

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 28, 2002

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending June 28, 2002

The site rep was at Pantex this week to assess the status of laboratory support for Pantex operations.

Chlorine Dioxide Event: On June 14th, LANL issued their investigation report on the January liquid chlorine dioxide explosion in a non-nuclear facility (site rep weekly 1/11/02). The report indicates that, based on informal hazard analysis and peer review, personnel modified the experiment to produce a higher concentration product, including increasing the chlorine feed concentration to 100%. The revised experiment exceeded conditions assumed in the Hazard Control Plan (e.g., 4% chlorine feed limit). While personnel were sensitive to some increased hazards (particularly, exothermic gas generation), they missed the fact that the changes made could lead to condensation in a vessel downstream of the gas generators. The liquid phase is energetic and unstable.

The LANL investigation determined that the root cause was performance of the experiment without adequately following the LANL Safe Work Practices, which is the LANL mechanism for implementing Integrated Safety Management (ISM) into programmatic work. The report concludes with seven judgements of need. Some are specific to the affected LANL division while others involve institutional changes (e.g., changes to the Laboratory Implementing Requirements - LIRs). The latter includes improving peer review requirements, clarifying pressure safety and packaging & transportation requirements, and consolidating hazard analyses into one process so that consistent identification and communication of hazards occurs among all personnel involved in the work. LANL stated that corrective actions, both planned and completed, will be submitted to DOE by the appropriate organizations. The Board's staff is reviewing the LANL report, since it will likely have implications on both nuclear and non-nuclear programmatic work at LANL.

Recommendation 2000-2: In the process of conducting the Phase II maintenance review, TA-18 (Critical Experiments Facility) has determined that the fire alarm and detection functional tests may not have been performed since September 1999, based on lack of records. The tests are required annually by the Safety Analysis Report. TA-18 has terminated experimental operations, stationed fire-watches, and is scheduling to test all the TA-18 detectors this week. Operations will resume once testing in each building is complete. LANL believes that the annual tests were inadvertently omitted in 1999 when preventive maintenance scheduling was transferred from one database to another (i.e., from the Facility Maintenance System to Passport).

TA-18 Flood Retention Structure (FRS): Progress has been made in addressing questions raised in a Board letter (11/5/01) on the FRS, but several actions remain incomplete. The site rep understands that DOE has contracted with the Army Corp of Engineers to inspect the structure, currently scheduled for the week of July 22nd. Core drilling of the roller compacted concrete is done. Results are forthcoming. Additional drilling is underway upstream and downstream to determine if a sand and gravel layer exists beneath the foundation. Slopes have been seeded for erosion control. The outlet side is being excavated to install rock gabions. This work was impacted by heavy rain the evening of June 21st. Similar erosion control improvements are planned on the inlet side.