source and significance of the debris.

On January 18, 2013, the laboratory contractor submitted to LSO a safety basis amendment for the Diffusion Fill System (DFS). The DFS supports filling targets for the inertial confinement fusion campaign and constitutes several new pieces of equipment for installation in the Tritium Processing Station glovebox. This equipment includes a 100 mL boost volume that will operate at 1000 psia at temperatures of -200 to +300 °C. The amendment states that minor changes are necessary to the hazards analysis and proposes a new Specific Administrative Control to limit the amount of tritium in the boost volume to 1.8 g.

The contractor performed a Hazards and Operability Analysis (HAZOP) in support of the amendment. The stated inputs for the HAZOP included conversations with knowledgeable individuals and a draft piping and instrumentation diagram. The DFS amendment was also the first application of the new Red Team Review process developed in response to concerns with safety basis quality identified by LSO and the Board.

**Quality Assurance:** On January 15, 2013, the contractor submitted to LSO the corrective action plan developed in response to the deficiencies identified during the August 2012 assessment of the software quality assurance (SQA) program (see weekly report dated November 23, 2012). The overarching milestone is submission of a revised Institutional SQA program document to LSO for approval by November 26, 2013. A key interim milestone is completion of a formal evaluation of all safety software used in the nuclear facilities by March 1, 2013.

The contractor categorized all of the deficiencies, defined as contractual non-compliances by LSO, as significance level 3. Institutional procedures require limited analysis and follow-up for this significance level—for perspective, significance level 4 only requires trending. In particular, a documented apparent cause or root cause analysis is optional. The submitted corrective action plan does not provide any information related to the cause of these issues. The Site Representative notes that the nature of the three deficiencies suggests that the contractor could benefit from broader analysis. In this case, the contractor's governance process resulted in procedures that failed to implement adequately a Department of Energy directive related to nuclear safety.