

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 10, 2011

**MEMORANDUM FOR:** T. J. Dwyer, Technical Director  
**FROM:** B.P. Broderick and R.T. Davis  
**SUBJECT:** Los Alamos Report for Week Ending June 10, 2011

Pasko was onsite this week to attend an Integrated Nuclear Planning workshop devoted to the Plutonium Facility. The focus of the workshop, which included LANL, NNSA site office and NNSA-Headquarters personnel, included the results of the SAFER seismic evaluation, the 2011 Documented Safety Analysis (DSA) update and the plans and priorities for safety upgrades.

**Plutonium Facility – Seismic Safety:** This week, LANL management submitted for NNSA approval a Justification for Continued Operations (JCO) related to the recent discovery that certain structural components are more likely to fail during a seismic event than previously believed. Seismic analysis that supports the JCO concludes that the failure of one identified vulnerability could lead to a cascade of other failures resulting in significant structural damage that could impact material at risk (MAR) in all areas of the facility. Based on this low probability failure mechanism, the JCO conservatively postulates a more severe seismic accident scenario than any previously analyzed for the Plutonium Facility. This low probability, worst case scenario has very large dose consequences that are constrained only by significantly reduced facility MAR limits that are imposed by the JCO as compensatory measures. The JCO also credits a number of other compensatory measures that provide varying degrees of additional protection against seismic accident scenarios. NNSA site office and Headquarters personnel are currently reviewing the JCO.

In parallel with JCO development, LANL management has been aggressively pursuing design and construction efforts to implement structural upgrades to permanently address the newly identified vulnerabilities. LANL engineers, in conjunction with LANS corporate partner resources from Bechtel, have developed a design concept for an upgrade to correct the structural deficiency that leads to cascading failures and the severe accident scenario analyzed by the JCO. LANL personnel currently estimate that this critical upgrade can be completed by the end of November 2011.

**Plutonium Facility – Safety Basis:** Last week, LANL submitted the 2011 DSA annual update that includes the latest safety basis analysis of seismic accident scenarios for the Plutonium Facility. This refined seismic analysis assumes that the structural upgrades have addressed the recently identified vulnerabilities and restored facility's ability to provide a measure of material confinement after a seismic event. Once approved and implemented, the JCO discussed above will provide safety basis coverage until upgrades return the facility to the previously credited level of confinement performance. The 2011 DSA update is identified as an Implementation Plan deliverable for Recommendation 2009-2, *LANL Plutonium Facility Seismic Safety*. The site office is evaluating this submittal, although NNSA priority is currently on review of the JCO.

**Transuranic Waste Facility (TRUWF) Project:** LANL has completed approximately 90% of the preliminary design effort for the TRUWF Project and is scheduled to submit the Preliminary Safety Design Report to the NNSA site office later this month. This project will provide an enduring capability for transuranic waste storage, staging and characterization after Area G closure and shutdown of the WCRR Repackaging Facility. Currently, a technical independent project review is scheduled for September followed by Critical Decision-2, *Approval of Performance Baseline*.