

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 22, 2006

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: B. Broderick and C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending December 22, 2006

Andersen, Hadjian, and Kimball were here Monday to attend a review of the site-wide probabilistic seismic hazard analysis (PSHA) update. LANL was closed on Wednesday due to snow.

Seismic Criteria: The LANL PSHA update has slipped and is now projected to be done next month. When completed, the seismic design loads are expected to increase over those that have been used since 1996; for example, Performance Category 3 (PC-3) peak ground acceleration tentatively increases by about 50 % – from 0.34 g to 0.52 g. The Chemistry and Metallurgy Research Building Replacement (CMRR) Project anticipated the increase and has been using consistent higher design loads since July (site rep weekly 7/21/06). The impact on existing facilities remains to be determined.

Criticality Safety: On Thursday (12/21), NNSA approved LANL’s proposed updated criticality safety program improvement plan, which is intended to address issues from NNSA’s Oct 2005 assessment during the next 3 years. LANL asserts that the 3 year time frame is acceptable because the laboratory has established that adequate safety margin exists and that an interim configuration management protocol is in place. NNSA is also still finalizing a report from their Oct 2006 assessment, which preliminarily concluded that criticality safety risks here are now well understood and are being well controlled using interim processes, as opposed to the situation a year ago (site rep weekly 10/27/06).

The LANL plan discusses accomplishments to date, including issuing an institutional policy and manual, reviewing 564 fissile material operations, and walking down most of the operations; the remaining ‘low risk’ operations are scheduled to be walked down by Mar 2007, about 3 months later than the original schedule. The next phase focuses on bringing practices and documentation into compliance with the new policy and manual. The scope is large but risk-prioritized; the largest part involves generating more than 110 new criticality safety evaluations (CSEs) for current operations that are missing CSEs, upgrading more than 50 technically deficient CSEs, and correcting roughly 170 CSEs that have other issues. LANL is planning staff augmentation in FY-07 to support this.

Chemistry and Metallurgy Research Building (CMR): CMR has a Cm-244 source in Wing 9 floor hole storage that has an order of magnitude more activity than that in the rest of CMR combined. The CMR safety basis (1998) assumes floor storage is robust and therefore excludes this source from material-at-risk (MAR) controls; if the MAR controls applied, the source would exceed the facility limit by an order of magnitude. A shielded cask is available to support disposition but cannot be used due to unresolved floor loading issues linked to a longstanding potential inadequacy in safety analysis (PISA). Prudence dictates timely action given the source’s size and CMR’s age-related issues.

Software Quality Assurance: A LANL investigation determined that ineffective implementation of the institutional software quality assurance (SQA) program was a shared root cause in three recent reportable occurrences. These events included 2 MAR limit violations at TA-54 Area L and the introduction of a prohibited item at the TA-3 Nonproliferation and International Security Center; each event involved deficiencies in safety-related software. To address institutional issues, LANL is revising SQA policies and procedures and requiring new division-level implementation plans to drive compliance. The investigation report also recommended the identification of a single MAR-tracking software program to replace the four separate systems currently in use across the laboratory.