

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 1, 2015

MEMORANDUM FOR: S.A. Stokes, Technical Director
FROM: R.K. Verhaagen and J.W. Plaue
SUBJECT: Los Alamos Report for Week Ending May 1, 2015

DNFSB Staff Activity: On Wednesday, staff members T.A. Chapman and D.J. Campbell held a teleconference with field office and LANL personnel to discuss the status of an emerging nuclear facility drill program.

Area G–Nitrate Salts: Last Thursday, LANL scientists obtained the first result associated with the full-scale drum experiment (see 4/17/15 weekly). Specifically, the contents of the sealed 55-gallon drum in a 60° C environment initiated a thermal runaway reaction, pressurized the drum, and forcefully ejected the drum's lid. This experimental result was anticipated, given the elevated temperature and non-vented conditions. LANL scientists are analyzing the data from the experiment and continue to monitor the other three drums.

Plutonium Facility–Fire Protection: For the T Base II activity, one of the federal readiness assessment team's pre-start findings concerned the fire extinguishing agent available within the glovebox. Specifically, the team noted that the use of graphite was inconsistent with the fire hazard evaluation which indicated the need for magnesium oxide. In addition, the team noted that the volume of agent was half of that required and its placement was not within reach from the location where plutonium metal turnings were handled and stored. In response to this finding, facility personnel have revised the fire hazard evaluation to indicate that graphite is acceptable even though magnesium oxide is preferred, consistent with DOE Handbook 1081-2014, *Primer on Spontaneous Heating and Pyrophoricity*. Facility personnel have also developed a plan to eventually transition to the use of magnesium oxide across the plant and to strengthen the processes used to ensure appropriate staging, inspection, and use of the agent. The Site Representatives note that this effort provides an ideal opportunity to correct the inconsistencies between the actual conditions in the plant and the mock-up used for training with the fire department (see 11/21/14 weekly).

Transuranic Waste Management: Last Friday, LANL submitted to the field office its first quarterly status report on efforts to support sustained laboratory operations during shutdown of the Waste Isolation Pilot Plant (see 1/23/2015 weekly). The report included a list of projects for which transuranic (TRU) waste generation forecasts have been developed, current Area G waste inventories, and a set of initiatives aimed at prioritizing TRU waste generation and storage. LANL identified that 155 containers of TRU waste were received in Area G for storage between June 1, 2014 and March 31, 2015. Of note, these receipts increased the material-at-risk composite source term (CST) from 0.35 Pu-239 Equivalent Curies (PE-Ci) to 0.94 PE-Ci, approaching the limit of 1.06 PE-Ci. Additionally, the report acknowledges that the impact to the actual CST from the Potential Inadequacy of the Safety Analysis relating to remediated nitrate salts that was declared last week (see 4/24/15 weekly) is not yet fully understood. Current projections indicate the limit for CST could be reached as early as September of this year.

Plutonium Infrastructure Strategy: This week the field office approved a revision to the Safety Design Strategy (SDS) for the Plutonium Facility Equipment Installation sub-project (see 8/15/2014 weekly). The revision was made to address Chief of Defense Nuclear Safety and field office comments on the previously approved SDS.