

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 10, 2009

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending July 10, 2009

Technical Area-35 (TA-35): On Wednesday, an Operational Emergency was declared following an energetic chemical reaction at a radiological facility in TA-35. A student had been cleaning small sample vials with acetone. Although unsure of the proper disposal method for the acetone (approximately 30 mL), the student poured it into an acid waste storage container because the sample vials had originally contained trace amounts of nitric acid. The student had not been briefed on the work control document governing this activity and the student's assigned mentor was not present when the acetone was discarded. Later, after the student had left the laboratory, an energetic exothermic reaction took place breaching the primary and secondary acid waste storage containers as well as a bottle containing approximately 2 L of nitric acid in an adjacent acid storage cabinet that had been jarred open by the event. Two workers were in the lab room at the time and exited the area after hearing a loud noise and seeing spilled liquid. These workers re-entered the room to apply a spill kit to the chemicals on the lab room floor and exited again after observing the open acid storage cabinet and realizing the extent of the damage. The event did not impact any radiological material at the facility.

LANL Emergency Management, the LANL Emergency Response Hazardous Materials response team, and the Los Alamos County Fire Department were all notified and responded. As responders were planning and staging equipment to enter the room, they observed brown fumes evolving from the spilled chemicals and being swept through an operating fume hood that exhausted out the facility stack. Recognition of this stack release prompted the declaration of an Operational Emergency. After some complications caused by uncertainty over exactly what chemicals were stored in the breached acid cabinet, responders re-entered the room in appropriate personnel protective equipment and stabilized the scene.

The two workers who initially re-entered the room were taken to Los Alamos Medical Center for evaluation and released without restriction. Their potential level of chemical exposure is being assessed. An investigation into this event will determine root causes and corrective actions.

Weapons Engineering Tritium Facility (WETF): This week, LANL submitted safety basis changes for site office approval to support a return to Operations mode to allow limited tritium de-inventory and MAR reduction activities. These changes supersede Technical Safety Requirement (TSR) changes previously submitted in late-May. LANL now plans to approach the WETF return to Operations mode in two phases. The first phase, which is supported by the safety basis changes submitted this week, only involves the overpacking and shipping of tritium containers outside of tritium pressure systems (i.e., no operations involving the tritium gas handling system or introduction of greater than residual amounts [1.6 g] of tritium into gloveboxes). This initial safety basis change also resolves inconsistencies between the TSRs and the WETF safety analysis report. Following site office approval and facility implementation, LANL plans to perform an Implementation Verification Review prior to performing these limited de-inventory activities. The second phase includes operation of the tritium pressure systems that were subject to the pressure safety issues recognized in October 2008. The safety basis changes and level of readiness determinations needed to support phase 2 operations that involve gas transfers are under development. (site rep weekly 5/29/09).