

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 18, 2011

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending February 18, 2011

Dunlevy was onsite this week for site familiarization activities.

Plutonium Facility – Seismic Safety: As part of the Plutonium Facility seismic safety improvements, LANL recently installed seismic shutdown switches that will isolate power to non-safety-related laboratory floor circuits upon indication of a seismic event. When operational, this system will help reduce the likelihood of post-seismic fire initiation. Last weekend, Plutonium Facility personnel successfully performed post installation testing of the switches. LANL plans to maintain the system in bypass mode for several weeks to review performance prior to declaring the system operational. Installation of the seismic switches is identified as an Implementation Plan deliverable for Recommendation 2009-2 (due April 2011). Safety basis credit for this system is expected to be considered for inclusion in the May 2011 Documented Safety Analysis update.

LANL also recently submitted the conceptual design for upgrading a portion of the Plutonium Facility confinement ventilation system to safety class including seismic upgrades to meet Performance Category (PC)-3 requirements. The design is based on input from the ventilation and support system backfit analyses, ventilation modeling and the Seismic Analysis of Facilities and Evaluation of Risk (SAFER) evaluation of system components. The design includes upgrades for the zone-2 bleed-off exhaust system, glovebox exhaust fans, the electrical distribution system, the uninterruptible power supply and a new control system. Based on the preliminary cost estimate for these upgrades (which cannot be finalized until SAFER analysis for the building structure is completed), LANL notes that a capital asset line item project subject to DOE Order 413.3 would be required to implement a safety class ventilation system that meets PC-3 seismic requirements.

Transuranic Waste Operations – Safety Basis: Recently, NNSA site office engineers questioned whether existing hydraulic calculations for the safety significant RANT fire suppression system accounted for the correct number of sprinklers in the most hydraulically remote area of the facility. After resolving discrepancies between system drawings and the actual as-found system configuration, laboratory personnel performed a new hydraulic calculation. The new calculation included one additional sprinkler in the most hydraulically remote area and concluded that the required water flow rate needed to ensure RANT fire suppression system operability is greater than the flow rate required by the TSR. Based on this new information, facility management declared a Potential Inadequacy of the Safety Analysis (PISA) this week.

Radioactive Liquid Waste Treatment Facility (RLWTF): On Tuesday, a tubular ultra filter (TUF) connection assembly failed releasing approximately 20 gallons of low activity liquid waste from the low level waste processing system. Facility personnel responded appropriately upon discovery of the leak. TUF connection assembly failures have been a recurring problem at RLWTF. In response to previous failures, facility personnel implemented a remote shutoff capability that allowed operators to safely secure the system and limit the release during this event. Based on the known failure modes of the TUF, facility management has been pursuing replacement of this system with a series of more reliable pressure filters targeted for installation by the end of this fiscal year.