

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 7, 2011

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending October 7, 2011

Weapons Engineering Tritium Facility (WETF): This week, LANL submitted to the NNSA site office an Evaluation of the Safety of the Situation and revised Justification for Continued Operation (JCO) to address hazards and controls associated with the potential for oxygen in-leakage into WETF tritium systems. In October 2010, LANL identified an unreviewed safety question associated with potential oxygen in-leakage through the Hot Inlet System. A hazard analysis was performed to evaluate deflagration hazards due to oxygen in-leakage and a JCO was submitted and approved by the site office. Subsequently, during an emergency exercise in August 2011, an increase in oxygen concentration in the Tritium Waste Treatment System (TWTS) was noted after repositioning a three-way valve. In response, the three-way valve was returned to its previous position and the system was purged, which reduced the oxygen concentration. Facility operations were also placed in warm standby and restrictions on introduction of flammable gases into tritium systems were implemented by standing order. This issue was declared an unreviewed safety question due to the potential increase in frequency for oxygen in-leakage into the TWTS.

The revised JCO, which is based on a new hazard analysis, identifies additional controls including blanking off the connection from the TWTS to the three-way valve discussed above. LANL contends that the newly identified controls along with previous JCO controls ensure the facility can be operated safely and requests approval of the JCO until January 30, 2012. The site office review is ongoing.

Plutonium Facility – Seismic Safety: LANL reported to the site office this week completion of several key upgrades that address seismic/structural issues identified by the Seismic Analysis of Facilities and Evaluation of Risk project. These upgrades included the Zone 1 plenum column to wall and column to ceiling separation and the Zone 1 fan pad modifications. These improvements help reduce the potential for an unfiltered release during and following a seismic event.

Transuranic Waste Operations: This week, a LANL team completed a checklist Contractor Readiness Assessment (CRA) of high energy real-time radiography (RTR) operations at Area G. The startup of high energy RTR operations is necessary for LANL to certify that transuranic waste directly loaded into Standard Waste Boxes meets the waste acceptance criteria specified by the Waste Isolation Pilot Plant. At the outbrief, the CRA team leader noted that the high energy RTR operations reviewed during this CRA demonstrated a higher degree of readiness than other recently reviewed transuranic waste startup activities. This conclusion indicates that steps taken by LANL management to improve the preparation and state of readiness for transuranic waste-related startups are having a positive effect.

The CRA team did identify three pre-start findings. One of these pre-start findings reflects a damage ratio value used in the approved safety analysis that is a factor of ten lower than the value dictated by DOE-STD-5506, *Preparation of Safety Basis Documents for Transuranic Waste Facilities*. Since dose consequences are linearly proportional to damage ratios, using a damage ratio value that is consistent with DOE-STD-5506 would increase the consequences from postulated accident scenarios by an order of magnitude. LANL management intends submit a safety basis page change to the NNSA site office for approval to address this issue prior to beginning high energy RTR operations.