DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 22, 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 22, 2006

Plutonium Facility Criticality Safety Program: During the past two weeks, Plutonium Facility fissile material handlers (FMHs) were provided additional training to ensure that nuclear material movements comply with the appropriate Standard Criticality Control Conditions (SCCC). To comply with the SCCC for a workstation, the FMH uses data from the Controlled Materials Accountability Tracking System (COMATS) and container labels to ensure requirements are met prior to material movements. The responsibility for meeting the criticality safety requirements relies on the expertise of the FMHs and independent verification. The recent training provided to the FMHs is on the use of the Criticality Special Support System (CSSS), specifically the use of CSSS labels.

The mandatory use of CSSS labels for movement of fissile material packages will begin on 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.

Plutonium Facility Criticality Safety Infractions: On September 15, 2006, Plutonium Facility management issued an occurrence report (ORPS report OAK–LLNL-LLNL-2006-0045) regarding safety infractions in the criticality safety program. The management concern resulted from three criticality safety infractions (one each in July, August and September). The causes of the infractions differed, but each resulted in a deviation from the SCCC requirements for the work stations. In two of the cases, the mass limits of the SCCC were violated. One of the mass violations resulted from a non-conservative estimate of plutonium in salt, and the other resulted from an operational error. The third cased involved configuration management of COMATS for "approved items" that are specifically analyzed for storage in approved locations.

As required by the Facility Safety Plan, a recovery plan for each infraction was developed and approved by the Criticality Safety Section. In each case, the criticality safety evaluation conservatively bounded the condition created by the infraction. Nonetheless, followup actions were defined in order to prevent future recurrences of these types of infractions.

Plutonium Facility Safety Basis Implementation Plan: LLNL initiated the Plutonium Facility safety basis implementation plan about three months ago to transition facility operations to a safety basis compliant with 10 CFR Part 830, *Nuclear Safety Management*. The implementation plan was approved by LSO on June 20, 2006. The plan defines a phased approach for field implementation of safety-related structures, systems, and components (SSCs) and Safety Management Programs (SMPs). The first group of controls has been implemented. This group includes four SMPs – criticality safety, radiation protection, unreviewed safety question, and occurrence reporting – and two SSCs – criticality alarm system and inert gas supply systems. Subsequent groups of controls are scheduled to be implemented through September 2007.