

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 6, 2002

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** C. H. Keilers, Jr.  
**SUBJECT:** Los Alamos Report for Week Ending December 6, 2002

Hadjian, Jordan, Jones, Ralston, and Rizzo (OE) were on site this week reviewing the CMRR geotechnical investigation, the LANL ground motion design criteria, the TA-18 flood retention structure, and the status of new projects, including the new Emergency Operations Center.

**Facility Operations:** The DOE site office has approved the LANL facility management realignment proposal discussed last week. DOE requested more details be provided within 30 days.

**Critical Experiments Facility (TA-18):** DOE and LANL have designated the flood retention structure (FRS) as safety class, but resolution of the Board's structural questions of a year ago has been slow (site rep weeklies 9/13/02, 6/28/02, 12/28/01, 11/9/01). Results from Army Corps of Engineers testing of the roller-compacted concrete are now expected in March 2003. Preliminarily, it appears that the concrete long-term durability (e.g., 2 decades) may be affected by alkali-silicate reactions leading to micro-cracking. The period of increased flood risk may also extend beyond the original 3 year estimate, due to recent drought and inhibited post-fire recovery. Low rainfall also means little measured runoff data to substantiate flood models, increasing uncertainty in projections. Timely completion of testing and analyses appears warranted to confirm FRS adequacy for an extended period.

**Plutonium Facility (TA-55):** Last week, DOE requested LANL resubmit a process hazard analysis for a TA-55 laser ablation experiment. The experiment involves eroding a plutonium (Pu) metal sample using a low-energy pulse laser, reacting the released Pu with a gas, depositing it on a cryogenic surface, and studying the frozen matrix with an infrared spectrometer. The Pu sample is loaded into a custom-made assembly, called a cryohead, while inside a glovebox or hood. The cryohead is removed from the glovebox and mounted on the spectrometer, thereby becoming the primary containment. LANL declared the experiment a positive Unreviewed Safety Question Determination (USQD) based on use of a containment not described in the authorization basis. DOE requested that LANL determine the maximum amount of Pu that could be vaporized by the laser (rather than assume the entire sample is vaporized in an unmitigated accident) and provide rationale for designating the cryohead as a safety-significant design feature, requiring TSR controls.

**Waste Management:** The TA-54 Radioassay and Nondestructive Testing facility (RANT) is key to the Quick-to-WIPP risk reduction program, since it is used to load shipping containers for WIPP (site rep weekly 11/1/02). RANT is currently a Hazard Category 3 (HC-3) nuclear facility and doesn't meet Performance Category 2 seismic requirements. To support Quick-to-WIPP, LANL has proposed raising RANT's inventory limit seven-fold (i.e., to 6 kg Pu equivalent) and operating RANT as HC-2 under a limited-life Basis for Interim Operation (BIO). This BIO would expire on June 1, 2003 or when a full RANT BIO is implemented, whichever occurs first. The proposed interim controls are primarily administrative. DOE action may occur quickly since LANL would like to initiate higher-inventory shipments within a few weeks. The full BIO is expected in March 2003 and may propose upgrades, including seismic.

**Weapons Engineering Tritium Facility (WETF):** The LANL Operational Readiness Review (ORR) resumed this week and will likely be completed by December 17<sup>th</sup>. WETF used the break last week as an opportunity to improve operations with respect to earlier ORR team observations.