

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 4, 2012

**MEMORANDUM FOR:** Timothy Dwyer, Technical Director  
**FROM:** Jonathan Plaue, DNFSB Site Representative  
**SUBJECT:** LLNL Activity Report for Week Ending May 4, 2012

**DNFSB Staff Activity:** On May 1, 2012, the Board's staff held a teleconference with personnel from the Livermore Site Office (LSO). The purpose of the teleconference was to discuss the current status of efforts to approve the 2009 update to the safety basis, including a commitment made in response to the letter from the Board dated May 16, 2011, to incorporate a safety significant confinement boundary for certain glovebox operations in the Tritium Facility

**Plutonium Facility:** Facility personnel recently completed installation of a rebuilt fan for the glovebox exhaust system in one of the increments. All of the credited ventilation fans in this increment have now recently either been replaced or rebuilt and only a single fan remains to be replaced in the other increment. These infrastructure improvements help improve the reliability of the safety systems and increase facility availability for programmatic work.

On Wednesday, a four person team from LSO initiated the federal readiness assessment for the classified experiment. The team requested and observed a demonstration of the response to the most challenging anticipated off-normal scenario, which includes the presence of radioactive contamination and unburned high explosives. The team anticipates completing their review early next week.

**Emergency Management:** On Wednesday, Tritium Facility personnel participated in the inaugural drill of the new documented drill program. The drill involved response to a continuous air monitor (CAM) for airborne alpha radioactivity. Experiments are occasionally performed in the Tritium Facility on small samples of actinide materials; however, drills or responses to actual CAM alarms had not previously occurred in this facility. As a result, this drill appeared to be a beneficial learning experience for personnel. Facility management also took an action to increase the number of alpha contamination meters in the facility.

**Tritium Facility:** Facility personnel recently completed the installation of several new storage racks in a room built for other purposes and now used for storage. While the safety basis administratively excludes this room from the radioactive materials area, it is physically contiguous and is not separated by a credited fire wall. As a result, questions were previously raised on the housekeeping and combustible loading in this storage room. The new racks and an associated organizational effort have helped to reduce combustibles and improve housekeeping.

This week, LSO personnel continued their review of a calculation intended to analyze the required leak rate performance of tritium gloveboxes. The calculation also modeled the response to an over-pressurization in order to determine whether the glovebox gloves, modeled as the frustum of the cone, provide an adequate expansion volume to prevent the need for credited pressure relief (i.e., a bubbler). However, the glovebox gloves are currently not included in the proposed credited system boundary. This fundamental issue of defining an appropriate safety significant boundary has persisted since the first readiness assessment performed on the Tritium Processing Station in August 2010.