

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 1, 2016

**TO:** Steven A. Stokes, Technical Director  
**FROM:** Matthew P. Duncan, Cognizant Engineer  
**SUBJECT:** Lawrence Livermore National Laboratory Report for March 2016

**DNFSB Staff Activity:** M. Duncan visited LLNL to perform routine oversight. J. Deplitch and M. Duncan participated in a teleconference to discuss emergency preparedness and response at the laboratory.

**Tritium Facility:** The Tritium Facility has tritium room monitors that can detect tritium in room air and provide a means to alert personnel of an otherwise undetectable release by providing an audible alarm. When a room contains more than 1100 curies of tritium, the tritium monitors are credited as safety significant to protect facility workers. Early this month, facility personnel responded to a low flow alarm and observed that the tritium monitor's pump was not running. The tritium monitor was not required to be operable as the room did not contain more than 1100 curies of tritium at the time. The cause of the failure was a short in a worn power cable that had created a hole in a discharge tube. Facility personnel replaced the tube and power cable. An extent of condition review did not find similar problems with other tritium monitors in the facility.

**Safety Basis:** Last year, LLNL declared a potential inadequacy in the safety analysis after discovering that some safety basis calculations used embedded computer code that had not been verified in accordance with LLNL's software quality assurance requirements or identified on its list of approved safety software (see July and August 2015 reports). LLNL has always maintained that continued operations are safe and no compensatory measures are warranted. This month, LFO officially agreed with this conclusion via a safety evaluation report approving the facility manager's evaluation of the safety of the situation. There was one condition of approval, that LLNL shall add the specific versions of the software discussed in the original occurrence report to the LLNL nuclear safety software inventory list by April 1, 2016.

**Operational Drill Program:** All certified operators and supervisors are required to participate in drills at least biennially per DOE Order 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*. During the management self-assessment and contractor readiness assessment for the Centralized Waste Processing Line, LLNL personnel discovered that none of the involved certified personnel had participated in an operational drill in the previous two years. This led to the discovery that a significant number of other certified personnel have not been participating in biennial drills. LLNL personnel responsible for the training program have been working to correct this problem for several months and expect satisfactory resolution by the end of April.