

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 6, 2009

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending November 6, 2009

Staff members C. March, M. Moury, J. Pasko, J. Plaue and R. Tontodonato were onsite this week to discuss Recommendation 2009-2, *LANL Plutonium Facility Seismic Safety*, with NNSA Headquarters, site office and LANL personnel.

Radioactive Liquid Waste Treatment Facility: This week, LANL completed the Laboratory Readiness Assessment (LRA) associated with the restart of transuranic liquid waste processing activities in Room 60/60A. A total of 6 pre-start findings (3 closed during the review), 17 post-start findings (one closed during the review) and 4 noteworthy practices were identified by the LRA team. Pre-start findings that remain open include fire protection issues in an adjacent room (e.g. obstructed sprinkler head), fire department access road and water connection issues, and Potential Inadequacy of the Safety Analysis compensatory measures that are not included in the facility Safety Basis Document List. As a noteworthy practice, the team observed that the reader/worker method of procedural compliance and system status board updates both worked extremely well. Restart of transuranic liquid processing in Room 60/60A will allow resumption of aqueous processing activities in the Plutonium Facility that had been curtailed due to the inability to process radioactive liquid waste effluents.

Plutonium Facility – Ventilation: A backfit analysis on the Plutonium Facility Active Confinement Ventilation System was recently completed to evaluate gaps and recommend actions to upgrade the system from safety significant to safety class. The analysis concluded that with appropriate upgrades and improvements the system can perform a safety class function. Recommendations identified during the analysis to improve the system include 1) installation of a new safety class control system, 2) replacement of the uninterruptible power supply (this is part of the TA-55 Reinvestment Project, Phase II), 3) installation of electro-hydraulic actuators for dampers, 4) provide functional backup for basement exhaust and 5) complete ventilation modeling. LANL plans to complete backfit analyses for support systems (electrical and instrument air) this fiscal year.

This week, LANL personnel noted that seismic evaluations of ventilation, fire suppression and support systems against the updated Probabilistic Seismic Hazards Analysis will be completed using the methodology established during the SAFER Project. These evaluations along with the ventilation system modeling and analysis will provide key information to inform decisions related to the selection and upgrade of safety class systems for challenging seismic accident scenarios.

Plutonium Facility – Safety Basis Strategy: This week, the NNSA site office approved a revised Safety Basis Strategy for the annual update to the Plutonium Facility Documented Safety Analysis scheduled to be submitted in early December. The revised strategy document discusses an approach for refining analysis of the seismically-induced fire accident scenario by disaggregating the material at risk into the various physical forms (e.g. metal, oxide, solutions, etc) actually found in the facility and assigning analytical values that correspond to the dispersibility of these different material forms. The current DSA assumes that all material at risk on the laboratory floor that could be involved in a seismically-induced fire has the extremely high dispersibility of molten plutonium metal.