DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 15, 2012

MEMORANDUM FOR: Timothy Dwyer, Technical Director
FROM: Jonathan Plaue, DNFSB Site Representative
SUBJECT: LLNL Activity Report for Week Ending June 15, 2012

DNFSB Activity: On Tuesday and Wednesday, Board Members Winokur, Roberson, and Bader received briefings and walked-down the Plutonium Facility. The Board Members were accompanied by staff members Dwyer, Schapira, and Anderson. Briefing topics included: a status of the Livermore Site Office (LSO), current and planned programmatic operations under Security Category 3, improvements to nuclear facility operations, planning for the W78 Life Extension Program, performance measures and metrics used for nuclear facility safety, and the status of actions taken in response to the recent Board letters regarding safety systems in the Plutonium Facility and the safety basis in the Tritium Facility.

Plutonium Facility: On June 12, 2012, the laboratory contractor submitted to LSO their evaluation of options for upgrades to glovebox housekeeping HEPA filters. This evaluation represents an interim step in the overall response to the Board's letter dated December 12, 2011, concerning safety systems. LSO has begun studying the evaluation to support their one year reporting requirement to the Board.

Overall, the contractor recommended continued use of the existing wood-enclosed HEPA filters until their scheduled replacement with like-for-like components (wood-enclosed filters). The Site Representative notes that the only existing criterion to require replacement is an elevated differential pressure and this provides no indication of the ability of the wooden enclosure to continue to maintain the credited confinement function. In discussions, the contractor continues to assert that operational experience with the wooden enclosures provides a sufficient technical basis to support the safety function.

The contractor's evaluation used a series of six factors to weigh 20 design alternatives and applied a type of pairwise comparison analysis to develop their overall conclusion. The factors for the evaluation included safety of installation, safety of operation, ease of installation, standardization, speed of installation, and cost. A similar analysis was performed for the flexible connections, which concluded the preferred option was continued use of the existing connections. If LSO were to direct upgrades, the contractor recommended replacement of the existing filters with axial flow filters inserted inside normal metal ducting or modern open face filters in metal enclosures. The contractor's evaluation also included a prioritized listing of 35 gloveboxes with an expected enduring mission. Priority groupings were established using filter age, dose rate, and estimated frequency of future use.