

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 2, 2011

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending December 2, 2011

Transuranic Waste Operations: The Area G safety basis includes TSR-level inventory limits on the curie content of both transuranic waste and tritium. The TSRs require a quarterly surveillance to confirm that the Area G tritium inventory remains below the approved limit. The quarterly surveillance is performed by querying a computer database that tracks the quantity of tritium at Area G and comparing the current inventory value to the TSR limit. During a recent surveillance, an Area G operator recognized that the tritium inventory value reported by the tracking software had not changed from the previous surveillance even though tritium material moves had been made. Subsequent evaluation revealed that there was an error in the tritium inventory tracking software.

Per the LANL institutional software quality assurance program, requirements for software change control and verification and validation are graded based on the importance of the software. Area G inventory tracking software is rated at the highest level of safety-related software subjecting it to the most stringent change control requirements. In 2010, a change was made to the inventory software that caused it to report incorrect tritium inventory values. This error was not identified during required software change verification and validation activities. As a result, TSR-level surveillances were performed for roughly two years using invalid tritium inventory values. This week, Area G management declared a TSR violation based on this discovery.

Also this week, operators at the WCRR repackaging facility cracked a glovebox window when a tool they were using to remediate the contents of a drum slipped and the tool handle impacted the glovebox glass. No contamination was released in this event, but cracking glovebox windows with tools has been a recurring problem at WCRR. In response, facility management is emphasizing the need to use the right tool for job when removing the contents of transuranic waste drums inside the WCRR glovebox.

Radioactive Liquid Waste Treatment Facility (RLWTF): This week during low level waste processing operations, an equipment failure caused an RLWTF operator to be sprayed in the face with 25% sodium hydroxide solution resulting in localized second degree burns to his lips. The operator was adjusting the setting of a caustic solution addition pump when the failure occurred.

Maintenance of the caustic addition system had been performed the day before the event. The maintenance activity required the normal valve line-up for the caustic addition system to be changed. The maintenance work package called for the valves to be repositioned according to operations personnel instructions upon completion of the evolution, but the work was completed after hours when no operations personnel were present. The valves were left in an abnormal line-up and valve position status was not effectively communicated to operations personnel. The next day facility personnel did not perform a procedurally required pre-operational valve alignment check prior to beginning low level waste processing activities. As a result, the caustic addition system was not in the expected configuration when it failed and sprayed the operator. The exact cause of the equipment failure is being investigated by facility personnel.