

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 20, 2009

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending March 20, 2009

The staff held a video teleconference with LANL and NNSA representatives this week to discuss Area G closure planning and the strategy to safely maintain solid transuranic waste processing capabilities. Kimball was also onsite to discuss re-evaluation efforts for sitewide seismic hazards.

Plutonium Facility: Based on questions from an NNSA site office facility representative concerning a temporary modification, LANL declared a Technical Safety Requirement (TSR) violation this week associated with the lack of an alarming oxygen monitor for a particular glovebox. A Plutonium Facility Specific Administrative Control (SAC) requires use of an oxygen monitor that is calibrated quarterly to ensure local alarm response occurs at less than or equal to 5%. This requirement only applies for “potentially pyrophoric processes (plutonium machining/hydriding)” and is intended to reduce the likelihood of a glovebox fire. For the glovebox in question, an oxygen monitor was installed as a temporary modification (the primary monitor was out of service); however, the temporary unit did not provide the local alarm feature. The temporary modification was evaluated under the Unreviewed Safety Question process but two qualified analysts failed to recognize the potential safety basis impact of this modification. Although specific operations in the glovebox did not involve potentially pyrophoric processes, facility management conservatively declared a TSR violation based on a lack of any controls to prevent such operations from being performed.

Follow-up by facility management also identified issues with implementation of this control for other gloveboxes. Although operational oxygen monitors were available and used primarily for quality assurance purposes, some monitors were not being calibrated quarterly per the SAC. In addition, implementing procedures for processes that create pyrophoric material do not include requirements to verify compliance with the SAC. The implementation validation review that evaluated this control noted that the gloveboxes where this control applied were out of service pending installation of the monitors but did not discuss procedural requirements that implement the control.

Fire Protection: The Cooperative Agreement between NNSA and Los Alamos County mandates that the Fire Department (LAFD) notify the laboratory whenever any LAFD emergency response capability drops below 50% of its normal strength. LANL has established protocols to take this initial notification and alert Facility Operations Directors (FOD) via pager so they can take appropriate action. For example, all FODs have been directed to terminate confined space entries and cease hot work that is not protected by an operable fire suppression system, upon notification. Individual FODs will also take facility or area-specific actions, such as instituting roving watches to monitor operations using high temperature equipment and curtailing firing site operations (site rep weekly 10/3/08).

Criticality Safety: LANL has submitted, for NNSA approval, a significant revision to the Nuclear Criticality Safety Program Improvement Plan (PIP). The revised PIP differentiates unit operations that are subject to process drift that could erode criticality safety margin over time and those operations that are resistant to this type of drift. About 215 drift-prone operations must have a compliant criticality safety evaluation (CSE) by October 2010 or stop work. The roughly 175 remaining drift-resistant operations do not have a deadline for compliant CSE completion and could continue using limits that were validated as part of the Augmented Limit Review in the interim.