

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 2, 2015

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

DNFSB Staff Activity: M. Duncan visited LLNL to observe the annual full-scale emergency exercise and perform routine oversight. E. Gibson, M. Duncan, and outside expert R. Green participated in a teleconference with LLNL, LFO, and subcontractor personnel to discuss the draft Probabilistic Seismic Hazard Analysis Update for LLNL.

Plutonium Facility: LFO approved LLNL's request to temporarily deviate from the Technical Safety Requirements for the fire suppression system while making engineered modifications to the system. During its review of the request, LFO noted that the safety-significant fire detection and alarm system would not remain fully operational and levied a condition of approval to address the exception they found. A separate condition of approval required a walk down of key dry pipe connections to ensure the standby dry pipe system could provide water using site fire department equipment. LLNL successfully performed the modifications to the system and restored it to operability using newly-developed surveillance requirement procedures.

Probabilistic Seismic Hazard Analysis: LLNL's subcontractor completed its update to the Probabilistic Seismic Hazard Analysis and finalized the report. Per DOE Order 420.1C, *Facility Safety*, LLNL must determine whether this new assessment indicates deficiencies in the design of existing structures, systems, and components. If so, LLNL will need to develop and implement an upgrade plan, with LFO approval.

Annual Full-Scale Emergency Exercise: LLNL held its annual full-scale emergency exercise. The exercise scenario involved a simulated forklift fire and explosion impacting two workers and four radioactive waste drums in the yard of one of LLNL's Waste Storage Facilities. LLNL personnel are currently evaluating all input from everyone involved in the exercise, including players, controllers, and evaluators. LLNL expects to release the after action report by the end of October.

Waste Storage Facilities: LFO approved LLNL's evaluation of the safety of the situation regarding new information that called into question the technical basis for assuming pipe overpack containers would have a damage ratio of zero during fuel pool fires. This is a complex-wide issue and the National Nuclear Security Administration is working to provide additional guidance to the field. LLNL had determined that the increase in the source term due to a fire—and the resulting consequences to workers and the public—would be less than 10%. LFO agreed with LLNL's assessment and conclusion that no additional operational restrictions or other compensatory measures are necessary while awaiting further direction from the National Nuclear Security Administration.