

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 18, 2012

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending May 18, 2012

Weapons Engineering Tritium Facility (WETF): This week, LANL successfully transferred three Flanged Tritium Waste Containers to Area G for disposal. This action reduces the material at risk in WETF and eliminates four containers that were the subject of a November 2008 Potential Inadequacy of the Safety Analysis (PISA) due to overpressure concerns during a fire accident scenario.

Radioactive Liquid Waste Treatment Facility (RLWTF): Last week, RLWTF management declared a PISA based on the discovery that the actual configuration of a portion of the transuranic liquid waste receipt and distribution system did not match the configuration described in the facility's safety basis. Transuranic liquid waste is received from the Plutonium Facility into one of two tanks in an underground reinforced concrete vault adjacent to the RLWTF. According to the RLWTF safety basis, the two transuranic liquid waste receipt tanks would overflow to a sump in the concrete vault and a manually operated pump could be used to transfer liquid from the sump to a portion of the system normally used to receive low level liquid waste. Facility personnel recently discovered that contrary to the safety basis description, the transuranic waste receipt tanks were plumbed to route overflowed material directly into a low level waste receipt tank and that the sump pump in the concrete vault would automatically (vice manually) transfer liquid from the sump to the low level waste receipt system. This configuration could result in an unplanned discharge of transuranic liquid into the low level liquid processing portion of the system.

In response to this discovery, RLWTF personnel have completed physical modifications to cause the two transuranic waste receipt tanks to overflow into the concrete vault sump, as described in the safety basis. Personnel are also in the process of modifying the vault sump pump and associated piping to manually transfer overflowed liquid into the transuranic rather than low level portion of the system.

Transuranic Waste Operations: On Tuesday, LANL submitted the Evaluation of the Safety of the Situation (ESS) to address criticality safety issues for Fiberglass Reinforced Plywood (FRP) box processing operations at Area G. Last month, LANL identified several above-ground FRPs (and one other oversized container) that exceed 325 Fissile Gram Equivalents (FGE) and were not specially controlled in accordance with the applicable Criticality Safety Limit Approval (CSLA). The ESS was written to address credible upset limits for the potential processing of these boxes in Building 412, which was not adequately addressed in the CSLA. The path forward identified in the ESS includes 1) not transferring containers to the processing line (a standing order has been issued) 2) a specific criticality safety evaluation will be performed prior to processing containers with greater than 325 FGE and 3) one box with uncertainty in the assay data that indicated greater than 1000 FGE will be re-evaluated (generator information indicates approximately 350 FGE).

Plutonium Facility: Last week, LANL submitted the ESS for safes that were not anchored consistent with criticality safety requirements. The ESS notes that all safes have now been anchored as required and that the safety basis will be updated to include requirements to anchor these safes in the next annual update.