

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 28, 2010

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending May 28, 2010

Plutonium Facility – Fire Suppression System: NNSA site office safety system oversight engineers, augmented by HSS personnel, are conducting an assessment of the TA-55 fire suppression system upgrades and implementation efforts to support the system's new safety class designation for non-seismic fire scenarios. This system is being upgraded as a part of the 2008 safety basis implementation, which is now expected to be complete in August. This week, site office personnel provided preliminary feedback that included the following potential issues: additional actions are required to meet some NFPA requirements (both system configuration and maintenance); the System Design Description has not been updated to reflect the new safety class function; some aspects of the fire hazard analysis do not appear consistent with the safety basis and; some technical assumptions require verification (i.e., supply tank level and diesel day tank volume). LANL plans to address these issues as they continue safety class fire suppression implementation. A gap analysis against the *Interim Guidance on the Design and Operation of Wet Pipe Sprinkler Systems and Supporting Water Supplies* that is associated with Board Recommendation 2008-1 is also planned. The NNSA assessment team plans to continue their review once implementation is nearing completion.

Plutonium Facility – Criticality Safety: A recent critique of a suspected criticality safety infraction at the Plutonium Facility highlighted issues associated with software quality assurance and methods of ensuring compliance with criticality safety limits. Last week, facility personnel implemented a change to the Plutonium Facility's material control and accountability software without satisfying all requirements specified in LANL's institutional software quality assurance procedure. This software change caused the mass of certain containerized items to be counted twice in inventory totals. When operators in the analytical chemistry group attempted to perform a material transfer, this double counting error led them to believe they had slightly more material in a glovebox than allowed by the criticality safety posting. Based on the information available at the time, a criticality safety infraction was declared. The software error was discovered in the process of investigating the criticality safety infraction. During the critique of this event it became apparent that the analytical chemistry group, which routinely deals with large numbers of low mass samples, was relying solely on the material accountability software to ensure compliance with criticality safety limits. This practice violates the Plutonium Facility's criticality safety procedure which prohibits sole reliance on accountability software for criticality safety purposes because the software does not have the quality assurance pedigree required for safety software. Facility management intends to perform an extent of condition review to identify any other groups relying solely on accountability software for criticality safety.

Transuranic Waste Facility (TRUWF) Project: LANL continues conceptual design activities to support a critical decision-1 (CD-1), *Approval of Alternative Selection and Cost Range*, for the TRUWF that will provide an enduring solid transuranic waste capability for the site. A joint NNSA/LANL design review of the CD-1 package is scheduled for early-June with a Technical Independent Project Review scheduled for mid-July. In addition, the site office is reviewing the recently submitted Conceptual Safety Design Report.