

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 15, 2013

MEMORANDUM FOR: S. A. Stokes, Acting Technical Director
FROM: R.T. Davis and R.K. Verhaagen
SUBJECT: Los Alamos Report for Week Ending February 15, 2013

Weapons Engineering Tritium Facility (WETF): Following investigation into elevated tritium levels in a storage area, WETF personnel identified that a safety class tritium container (AL-M1) was leaking. AL-M1 containers are used to capture and store tritium in the Tritium Waste Treatment System (TWTS). After these containers are loaded in the TWTS, they are stored at WETF pending further processing or disposition. LANL believes the maximum allowable working pressure for this particular AL-M1 was exceeded due to pressure buildup from tritium decay and radiolysis of water. This is the second AL-M1 that has developed such a leak within the last few years. Both leaking AL-M1s are currently being stored in a fume hood to mitigate the potential for tritium release.

There are currently twelve loaded AL-M1s stored at WETF. Calculations performed to determine when the remaining canisters will exceed their maximum allowable working pressure indicate that this is possible within the next few years. To preclude additional potential leaks and to disposition the currently leaking containers, all AL-M1s will be overpacked into Flanged Tritium Waste Containers and transported to Technical Area-54, Area G for disposal. In order to perform the overpacking activity, the WETF facility will have to be placed in operations mode which is expected to occur in the next few weeks. LANL is also evaluating the feasibility and safety basis changes needed to support packaging and removal of these and other legacy tritium containers in warm standby mode.

Criticality Safety: This week, LANL began a focused training program (“boot camp”) to provide an intensive learning environment for new criticality safety staff. The program consists of nine modules including: nuclear theory; criticality safety calculation methods; ANSI/ANS, DOE and LANL criticality safety standards and requirements; criticality safety evaluations; and criticality alarm and detection systems. This program along with on-the-job training and performance demonstrations will provide a mechanism for achieving full qualification as a LANL criticality safety analyst. Conduct of the boot camp is part of the LANL corrective action plan for improving the nuclear criticality safety program (site rep weekly 11/16/12).

Plutonium Facility: The field office approved a revision to the Plutonium Facility Documented Safety Analysis and Technical Safety Requirements (TSRs) to address the Potential Inadequacy of the Safety Analysis identified last week associated with facility transfer carts. The safety basis change adds a new safety-significant TSR control for the transfer carts consistent with the nuclear criticality safety evaluation. Plutonium Facility personnel are in the process of implementing the safety basis change to resolve this issue and resume use of the carts.

Technical Area-35 (TA-35): As a part of the corrective actions to address issues with the criticality safety program at TA-35, LANL submitted an update to the Facility Hazard Categorization (FHC) this week. In 2012, a number of criticality problems were identified at TA-35 including fuel rods in Building 27 with active lengths that exceed the length identified in the criticality safety evaluation. Subsequently, LANL updated the criticality safety evaluation to include an inventory reduction for fuel rods to preclude a credible criticality accident scenario. The updated FHC is intended to strengthen controls to ensure “nature of the process” arguments are maintained and consistent with DOE-STD-1027 requirements.