

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 14, 2011

MEMORANDUM FOR: Timothy Dwyer, Technical Director
FROM: Jonathan Plaue, DNFSB Site Representative
SUBJECT: LLNL Activity Report for Week Ending October 14, 2011

Formality of Operations: Last month, the Livermore Site Office (LSO) responded to a request from National Nuclear Security Administration (NNSA) Headquarters for a complex-wide review and analysis of formality of operations issues and deficiencies during fiscal year 2011. LSO's response identified issues with: (1) chronic beryllium disease prevention, (2) inadequate and inconsistent work planning and control, (3) electrical safety and infrastructure, (4) lack of detailed project planning, (5) conduct of operations issues, and (6) ineffective self-assessments. LSO provided nine contributing factors and seven corrective measures. The Site Representative noted that the corrective measures were not specifically mapped to contributing factors, resulting in difficulty determining their comprehensiveness. Contributing factors of particular note included: inadequate extent-of-condition review and root cause analysis, difficulty in management disposition of institutional issues, and heavy reliance on worker skill rather than written instruction.

Tritium Facility: In a letter dated October 7, 2011, LSO approved the contractor's request to revise the condition of approval regarding technical safety requirement (TSR) controls to prevent hydrogen deflagrations involving tritium (see weekly report dated September 30, 2011). The revised TSR specific administrative control (SAC) sets the limit on the volume of hydrogen isotopes permitted in a glovebox to less than 4 percent of the glovebox volume. The revised control set also includes a TSR programmatic administrative control to limit the volume of hydrogen isotopes to 2 percent in any continuous un-isolated volume. LSO's approval changes a position stated to the Board in a letter from NNSA dated June 14, 2011. LSO has kept the Site Representative informed and intends to communicate the bases for this change to the Board through NNSA Headquarters. The next step forward for the 2009 annual safety basis update will be the submittal of page changes to LSO for approval on November 21, 2011.

Safety Basis: The TSR programmatic administrative control discussed above is commonly referred to locally as a key element of a TSR administrative control program. The concept of a TSR key element is not well developed in the Department of Energy's directives system and expectations are not well codified in site procedures. For example, documented details covering the glovebox glove integrity inspections—a key element of the quality assurance program—do not exist beyond the language in a bullet point in the safety basis (see weekly report dated September 30, 2011). Furthermore, in past practice at LLNL, single instances of noncompliance with TSR key elements were not considered TSR violations.

Work Planning and Control: Last month, the contractor's security organization conducted a force-on-force exercise in the Superblock. Planned security activities adhere to the work control process. Safety disciplines were convened for the exercise to develop a work permit, which included a walk-down of authorized engagement areas. Facility safety controls were rigorous and included limits on the types of engagement in certain areas, a smoke shutdown of the fire detection system, fire watches, carbon monoxide monitoring and supplemental ventilation, as well as extensive pre-exercise safety briefings, contamination surveys, and final area walk-downs. Following completion of the exercise, during which security force personnel performed well, facility personnel completed surveillances and restored TSR operability to the impacted credited safety systems.