

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 10, 2006

**MEMORANDUM FOR:** J. K. Fortenberry, Technical Director  
**FROM:** Michael J. Merritt, DNFSB Site Representative  
**SUBJECT:** Lawrence Livermore National Laboratory (LLNL)  
Report for Week Ending March 10, 2006

**Nuclear Criticality Safety Training:** LLNL is finalizing preparations to conduct nuclear criticality safety training in the Plutonium Facility. The training is sponsored by DOE's Nuclear Criticality Safety Program (NCSP) organization. In its 2005 annual report to the Board to address Recommendation 97-2, *Criticality Safety*, the National Nuclear Security Administration (NNSA) committed to establish an interim hands-on training capability at LLNL. The Plutonium Facility will provide the physical capability to perform hands-on training (formerly done at Los Alamos National Laboratory's TA-18 facility) until the Critical Experiments Facility at the Nevada Test Site is operational.

This week, the NNSA NCSP Manager met with LLNL criticality safety engineers and Livermore Site Office (LSO) personnel to discuss the details of the program and toured the Plutonium Facility laboratory that will be used for the training. The training will include sub-critical multiplication experiments using pre-existing LLNL uranium parts. The parts were previously used for nuclear criticality experiments and cross-section measurements and subsequently modified for use in criticality safety training. The priority is to establish the level of training needed to qualify criticality safety engineers to DOE-STD-1135-99, *Guidance for Nuclear Criticality Safety Engineer Training and Qualification*. Training courses are expected to begin this summer with four courses to be completed by fiscal year 2007. Remaining preparations include finalizing the course syllabus and curriculum, completing laboratory physical modifications, and preparing and approving safety basis documentation. The Plutonium Facility Manager is also establishing the safety prerequisites to allow course participants to gain access to the training laboratory.

**Conduct of Operations:** DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, requires investigation of abnormal events. At LLNL, the guidance for such investigations is contained in the LLNL *Environment Safety and Health (ES&H) Manual*, Document 4.7, *ES&H Analysis Methods*. During the past year, the site representative informed LLNL management that the ES&H Manual lacked a process for conducting critiques that would improve LLNL's ability to gather timely information and categorize events to meet DOE reporting requirements. An appropriately graded critique process would also increase the range of events investigated to encompass the full spectrum intended by DOE O 5480.19. Currently, the ES&H Manual provides techniques for causal analysis, but does not define a process for the timely gathering of information (i.e. critiques).

This week, the Associate Director for Safety and Environmental Protection (SEP) released a draft revision of ES&H Manual Document 4.7 that includes guidance on conducting critiques. The guidance was developed using information from other DOE sites with existing critique procedures. Prior to final incorporation in the ES&H Manual and implementation in nuclear facilities, the critique process will be piloted in the SEP facilities. The draft critique guidance requires a critique to be held for any event reportable per DOE Order 231.1A, *Environment, Safety and Health Reporting*, and associated manual, and Price-Anderson Amendments Act non-compliance reporting requirements. The guidance also encourages managers to use the process to address internal issues that are not formally reportable to DOE.