DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 6, 2015

TO: Steven A. Stokes, Technical Director
FROM: Matthew P. Duncan, Cognizant Engineer
SUBJECT: Lawrence Livermore National Laboratory Report for October 2015

DNFSB Staff Activity: D. Owen, M. Duncan, and P. Migliorini traveled to LLNL to review safety basis implementation and verification processes, focusing on the Plutonium Facility. J. Deplitch and M. Duncan traveled to LLNL to observe and evaluate the annual full-scale emergency exercise for fiscal year 2016.

Plutonium Facility: Minor levels of radioactive contamination were detected on a glovebox exhaust duct during routine radiological surveys. Follow-up non-destructive dye penetrant testing identified degraded welds in the glovebox exhaust duct. All programmatic work was suspended and all in-process fissile material was removed from the affected glovebox. Personnel fixed the contamination in place and wrapped all degraded or suspect welds with glovebox materials used to isolate contamination from personnel.

Annual Full-Scale Emergency Exercise: LLNL held its annual full-scale emergency exercise for fiscal year 2016. This was a joint exercise with Sandia National Laboratories. The exercise scenario included two improvised explosive devices, two active shooters, a nitric acid spill, a tritium release, and a loss of power. LLNL expected everyone at Site 200 to participate. LLNL personnel are currently evaluating input from everyone involved in the exercise, including players, controllers, and evaluators and will document the results in an after action report.

Plutonium Facility: After approximately six months of LFO review and comment resolution with LLNL, LFO approved the annual update for the Plutonium Facility's Documented Safety Analysis and Technical Safety Requirements. Examples of significant changes include:

- A downgrade of the fire suppression system from safety class to safety significant or lower as a result of an updated laboratory room fire analysis
- An upgrade of the hydrogen gas control system from safety significant to safety class
- Various changes to material at risk inventory controls and other specific administrative controls
- A new analysis of impacts from ash fall from volcanos and forest fires
- Additional analysis of hazards from natural gas explosions
- Additional analysis of a beyond evaluation basis earthquake

LFO's approval letter contained a condition of approval that directs providing improved control flow down for a portion of the glovebox exhaust system in the next annual update submittal.