DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 5, 2015

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

DNFSB Staff Activity: J. Deplitch and M. Duncan were at LLNL the week of May 18 primarily to observe the annual full-scale emergency exercise. The LLNL Deputy Director, who was serving as the Exercise Director, suspended the exercise due to a medical emergency. The exercise has been rescheduled for September.

Plutonium Facility: An annual surveillance test revealed degradation of the safety class room ventilation system. Specifically, a pilot valve for a damper's pneumatic positioner had worn, causing it to bind and not operate properly. The Facility Manager suspended programmatic work in the Plutonium Facility while the cause was under investigation and repairs were made. A redundant exhaust fan remained operational.

Electrical Safety: LLNL entered a period of "deliberate operations" for all electrical work across the laboratory. This decision resulted from consideration of the arc flash accident at Los Alamos National Laboratory and a capacitor failure at the National Ignition Facility, not because of any particular concern regarding LLNL's performance in this area.

Fire Protection: The Livermore Field Office forwarded the results of a fire protection assessment to the laboratory. Its scope was broad, covering a sample of nuclear and non-nuclear facilities. The assessment determined that documentation and implementation of some wet sprinkler preventative maintenance procedures do not meet requirements. The National Fire Protection Association's *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems* (NFPA 25) contains the applicable requirements. The 2014 version states that "When there is a 10 percent reduction in full flow pressure when compared to the original acceptance test or previously performed tests, the cause of the reduction shall be identified and corrected if necessary." The implementing procedures for the Tritium Facility require investigation of reductions greater than 15 percent rather than 10 percent. The assessor also found an example where an 11.76% reduction was not investigated, though the procedure contained the correct percentage. Livermore Field Office personnel plan to perform a follow-up review to ensure that LLNL takes appropriate corrective action to resolve the issue.

Hazard Categorization: The cognizant engineer obtained and assessed additional information regarding past and future plutonium experiments at the National Ignition Facility and determined that the facility remains appropriately categorized as a radiological facility (i.e., a less than hazard category 3 nuclear facility) consistent with DOE Standard 1027-92 and the National Nuclear Security Administration's more recent supplemental guidance (NA-1 SD G 1027).