

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 28, 2004

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending May 28, 2004

DOT 7A Drums: As discussed last week, LANL has imposed restrictions for on-site shipping of fissile materials using DOT 7A drums. To be DOT compliant, these containers are required to be capable of withstanding several tests, including a pre-conditioning series of 1-foot drops on each quarter followed by a 4 foot free drop in a configuration causing the maximum damage.

Besides transportation, several nuclear facilities rely on these drums to safely confine materials during normal and accident conditions and to ensure sub-criticality (e.g., TA-54, TA-55, CMR). These facilities are currently assessing their needs individually; however, since LANL moves drums between facilities, it may be more appropriate if LANL pursued one set of bounding lab-wide criteria, possibly including packaging and evaluation requirements for both new and existing drums. In particular, implementing unified, technically robust evaluation criteria could improve the confidence in these drums as the key safety-class design feature in TA-54 Area G (site rep weekly 12/5/03).

Nuclear Material Stabilization: On Wednesday (5/26), the NNSA Site Office and LANL provided NNSA headquarters with a proposed implementation plan for Board Recommendations 94-1 and 00-1, as requested by the Board letter of 2/12/04. The proposed plan focuses on excess items. Most programmatic items are now being considered out of scope for 94-1. Instead, LANL intends to ensure safe packaging and storage of programmatic items via a separate comprehensive plan being developed in response to the TA-55 Type B investigation. That plan is expected in August. Safe storage of both programmatic and excess items would be addressed in parallel and within the same time frame.

The proposed 94-1 implementation plan is based on a revised risk assessment considering not only source-term but also chemical reactivity and package age. Compared to previously proposed plans, it increases emphasis on early disposition of non-weapons grade plutonium items and would achieve comparable risk reduction about 2 years sooner for these materials. One exception is large vessel clean-out, which may slip a year or more. The plan also identifies opportunities for acceleration for weapons grade plutonium that NNSA and LANL appear likely to pursue.

Plutonium Facility (TA-55): There may be an emergent need to evaluate TA-55 processes that were judged acceptable based on the current 1996-era safety basis and then were started up within the last few years, particularly whether they meet current DOE safety requirements. NNSA is reassessing the Pu-238 bench-scale aqueous recovery process based on this logic. NNSA and LANL have targeted completing, within the next few months, a re-review of the entire TA-55 safety basis proposed 2 years ago. Thorough, expeditious action to update this safety basis could address the emergent need.

TA-55 fire suppression is a safety-significant backup to the safety-class building confinement system. Several fire suppression surveillance frequencies in both the current and proposed safety bases differ from those in DOE requirements and guidance and the applicable code (NFPA-25). Some examples include the frequencies for verifying level in diesel day tanks, demonstrating that fire pumps auto-start within a pressure set-point range, and conducting sprinkler flow tests. In 1999, the NNSA Site Office approved an equivalency for less-frequent fire pump testing but with caveats indicating the decision should be revisited. The current safety basis review would appear to be the best time to revisit this and ensure that adequate technical justification exists for any deviations from codes and standards.