

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 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 December 22, 2006

Readiness Assessment for Legacy Item Disposition: In August, LLNL commenced a readiness assessment (RA) to disposition a legacy item referred to as Object-77. The activity will be conducted in the Plutonium Facility and involves significant radiation, contamination, criticality, deflagration, high pressure, and other industrial hazards. To safely conduct this activity, general controls contained in the Facility Safety Plan and an Operational Safety Plan have been supplemented by specific controls contained in critical lift plans, work permits, an emergency response plan and special assembly procedures. During performance of the RA dry runs in August, the Site Representative observed several deficiencies. The radiological controls were inadequate, conduct of operations lacked rigor, mockup training did not effectively validate procedures, field changes were authorized without formal direction and thorough evaluation, and installation of specially designed equipment was problematic. Overall, readiness to operate had not been established and thus commencement of the RA was premature. As a result of inadequate preparation, the NMTP Program Leader suspended the RA.

Since the RA was suspended, LLNL program personnel have conducted a management self-assessment (MSA). The MSA identified issues with procedures, radiological suspension limits, training for emergency response personnel, testing and inspection of hoists and cranes, and personal protective equipment used during the dry runs. LLNL management recently indicated that the MSA issues have been resolved and the RA is scheduled to re-commence in late January.

Hardened Engineering Test Building Activity: A radiation measurement activity was conducted in the Hardened Engineering Test Building, Building 334 this week. The fissile material handlers and hazard controls technician performed the activity in a manner consistent with the level of rigor required in the Plutonium Facility. Adherence to work permits and procedures continues to improve. However, the placement of continuous air monitors (CAMs) was not consistent with LLNL's evaluation of safety related to a potential inadequacy of the safety analysis (PISA) that was recently submitted to the Livermore Site Office (see weekly report dated December 15, 2006).

In its December 1, 2006, PISA evaluation of safety, LLNL indicated that when using portable CAMs, the CAMs would be positioned closer to the nuclear material than the permanent CAMs that had been removed. The Site Representative observed that during the recent measurement operation, the portable CAM was not located closer to the nuclear material than the former location of the permanent CAM. In fact, it appeared that the location of the portable CAM would likely decrease the ability of the CAM to detect airborne contamination since the location was upstream of the source material. Prior to revising the facility Documented Safety Analysis (DSA) to reflect the use of the portable CAMs or conducting additional operations, LLNL should revisit the technical basis for CAM placement and ensure that the DSA requirement is satisfied during operations involving nuclear material.