

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 21, 2012

**MEMORANDUM FOR:** T. J. Dwyer, Technical Director  
**FROM:** R.T. Davis and R.K. Verhaagen  
**SUBJECT:** Los Alamos Report for Week Ending September 21, 2012

**Plutonium Facility:** This week, LANL submitted the Evaluation of the Safety of the Situation (ESS) to the site office for the Unreviewed Safety Question associated with the Plutonium Facility structural performance (see site rep weekly dated 8/31/12). Recent static non-linear seismic analysis indicates that the probability of failure for certain structural components do not meet the Documented Safety Analysis (DSA) performance goals (i.e. probability of failure of  $1.4 \times 10^{-4}$  versus  $1 \times 10^{-4}$ ). The ESS references DOE-STD-1020 that permits “using natural phenomena hazard exceedance probability of twice the value specified for new design” (i.e.  $2 \times 10^{-4}$ ) for existing structures that are close to meeting the criteria. LANL recommends site office approval of continued operations at the Plutonium Facility under this ESS, and intends to update the performance goal in the DSA to  $2 \times 10^{-4}$ .

No operational restrictions are identified in the ESS; however, the document does acknowledge that this probability of failure applies not only to loss of confinement (the safety basis credited function) but also to potential facility collapse mechanisms. Facility collapse could result in offsite dose consequences well in excess of that postulated in the DSA. LANL plans to develop engineering designs to brace and strengthen Plutonium Facility structural elements. The designs will be prioritized based on capacity margin calculations and cost of proposed upgrades. Conceptual designs will be summarized and submitted to NNSA as part of the Recommendation 2009-2 Project Execution Plan update in early November. The site office is currently reviewing the ESS.

The seismic analysis peer review team met with LANL personnel early this week to discuss comments and questions on the recently completed analysis. Comments will be incorporated into the final report and drive follow-up evaluations, as appropriate. In addition, LANL will perform additional analysis in FY 13 to ensure the seismic results are appropriately bounding as directed by NNSA.

**Software Quality Assurance (SQA):** This week, LANL submitted a SQA improvement plan to the site office to address weaknesses identified through an analysis of SQA issues related to Technical Safety Requirements (TSR) violations (see site rep weekly dated 7/13/12). The analysis identified 11 instances of SQA issues causal to TSR violations that occurred from August 2006 to the present. The improvement plan identified five SQA areas of concern, including: requirements determination; configuration management; validation and verification; software interfaces; and training. Additionally, the team that conducted the analysis concluded that knowledge of software quality management policies and procedures, including roles and responsibilities, is a weakness that directly contributes to these five areas of concern. The improvement plan includes a number of action items that will be implemented at LANL nuclear facilities and will be monitored and managed by LANL’s Associate Director for Nuclear and High Hazard Operations.

**Transuranic Waste Operations:** The site office completed the closure verification for all pre-start issues and approved the corrective action plan for post-start issues identified in the contractor readiness assessment for the Area G drum venting system this week. Based on these activities, the site office transmitted the notice to proceed memorandum for conduct of the federal readiness assessment. The review is expected to start on Monday.