

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 14, 2003

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** C. H. Keilers, Jr.  
**SUBJECT:** Los Alamos Report for Week Ending March 14, 2003

The staff held a video conference with NNSA and LANL on Friday on LANL fire protection.

**Plutonium Facility (TA-55):** TA-55 has nearly completed the investigation of the numerous high fixed head samples reported in site rep weekly 2/21/03. The LANL technical review appears thorough. PF-4 ventilation was secured in a controlled manner for 6 hours on Saturday 2/15/03 due to an emergent need to secure instrument air. While ventilation was secured, the blowers for the fixed head air sampling system continued to operate, providing a motive force. This system discharges into a ventilation recirculation system at a point upstream of the HEPA filters. Idling the recirculation system while running the fixed head air sampling system led to backflow into lab rooms from contaminated ductwork, thus providing the source term. Rooms involved with aqueous operations tended to have the higher samples, which is expected. These operations produce easily distributed, fine particle oxides that are now present in the ducts from legacy events. Improvements to prevent recurrence are still being considered. One worthwhile improvement would be to increase instrument air reliability – including a possible backup – and thereby minimize the need for securing confinement ventilation.

**Nuclear Materials:** LANL has recently identified several unrelated cases of unknown or poorly characterized nuclear materials including: 8 drums containing either tritium (5), plutonium (1), or hazardous chemicals (2) in TA-41; 2 casks with unknown contents in TA-48; 26 unknown samples and one Cm-244 sample in a cooler in a trailer in TA-59. Additionally, the site rep understands there are several drums of problematic legacy tritium material from TA-33 stored in WETF, some poorly characterized containers in CMR, and the 34 drums in TA-18 discussed last week.

Some of these materials have caused problems. For example, the TA-33 material was the source of an unanticipated room and stack release of tritium from WETF in January 2001. The TA-59 samples provided the source term for an event two weeks ago when a LANL employee's badge became contaminated (120,000 dpm alpha) and contamination was taken off-site. Subsequently, elevated contamination levels were found in the van in which the employee was working. Results so far indicate no health consequences, but this appears fortuitous. Material control and radcon practices for this operation appear weak. In all these cases once identified, LANL appears to have put in place appropriate interim controls for the current configuration. Disposition planning may need more attention in an integrated sense at the institutional level. Longer term, a more disciplined, comprehensive effort may be needed to find, characterize, track, and then timely disposition such materials.

**Recommendation 2000-2:** NNSA and LANL have finalized a corrective action plan to address fire protection system issues identified last year as part of the Recommendation 2000-2 Phase II assessments (site rep weekly 9/6/02). Some of these corrective actions rely on institutional improvements anticipated during the next 2 years, such as implementation of LANL maintenance and engineering program manuals and procedures to standardize facility operations. This is part of the Facility Revitalization Project. The remaining LANL Phase II assessment will be focused on the site-wide fire alarm system and is scheduled to begin next month. It assumes completion of the partial system upgrade. Preliminary design of the partial system upgrade is essentially complete, but project baselining and start of detailed design are slipping until July due to a change to a design-bid-build acquisition strategy.