

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 20, 2007

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: B. Broderick and C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending July 20, 2007

This week, NNSA, LANL, and the staff held a video-teleconference on accident investigations and corrective actions and held a teleconference on the MASS code, used for material accountability.

Welding Issues: LANL quality assurance division recently audited the institutional welding program. Findings include: lack of control of weld filler material; welding performed to unqualified processes and procedures; welding performed by personnel who have not been adequately trained; welding not inspected in accordance with codes and standards; lack of a NDE examiner to certify inspectors; a structural steel welding procedure used on some projects (e.g., WCRR seismic upgrades) not meeting code requirements; and welding program management assessments not being performed.

These issues are similar to those found in 2003 that were the subject of substantial corrective actions through 2005; momentum and many of these gains appear to have been lost during contract transition due to lack of ownership, a condition that LANL is now correcting (site rep weeklies 9/16/05, 8/19/05, 4/16/04, 3/26/04, 1/2/04).

Nuclear Facility Infrastructure: Recent events illustrate continuing challenges, particularly for staffing and for safety system configuration management and maintenance. The Plutonium Facility (TA-55) has been in extended-hour operations for several months. This week, a wing (Zone2) ventilation system fan failed impacting operations; the shaft and bearing were replaced that night. Personnel working the switchgear upgrade project plugged an electric lift unknowingly into the uninterruptible power supply (UPS) system, impacting the facility control system, which impacted ventilation. An instrument air leak caused ventilation cycling, also impacting operations. Breaker inspections found a degraded (partially welded) chilled water system breaker, which was repaired. Acidic solution leaked from a pipe onto a glovebox and the floor, forcing a lab room evacuation; the facility appropriately responded. Acidic waste transfers to the Radioactive Liquid Waste Treatment Facility are suspended while that facility investigates anomalous tank-level increases.

Additionally, LANL has completed a staffing analysis evaluating cognizant system engineer (CSE) support for vital safety systems (VSS) at 6 operating nuclear facilities. The analysis showed that CSEs are performing numerous ancillary functions including maintenance, design, and plant engineering tasks, leaving the average VSS with only about one-third of the institutionally recommended minimum level of effort for system engineering.

Based on criteria such as expertise, level of effort, and system condition, the evaluation concluded that 9 of the 43 active systems studied had inadequate system engineering coverage and 27 were receiving marginally adequate coverage. Staffing recommendations included adding 26 engineers at TA-55 (29 existing), 5 at CMR (9 existing), 4 at WETF (8 existing), 3 at WCRR (3 existing), and 3 at RANT and Area G (3 existing) for a total recommended increase of 41 engineers to the existing pool of 52. This analysis focused primarily on CSE coverage for active systems; the staffing recommendations will not necessarily be sufficient to ensure system engineering expectations are adequately met for passive safety systems. LANL intends to begin addressing the identified needs by hiring 9 new engineers.