

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 29, 2005

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: T. D. Burns Jr. and C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending April 29, 2005

Electrical Safety: LANL has had 3 or 4 electrical safety occurrences in each of the last 4 months. All have been from non-nuclear activities; recently, they involved subcontractors and lock-out tag-out violations. LANL has included improving the lock-out tag-out program as part of the long-term Operations Efficiency (OE) Project. NNSA has directed LANL to analyze the electrical safety situation and take decisive action within 7 days; if inadequate, NNSA stated it may impose a limited shutdown.

Quality Assurance: LANL has determined that personnel performing receipt inspections were deviating from procedure; at this time, it appears that material control, traceability, and segregation were preserved. Separately, LANL has identified a concern that personnel using measurement and test equipment having a limited calibration may have misunderstood the implications of the limited calibration and misapplied the equipment. LANL has done an initial survey of the use of such equipment and believes there are no major impacts. LANL is still investigating both these concerns.

Management: Except for hydrotests, NNSA has finished verifying that pre-start findings from LANL resumption reviews are either closed or have adequate compensatory measures in place (site rep weekly 3/18/05). On Wednesday, the NNSA team reported that they had agreed with LANL on closure status of 368 of 376 pre-starts (i.e., 98 %). Five of the eight open pre-starts are related to nuclear operations (e.g., TA-50/54/55); these specifically involve integrated work management and work control.

In the last two weeks, LANL has cut in half the number of late corrective actions intended to respond to resumption review findings; LANL expects a further one-third reduction within the next week (site rep weekly 4/15/05). During the next 2 months, LANL plans to make organizational changes intended to address findings involving operational roles and responsibilities. Addressing these issues appears to be a prerequisite for continued progress on the OE Project.

Radioactive Liquid Waste Treatment Facility (RLWTF): On Friday, LANL briefed NNSA on results of its investigation into the 3/3/05 event involving workers at RLWTF exposed to unexpectedly high airborne contamination levels (site rep weekly 3/11/05). This event led to 4 workers receiving low-level Pu-239 uptakes; current dose estimates are all less than 50 mrem CEDE, which is 10 % of the DOE occurrence reporting threshold (500 mrem) and 1 % of the federal annual limit for rad workers (5 Rem).

LANL's investigation revealed work control weaknesses during an event that fortuitously had negligible health consequences. The investigation team concluded that the hazard analysis and the selection and implementation of controls were inadequate. Their report indicates that the direct cause was 2 inexperienced workers squeezing air out of bags of debris, creating a puff release that highly contaminated their protective clothing; then during doffing, contamination became airborne and was inhaled by 4 workers. The root cause was failure at multiple levels to recognize that this was a complex, non-routine job. The report indicates incomplete implementation of integrated work management: during planning, hazards were estimated rather than measured; work-scope and radiation hazards changed after the work control documents were prepared; the workers were not trained and qualified for the new work-scope; job suspension limits and engineered controls were not used; abnormal conditions during earlier vault entries were missed, including unexpectedly high radiological indicators; and the controls that were specified were incompletely implemented. A corrective action plan is expected in May.