

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 24, 2011

**MEMORANDUM FOR:** T. J. Dwyer, Technical Director  
**FROM:** B.P. Broderick and R.T. Davis  
**SUBJECT:** Los Alamos Report for Week Ending June 24, 2011

**Plutonium Facility – Seismic Safety:** Last week, LANL management submitted for NNSA site office approval an Evaluation of the Safety of the Situation (ESS) that addresses a positive Unreviewed Safety Question stemming from SAFER project results that show an increased probability of failure for safety significant systems and components in a seismic event. The previously submitted Justification for Continued Operations (JCO) that is currently under review by NNSA covers increased probabilities of failure for the safety class building structure and safety class systems and components. The ESS concludes that the increased likelihood of failures for safety significant systems and components does not increase the offsite consequences of bounding seismic accidents above those analyzed for building failures in the previously submitted JCO. The ESS does not propose any new compensatory measures; however, the ESS does commit to modify or upgrade affected systems and components to meet relevant seismic performance requirements, although the priority for resources will continue to be upgrades that focus on building structural integrity and confinement.

This week, Plutonium Facility Management declared a TSR violation based on a failure to comply with an operational restriction associated with the facility's cement silo appurtenance. SAFER project analysis concluded that if the silo is filled with cement above a certain level, it could fail in a seismic event and adversely impact the confinement integrity of the safety class building structure. In conjunction with JCO completion and submittal, Plutonium Facility management committed to implement an operational restriction to control the amount of cement in the silo to less than one-fourth capacity. To protect this operational restriction, operations personnel physically locked out a bucket hoist mechanism that they believed was the only means to add cement to the silo.

Roughly two weeks after the silo capacity operational restriction was declared, a delivery of cement ordered by programmatic personnel was received at the facility and added to the silo through a pneumatic fill tube that operations personnel were not aware of and was not locked out. The programmatic engineer who ordered the cement was cognizant of the silo capacity operational restriction and had calculated the size of the order to comply with the one-fourth capacity limitation. However, the programmatic engineer used the nominal density value for dry cement in his calculation and the process of transferring the material into the silo through the fill tube aerated the cement, lowering its density. As a result, the silo was found to be filled to nearly half capacity by the delivery. Facility personnel are planning an evolution to remove excess cement to restore compliance with the operational restriction.

**Transuranic Waste Facility (TRUWF) Project:** This week, LANL submitted a revision to the Safety Design Strategy to address changes in the TRUWF's design and safety strategy as the project approaches completion of preliminary design (Critical Decision-2 is planned for September). The revised strategy supports relocation of the facility from TA-52 to TA-63 to reduce the calculated frequency of design basis aircraft crashes. For the seismic accident scenarios, LANL continues to plan for Seismic Design Category-2 storage structures with a seismic switch to isolate power during a seismic event to prevent subsequent fires. The strategy also proposes vehicle barriers to protect the facility from external vehicle impacts. The Safety Design Strategy will be reviewed by the site office.