

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 6, 2009

**MEMORANDUM FOR:** T. J. Dwyer, Technical Director  
**FROM:** B. Broderick and R.T. Davis  
**SUBJECT:** Los Alamos Report for Week Ending March 6, 2009

**Plutonium Facility:** This week, LANL declared a potential inadequacy of the safety analysis (PISA) based on the presence of an unvented transuranic waste container in the facility that may pose hazards that are not analyzed in the safety basis. In late 2007, this roughly 2' x 2' x 4' metal waste container, which was long thought empty, was assayed and found to be holding contents that included gram quantities of plutonium. Upon discovery, the container was entered into the facility waste item database and operators partially removed the container lid under a radiological work permit in an attempt to characterize the unknown contents. A bagged metal cylinder was observed and when contamination was detected on the outside of the bag, the container lid was restored. The container remained in this state until an NNSA facility representative noticed the container was not vented and notified facility management of a potential safety basis concern.

The container vintage and its briefly observed contents suggest that the items inside may have come from a legacy glovebox line that handled tritium and was decommissioned in the early 1990's. If the metal cylinder seen inside the container does hold tritium, helium in-growth from over one half-life of tritium decay could pose a pressurization hazard. Additionally, the known plutonium inventory makes the unvented metal container transuranic waste. The current facility safety basis requires transuranic waste to be packaged in containers with filtered vents and does not analyze hazards that could be presented by unvented transuranic waste containers. The container has been posted and cordoned off while additional information is gathered to support safe handling and ultimate disposition.

**Plutonium Facility Safety Basis:** The site office safety evaluation report for the plutonium facility included a condition of approval (COA) for the storage of heat source plutonium (HS-Pu) in the safety class vault water bath (VWB). This COA required LANL to 1) modify the VWB limiting condition for operation (LCO) to address conditions of uncovered non-safety class (non-SC) containers, 2) provide a basis for how long non-SC containers would survive uncovered, and 3) provide a schedule for repackaging these containers. These activities were required to be complete by the end of March 2009. This week, LANL requested relief from the second part of this COA noting that additional time is required to provide a basis for how long non-SC containers would survive uncovered.

There are approximately 210 non-SC HS-Pu containers stored in the VWB of which 50 are of various types. In order to perform pressure calculations to address the COA or to support a disposition path for these containers, LANL plans to begin radiography in April. The radiography and associated calculations are scheduled to be complete by December 2009 and March 2010, respectively. A calculation for the other approximately 160 containers stored in the VWB is being updated and will be reflected in the revised LCO. LANL has dispositioned (e.g., processed) 7 of these containers since October 2008 and plans to ramp up to one container per week. In parallel, LANL is pursuing qualification of Fuel Storage Outer containers (both existing and new generation) per the Nuclear Material Packaging Manual to allow over-packing of existing non-SC containers.

**Chemistry and Metallurgy Building (CMR):** Based on the recent completion of an effectiveness assessment for implementation of Conduct of Operations (10 findings identified), LANL has declared conduct of operations implemented at CMR and submitted this information to the site office.