

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 10, 2020

MEMORANDUM FOR: Christopher J. Roscetti, Technical Director

FROM: J.W. Plaue and D. Gutowski, Resident Inspectors

SUBJECT: Los Alamos Activity Report for Week Ending April 10, 2020

COVID-19 Impacts: The laboratory's operational posture remains similar to the end of last week. Developments this week include:

- Plutonium Facility leadership issued a policy describing the requirements for ramping up work, including additional specifics regarding occupancy limits in laboratory rooms and a process for subject matter expert review of activities where adequate spacing cannot be maintained.
- N3B and Triad provided guidance for wearing face coverings in facilities.
- Triad personnel completed two shipments to the Waste Isolation Pilot Plant (WIPP). Further shipments are on hold as WIPP management paused shipments for the next two weeks.
- N3B and Triad have implemented extensive remote learning programs offering lectures on topics such as criticality safety, conduct of operations, and plutonium metallurgy.

Area G–Safety Basis: On Thursday, the EM Field Office transmitted to N3B comments to be addressed regarding the draft safety basis in development for Area G (see 10/18/2019 and 3/20/2020 reports). The comments cover chapters 1 and 2 of the document with the most detailed comments related to the use and implementation of vehicle barriers protecting defined areas (locations specified within the safety basis as requiring controls to carry out process and storage activities). The field office comments propose more consistency and improved linkage of the safety basis and implementing procedures. Determining compliance with this control has been challenging (see 10/12/2018 report).

Transuranic Waste Management: Last week, the NNSA Field Office sent a letter to the Carlsbad Field Office requesting two revisions to the Basis of Knowledge (BoK), including: (1) accepting polysaccharides (e.g., cheesecloth) that have contacted nitric acid in concentrations of less than 12 molar and (2) broadly indicating that nitric acid at concentrations of less than 12 molar is not an oxidizer. DOE generated the BoK as part of a strengthened waste acceptance criteria for WIPP as a corrective action from the 2014 radiological release event. Specifically, DOE uses the BoK to screen for potential oxidizers in waste materials that could result in chemical exothermic reactions and propagating fires. As support for this request, Triad submitted testing results that indicate cheesecloth exposed to less than 12 molar nitric acid does not meet the UN Division 5.1 definition of a solid oxidizer. Triad also cited the Department of Transportation's oxidizer criterion for nitric acid of greater than 14.3 molar nitric acid. The resident inspectors note that application of these results should be treated cautiously, as pristine combinations of nitric acid and polysaccharide absorbents are unlikely to be found in nuclear process environments. Instead, metals are often present that form metal nitrate salts during evaporation resulting in complicated chemistries that can create materials that possess the EPA hazardous waste characteristic of ignitability (D001). For example, other LANL investigators found cheesecloth could not be sufficiently rinsed with water to remove the oxidizer property imparted through contact with five weight percent potassium nitrite (LA-UR-17-23809) and that cellulosic wipes contacted with nitrate salt surrogate solutions were ignitable (LA-UR-16-24408).