

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 6, 2010

**MEMORANDUM FOR:** T. J. Dwyer, Technical Director  
**FROM:** B.P. Broderick and R.T. Davis  
**SUBJECT:** Los Alamos Report for Week Ending August 6, 2010

**Plutonium Facility – Criticality Safety:** This week, Plutonium Facility management identified that an activity conducted last month in a drop box was not analyzed or approved by the criticality safety group. Drop boxes are used for pass through of materials from the trolley line to gloveboxes; however, operations, especially related to waste processing, are analyzed and allowed in many of these boxes. In this case, a dry residue material was identified as waste and was being repackaged for disposition. Operators moved the material to the drop box and then repackaged and weighed the material believing they were in compliance with the criticality safety evaluation and posting that allowed waste operations. The first line manager became aware this week that the operation had been conducted in the drop box and contacted the criticality safety group. The criticality safety group concluded that the dry residue operation was not analyzed and a Level 1 non-compliance criticality safety infraction was declared. During the critique of this event, facility management became concerned that there may be a misunderstanding of what operations are allowed in drop boxes. As a result, all drop box operations were paused and a deliberate review and resumption process developed involving conduct of operations mentors and criticality safety.

This infraction highlights the importance of precise communications in defining activity scope and safety requirements. Over the last several months, there have been a number of criticality safety issues identified at the Plutonium Facility. Management has taken several actions to address these issues including stationing two members of the criticality safety group at the Plutonium Facility to observe and walkdown process operations. Plutonium Facility management will also conduct a briefing next week for all facility first line managers to discuss criticality safety issues.

**Chemistry and Metallurgy Research Building (CMR):** A number of high dose rate materials including Cm-244, Am-241, Np-237, and U-233 have historically been stored in heavily shielded floor wells in CMR's Wing 9. CMR personnel are aggressively working to disposition this material to reduce facility risk and to achieve compliance with new material at risk (MAR) limits in the approved CMR DSA that is required to be implemented before the end of December 2010.

Ten Cm-244 items account for nearly 99% of the MAR associated with the remaining material from the floor wells. These items have been retrieved from their floor well locations, transferred to Wing 9 hot cells and packaged into Type A shielded pipe overpack containers awaiting shipment out of CMR as waste. However, the ultimate disposition path for this material is currently in flux based on a request by the DOE Office of Fuel Cycle Technologies (NE-5) to provide interim staging of the curium items until April 30, 2011, to support possible programmatic reuse of this material. As a result, LANL management is investigating onsite and offsite options to provide interim storage outside of CMR where the 40 kg of MAR represented by the ten curium items would exceed the new DSA total facility MAR limit by almost a factor of 3.

Several remaining floor well materials contain Np-237 and U-233 in dispersible oxide forms that require repackaging prior to disposition. CMR personnel have restored the operability of an alpha box confinement system inside a hot cell to support dispersible material repackaging operations.