

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 1, 2006

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: M. J. Merritt, DNFSB Site Representative
SUBJECT: Lawrence Livermore National Laboratory (LLNL)
Report for Week Ending September 1, 2006

DNFSB Staff Site Activity: Staff member T. Hunt was at LLNL this week participating in DOE criticality safety “hands on” training for engineers meeting DOE-STD-1135-99, *Guidance for Nuclear Criticality Safety Engineer Training and Qualification*. J.K. Fortenberry and C. Martin were also at LLNL participating in meetings on multi-unit operations at Pantex.

Plutonium Facility Criticality Safety Program: A DNFSB staff review of the LLNL nuclear criticality safety (NCS) program conducted in July 2006 confirmed deficiencies in the NCS program identified by the site representative in February 2006 (see weekly report dated February 10, 2006). The identified deficiencies included issues with the ability of the fissile material handlers (FMHs) to access data to fully comply with Standard Criticality Control Conditions (SCCC). This concern includes use of the Controlled Materials Accountability Tracking System (COMATS) by the FMHs to meet the SCCC requirements.

The Facility Safety Plan requires FMHs ensure that nuclear material movements comply with the appropriate SCCC. In order to ensure compliance with the SCCC for a workstation, the FMH uses data from COMATS (primarily the fissile mass), as well as other control parameter data (e.g., shape, form, moderator, reflector) to comply with the SCCC prior to material movements. The responsibility for meeting the criticality safety requirements relies on the expertise of the FMHs and independent verification. The staff has observed a heavy reliance by the FMHs on COMATS (data and programming), which is currently defined as an operator aid. Since all of the control parameters have not been integrated into COMATS, the FMH must obtain some data from sources other than COMATS. A new system, the Criticality Special Support System (CSSS), is being developed to assist FMHs in ensuring compliance with the criticality safety requirements. However, CSSS is not expected to be fully deployed until 2008-2010. The site representative has encouraged LLNL to implement an interim process that provides all relevant data to the FMHs until CSSS is fully implemented.

This week, the Deputy Program Leader for Programmatic Operations directed the implementation of a criticality safety process improvement that will partially address the concerns identified by the staff. The direction calls for mandatory use of CSSS labels for movement of fissile material packages beginning October 2, 2006. The new labeling process requires the FMHs to obtain and enter all relevant criticality safety data into the CSSS system, which will ensure that the FMHs have the necessary information to comply with the SCCC. Once the data is collected in the CSSS data record and displayed on the label for individual fissile material packages, the SCCC requirements can be directly compared to the properties of that item for subsequent material movements. In order to support this initiative, FMHs are required to complete training on CSSS during the month of September. If the FMH has not completed CSSS training by October 2, 2006, access to the COMATS and CSSS systems to support fissile material movements will be revoked.