

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 18, 2008

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** B. Broderick and C. H. Keilers, Jr.  
**SUBJECT:** Los Alamos Report for Week Ending April 18, 2008

This is Keilers's last site-rep report. It's been an education and a pleasure to serve in this capacity.

**Management:** LANL operations management has a fairly complete picture of LANL's nuclear safety challenges and has initiated actions to address or compensate for many challenges. This picture strongly indicates further needs for investing in infrastructure and critical staffing, reducing legacy inventories, and accelerating improvements in formality of operations, quality assurance, and integrated work management. Also, about one-fifth of the LANL workforce has received some training in human performance improvement, an area essential to LANL evolving into a high-reliability organization with attributes such as those described in DNFSB/TECH-35, December 2004.

**Safety Basis:** The lack of updated safety bases impedes progress. LANL now has 18 nuclear facilities, including on-site transportation and ten environmental sites, covered by nine safety bases. The median and maximum ages for the safety bases are 5 and 12 years. Technical safety requirements have had more recent changes, and safety bases configuration control has improved; the average age of the safety basis document lists is 40 days. However, it's challenging to prioritize improvements, such as confirming adequacy of engineered safety systems, without first having updated control sets, functional classifications, and safety system requirements that are derived from updated safety bases.

**Transuranic Waste Operations:** Area G aboveground transuranic waste inventory has decreased about 12 % since January 1<sup>st</sup> and stands at 114 kCi aboveground, including 16 kCi in OSRP sources, as of April 14<sup>th</sup>. Most of the reduction has occurred since mid-March. The rate of drum shipments has been fairly constant since the June 2006 contract transition: about 250 drums per month, averaging 6 Ci per drum. At this rate, it will take 6 to 7 years to de-inventory the aboveground waste, assuming no further waste receipts. Newly generated waste exacerbates this situation, in more ways than just adding to the inventory. For example, the TA-55 vault has about 14 kCi in Pu-238 residues that ought to be disposed, that could be compliantly packaged for disposal, but that can not meet current waste certification requirements, and therefore has no open disposition path. Improving waste disposition efficiency from the generators to WIPP would improve LANL's nuclear safety posture.

**Plutonium Operations:** By LANL's metric, the risk associated with non-standard packaging of plutonium in the TA-55 vault has decreased by 40 % since September 2003, primarily due to use of more robust containers. LANL now has about 1,700 non-standard containers, mostly in the TA-55 vault. LANL continues to defer chemical stabilization of some of this material because of aging infrastructure issues with the Radioactive Liquid Waste Treatment Facility and emergent mission priorities (e.g., LLNL mission transfer). Considering criticality safety, LANL has reviewed the limits for three-quarters of TA-55's fissile material operations and expects to complete these reviews within a couple of months; two-thirds of the operations examined have required improvements before resumption. LANL is also updating its criticality safety program improvement plan to reflect actions still required to achieve a program that is fully compliant with national consensus standards.

**Tritium Operations:** The Weapons Engineering Tritium Facility is decreasing its tritium inventory, which now stands at less than a quarter of that assumed in its 2002 safety basis.