

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 4, 2009

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B. P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending December 4, 2009

Plutonium Facility – Documented Safety Analysis (DSA): This week, LANL submitted the annual update of the DSA and the Technical Safety Requirements to the site office for review and approval. Notably, this update includes revised analysis of the post-seismic accident scenarios (both with and without fire). As discussed in the safety basis strategy, LANL disaggregated the material-at-risk into the various physical forms (e.g. metal, oxide, solutions) present in the facility and assigned the specific analytical values for dispersibility for each of these material forms. In addition, LANL proposes a specific administrative control for material-at-risk for each of these forms to protect the assumptions made in the DSA. Based on the revised analysis, the dose consequence for the postulated post-seismic fire accident scenario is reduced by more than an order of magnitude versus the DSA approved in December 2008. However, mitigated consequences (the only credited control for this scenario is the building structure with an associated leak path factor) remain above the DOE evaluation guideline.

The DSA was also updated to use the most recent weather data for dispersion modeling which resulted in an increase of approximately 30% for all offsite dose calculations. In addition, LANL addressed several conditions of approval that were identified by the site office Safety Evaluation Report including the following: incorporation of the results of the backfit analysis and industry code evaluation for the safety class fire suppression system; identification of criticality safety controls for inclusion in the DSA (vault racks and shelving criticality safety functions were included in this update); improved safety system, structure and component descriptions in chapter 4; clarification and improved basis for Technical Safety Requirements; and improved process descriptions in chapter 2.

Radioactive Liquid Waste Treatment Facility Replacement (RLWTF-R) Project: This week, NNSA Headquarters began their Technical-Independent Project Review (T-IPR) of the RLWTF-R Project to determine whether the current status of design, scope, cost, schedule, safeguards and security and safety aspects meet mission objectives and project performance requirements. Specifically, the T-IPR team has been asked to focus on the overall design (e.g. material selection, confinement strategy, nuclear safety strategy, seismic design), the system engineering approach used to manage the design requirements, adequacy of the design solution against technical requirements, the quality assurance program and implementation and actions to resolve DNFSB issues. LANL is currently at the 60% design point for this project and plans to pursue Critical Decision-2, Approval of Performance Baseline, in May 2010.

Weapons Engineering Tritium Facility (WETF): This week, LANL continued to resolve pre-implementation findings identified during the safety basis Implementation Verification Review and complete other readiness activities to support a return to operations mode in the near term. This mode change will allow WETF personnel to begin overpacking (in credited secondary containers or gloveboxes) approximately 70 containers that may exceed their maximum allowable working pressure and do not currently have secondary confinement. Consistent with site office direction, LANL will complete a Laboratory Readiness Assessment (LRA) prior to tritium gas handling operations. The LRA is now scheduled for January 2010.