

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 11, 2006

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** C. H. Keilers, Jr.  
**SUBJECT:** Los Alamos Report for Week Ending August 11, 2006

Bamdad, Broderick, Kupferer, Plaue, Rauch, and Von Holle were here this week reviewing LANL support of Pantex; Bamdad, Broderick, and Plaue also reviewed TA-55 confinement analyses/strategy.

**Pajarito Laboratory (TA-18):** The first critical assembly (Planet) has been moved out for refurbishing and shipment. LANL has also proposed a new baseline for TA-18 transition; it includes relocating Off-site Source Recovery Program (OSRP) storage to TA-55 (11/06), transferring solutions to CMR (11/06), dispositioning the solutions (8/07), de-inventorying TA-55 safeguarded trailers (2/07), and downgrading TA-18 from hazard category 2 to a radiological facility (2/07) (site rep weekly 7/14/06).

**Authorization Basis (AB):** High quality safety bases are needed to provide reasonable assurance that nuclear facilities can operate safely in a manner that adequately protects workers, the public, and the environment, as required by the *Nuclear Safety Management* rule, 10 CFR 830. The attached table summarizes the state of LANL AB development, implementation, and verification. Nearly every facility has AB-related issues affecting both mission and safety. Overall, in spite of significant effort, NNSA and LANL have been unable to update a single AB since the Board letter of May 27<sup>th</sup>, 2004 on this topic; 10 CFR 830 requires AB's be reviewed and updated annually (site rep weekly 8/20/04).

**On-Site Transportation:** LANL has proposed and NNSA is reviewing an updated transportation safety document (TSD), which would be the first LANL AB update in three years. The current TSD requires that vehicle drivers are government-UC vice LANS employees. Before contract transition, NNSA approved extending the current TSD until Sep 28<sup>th</sup> to allow LANL to propose changes.

**Waste Operations:** LANL has shipped about 14 kCi out of Area G in the last four years, including about 11 kCi so far in FY-06. This would constitute about 10 % of the Area G inventory, but it does not reflect receipts from TA-55 and CMR; those receipts were comparable to the shipments made through April 2006, which is the last receipts data available to the site rep.

LANL transuranic waste operations are an example of where AB-related issues are affecting mission and safety; a balanced risk perspective isn't apparent. In the last two months, rate of shipments has dropped (i.e., 15 in June, 7 in July) due to non-AB characterization issues involving debris waste. To make progress, LANL has been shipping non-debris waste – specifically, high-activity OSRP sources in pipe over-pack containers. As a result, while the rate of drum shipments has been cut roughly in half, the curie shipment rate has doubled. To address NNSA seismic concerns, LANL is now quickly implementing new technical safety requirements that will limit the shipping facility's throughput for high-activity drums (site rep weeklies 7/28/06, 7/21/06).

**Radioactive Liquid Waste Treatment Facility (RLWTF):** RLWTF has drained the acid waste receipt tank and processed that stream, in preparation for replacing the leaking caustic receipt tank. This was the first transuranic waste processing at RLWTF since late 2004; the facility systematically found and addressed several issues before starting this evolution (site rep weeklies 4/21/06, 12/17/04).

| LANL Hazard Category 2 and 3 Nuclear Facilities                        | Safety Basis age (years) <sup>a</sup> | Relative Inventory <sup>b</sup> | Status and Remarks  |
|--|---------------------------------------|---------------------------------|---|
| Radioactive Liquid Waste Treatment Facility (TA-50-1)                  | 11                                    | 2                               | TA-50-1 is 43 years old, is in marginal condition, and is scheduled to be replaced in 2011. Its technical safety requirements (TSRs) are 7 years old.   |
| Plutonium Facility (TA-55)   | 10                                    | 6,000                           | TA-55 has a 1-year-old set of interim TSRs that are a stop-gap measure for several nuclear safety issues. LANL is to propose a new safety basis in Sep 2006.  |
| Chemistry and Metallurgy Research Facility (CMR)                       | 8                                     | 4,000                           | CMR is 54 years old, is in marginal condition, and is scheduled to be replaced in 2013. Current safety analyses only evaluated operations to 2010.  |
| Los Alamos Neutron Science Center (LANSCE)                             | 4 to 6                                | less than 1                     | LANSCE is an accelerator that NNSA is requiring to operate as a nuclear facility because of its inventory. NNSA recently extended its 5-part safety basis to Aug 2007.  |
| Waste Characterization, Reduction, and Repackaging Facility (TA-50-69) | 5                                     | 50                              | TA-50-69's safety basis consists of a 5-year-old hazard analysis and interim TSRs. It is in marginal condition and is LANL's only operating nuclear facility for repackaging transuranic waste, now stored at Area G. |
| Weapons Engineering Tritium Facility (WETF)                            | 4                                     | 70                              | WETF's safety basis is implemented and was verified in 2004. Fire barriers still need upgrades; Bldg 450 startup for radiological operations remains unresolved.  |
| Critical Experiments Facility (TA-18)                                  | 4                                     | 900                             | LANL expects to de-inventory TA-18 and to recommend downgrading it to a radiological facility in early 2007.  |
| On-site Transportation   | 4                                     | –                               | The transportation safety document expires Sep 28 <sup>th</sup> ; NNSA is reviewing a proposed update.  |
| Area G Transuranic Waste Storage (TA-54)                               | 3                                     | 3,000                           | Safety basis implementation has yet to be verified, which is scheduled for Sep 2006. Area G's transuranic waste is to be shipped off site by 2012 to support Area G closure in 2015.                                  |
| Radioactive Nondestructive Testing Facility (RANT)                     | 3                                     | 70                              | RANT is LANL's sole transuranic waste shipping facility; because of seismic issues and confusion on its TSRs, NNSA has authorized operations until Aug 31 <sup>st</sup> .   |
| Nuclear Environmental Sites  | 2                                     | –                               | These are inactive underground sites; the safety basis has implications for compliance with the state's consent order.  |
| Safe Secure Transport Facility (TA-55)                                 | 1                                     | 60                              | This facility is used for special nuclear material storage and was originally authorized for use until 2010.  |

Notes: a 2<sup>nd</sup> column is the number of years since the NNSA safety evaluation report that approved the contractor's documented safety analysis, based on the May 2006 authorization agreement and the October 2005 nuclear facility list.

b 3<sup>rd</sup> column is the maximum radioactivity assumed in safety analyses, measured in units of the Hazard Category 2 threshold in DOE STD-1027.