

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 5, 2004

**MEMORANDUM FOR:** J. K. Fortenberry, Technical Director  
**FROM:** Michael J. Merritt, DNFSB Site Representative  
**SUBJECT:** Lawrence Livermore National Laboratory  
Report for Week Ending November 5, 2004

**DNFSB Staff Site Activity:** J. Malen was at Sandia National Laboratories, California on November 2, and at LLNL on November 3-4, 2004 observing training sessions provided to the National Nuclear Security Administration's Nuclear Explosive Safety Study (NESS) Group. The NESS Group is receiving training to prepare for a NESS of B83 nuclear explosive operations at the Pantex Plant.

**Plutonium Facility Contamination Occurrence:** A contamination occurrence was reported in the Plutonium Facility on October 26, 2004. The actual contamination event occurred on October 19, but was not reported at that time due to discrepancies in facility procedures for reporting and possibly due to incorrect definitions of the radiological areas within the facility. LLNL submitted an implementing procedure for DOE Order 231.1A, *Occurrence Reporting and Processing of Operational Information* on November 20, 2003. The order and implementing procedure establish thresholds for reporting based on the levels of contamination and the established radiological controls and posting for the area. Based on the available information, the contamination event was clearly reportable and was required to have been categorized and reported within two hours.

According to the occurrence report (ORPS report OAK-LLNL-LLNL-2004-0052), a fissile material handler (FMH) detected contamination on his forearm after removing his hands from a glovebox. Subsequent contamination surveys indicated contamination on the waist area of the FMH and on the floor around the work area. Contamination levels on the sleeve were found to be approximately 8,000 counts per minute and on the waist area were approximately 6,000 counts per minute. The contamination levels on the floor were as high as 100,000 counts per minute. Facility personnel responded to the event by donning respirators and taking actions to control the spread of contamination. Facility personnel covered the floor with plastic overnight and then decontaminated the floor the next day. As a result of this event, a plan is being developed to revise the posting in the facility to meet the current requirements for Contamination Areas and Radiological Buffer Areas.

**Plutonium Facility Safety Systems:** There were nine occurrence reports in October for the Plutonium Facility (ORPS reports OAK-LLNL-LLNL-2004-0046 & 0047, and 0050 through 0056). One of these (OAK-LLNL-LLNL-2004-0052) is discussed above. The remaining eight of these reports were related to inadequacies in components, systems, or the analysis relied on for safe operation of the facility. Six of the eight occurrence reports were related to potential inadequacies in the analysis and documentation that support safety system adequacy and functionality. Two reports were related to anomalous physical conditions. Although the equipment discussed in one report (OAK-LLNL-LLNL-2004-0046) is not a safety-class or safety-significant piece of equipment, it is relied upon to prevent dropping containers of nuclear material. Additional examples of safety system problems were also identified in the site representative weekly report dated October 8, 2004. Many of these problems can be attributed to inadequate implementation of configuration management for safety systems in the Plutonium Facility.