

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 20, 2006

**MEMORANDUM FOR:** J. K. Fortenberry, Technical Director  
**FROM:** A. Matteucci, Acting DNFSB Site Representative  
**SUBJECT:** Lawrence Livermore National Laboratory (LLNL)  
Report for Week Ending October 20, 2006

**DNFSB Site Representative Activity:** The Site Representative was at the University of Illinois at Urbana-Champaign this week participating in on-campus recruiting.

**Tritium Contamination Occurrence:** On July 13, 2006, LLNL management issued an occurrence report (ORPS report NA-LSO-LLNL-LLNL-2006-0032) regarding the detection of tritium contamination in excess of the limit specified in Appendix D of 10 Code of Federal Regulations 835, *Occupational Radiation Protection*. (See weekly report dated July 21, 2006.) An Incident Analysis (IA) Committee was established to perform a detailed investigation of the occurrence to determine the root cause(s) and judgement of needs. The report from the investigation by the IA Committee was requested to be submitted by late August. On October 17, 2006, the IA Committee signed off on their report and submitted the report for management review. The report is to be available for review by next week. Presently, one facility and two vehicles have been surveyed and have been returned to normal use.

**Degradation of a Safety Class System.** During periodic maintenance activities on two water tanks for the safety class fire protection system in the Plutonium Facility, it was discovered that the 2/3 full marker on the site glass for one of the two fire water tanks may have malfunctioned. The marker maintained a reading of 2/3 full after the tank was drained for the 5-year periodic inspection and maintenance activities. Initial inspection of the tank and the plumbing for the site glass indicated that a plugged pipe restrained the sight glass marker's proper operation. The marker on the site glass was last verified to be operational on August 18, 2006, when a limited amount of water was added to the tank to maintain the tank at the 2/3 full level and the sight glass marker responded appropriately. The material that caused the blockage is being analyzed and uncertainty still remains on how and when the blockage occurred. The occurrence is categorized as a "degradation of any Safety Class SSC (structures, systems, components) when not required to be operable." The categorization assumes the tank capacity was at the 2/3 full level and the tank was capable of performing its safety function prior to draining the tank. A recent inspection of the isolation valve for the site glass by personnel from the Livermore Site Office (LSO) identified corrosion possibly due to dissimilar metals. An occurrence in early October which flooded the Hardened Engineering Test Building was caused by the corrosion of a cap on a water pipe. These occurrences may indicate a need to inspect all water systems with a priority on fire protection systems for non-compatible materials.

On August 16, LSO approved the request from the Nuclear Materials Technology Program office for a temporary deviation from the limiting condition of operation for the fire suppression system in the Plutonium Facility. The request identified compensatory measures for the purpose of maintaining the Plutonium Facility in an operational mode during the tank's periodic maintenance. These measures have been in effect during the current maintenance activities and the Plutonium Facility remains in an operational mode.