

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 15, 2011

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending April 15, 2011

Plutonium Facility – Seismic Safety: This week, LANL declared a Potential Inadequacy of the Safety Analysis (PISA) based on preliminary seismic evaluation results that indicate an increased likelihood of structural failure in some locations during postulated seismic events. In 2007, the Probabilistic Seismic Hazard Analysis for Los Alamos was updated and indicated increased seismic hazard for LANL facilities. A Justification for Continued Operations (JCO) for nuclear facilities was approved by the site office while the Seismic Analysis of Facilities and Evaluation of Risk (SAFER) project was initiated to evaluate the impact of the increased hazard. The SAFER evaluation of all LANL nuclear facilities except the Plutonium Facility was completed last year. The Plutonium Facility analysis has been ongoing and is now expected to be complete in May including independent peer review and resolution of comments.

Currently, SAFER preliminary results have identified nine Plutonium Facility issues where the anticipated seismic demand may exceed the structural capacity during the design basis seismic event. The potential failures may invalidate safety basis assumptions related to the facility's leak path factor in the 2008 Documented Safety Analysis (DSA), which is scheduled to be fully implemented within two months, and may impact assumptions in the yet to be approved 2010 DSA. As a part of the PISA declaration, LANL has identified a compensatory measure to develop and implement an emergency operating procedure to isolate the facility's exhaust stacks during certain seismic accident conditions to eliminate a potential unfiltered material release path that could result from two of the newly identified failure modes. The PISA is expected to result in an unreviewed safety question and safety basis personnel are developing an evaluation of the safety of the situation. Plutonium Facility management noted that facility upgrades to resolve these issues are being evaluated.

Weapons Engineering Tritium Facility (WETF): This week, the NNSA site office issued a letter to LANL senior management addressing WETF. In its letter, the site office notes numerous issues that have stemmed from WETF's existing nine year old safety basis, identified deficiencies in key safety management programs, and the existence of a significant population of legacy tritium containment vessels that need to be dispositioned to address safety concerns. The site office asserts that despite WETF safely restarting and conducting limited operations to meet national security requirements last year, the laboratory infrastructure and support for WETF has not been commensurate with what is required to sustain safe nuclear operations over the long term. Given this, NNSA requests for LANL to provide the following within 30 days: • an accounting of anticipated mission and readiness activities; • a perspective on hazards for current operations and continued storage of legacy items until they can be dispositioned; and • a risk-prioritized path-forward to address known gaps in safety management programs and the means that LANL will use to ensure any new gaps are identified and addressed in a timely manner.

As part of WETF's planned risk reduction activities, WETF personnel are also poised to begin a campaign to overpack a large number of legacy tritium containment vessels that may present over-pressurization hazards and lack the pedigree currently required for containing tritium. These legacy items will either be overpacked in credited tritium containment vessels or introduced into gloveboxes.

