

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 4, 2005

**MEMORANDUM FOR:** J. K. Fortenberry, Technical Director  
**FROM:** Michael J. Merritt, DNFSB Site Representative  
**SUBJECT:** Lawrence Livermore National Laboratory  
Report for Week Ending March 4, 2005

**Plutonium Facility Safety System Repair:** LLNL recently completed an engineering evaluation of discrepant conditions found in the glovebox exhaust system (GBES). Facility management approved an engineering note on February 23, 2005, to document repairs to butterfly valves in the exhaust manifold assemblies for the GBES. This portion of the GBES is designated as safety significant by the facility Safety Analysis Report and is credited with protecting facility workers from exposure to radioactive contamination.

LLNL initially identified a discrepant condition for one butterfly valve on January 10, 2005, (ORPS report OAK-LLNL-LLNL-2005-0003) during an inspection of the GBES ducts. Facility engineering then directed a visual inspection of a total of 85 butterfly valves. The inspection led to identification of 14 similar conditions. Inspection personnel identified cracks in valves in 10 rooms in the facility. Facility management and facility engineering made a decision to seal the cracks using a clear multi-purpose sealant (room temperature vulcanizing silicone). Facility management authorized emergent repairs using the facility work permit process and subsequently documented the repairs with the engineering note. The actual repair for each valve required a contamination survey, surface preparation, and application of sealant.

According to the engineering note, the GBES system engineer is required to inspect the repair areas every three months to ensure that the repairs remain intact. Facility engineering is also investigating the eventual replacement of the repaired assemblies. It is not clear what level of engineering analysis is required by LLNL's conduct of engineering standards prior to performing repairs to operating safety systems. The GBES has other temporary repairs in place to compensate for cracks in the ducts (see weekly report dated September 17, 2004). Upcoming assessments of the configuration management of vital safety systems in the Plutonium Facility will include a review of the GBES.

**Plutonium Facility Administrative Control Programs (ACPs):** Since the beginning of 2005, LLNL has declared seven of the Plutonium Facility ACPs as being in violation of the facility Technical Safety Requirements (TSRs). The programs are configuration management, unreviewed safety question, radiation protection, procedures, maintenance, quality assurance, and occurrence reporting. Recovery plans to correct the ACPs are due by March 11, 2005. Additionally, LLNL will assess the remaining ACPs required by the TSRs by March 31, 2005.

**Independent Oversight Inspection:** On January 6, 2005, the Department of Energy Office of Independent Oversight and Performance Assurance (OA) issued its report for the inspection of environment, safety, and health (ES&H) management at LLNL that was conducted from October 18-28, 2004. The report documents twenty four findings that LLNL and the Livermore Site Office (LSO) must address in a corrective action plan by March 7, 2005. On March 2, 2005, the LSO Manager provided notification to NNSA that the corrective action plan would be delayed by 30 days. LSO considers the delay necessary to allow the Plutonium Facility to ensure that compensatory measures are adequate to safely resume operations.