

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 5, 2021

MEMORANDUM FOR: Christopher J. Roscetti, Technical Director
FROM: J.W. Plaue and D. Gutowski, Resident Inspectors
SUBJECT: Los Alamos Activity Report for Week Ending March 5, 2021

DNFSB Staff Activity: On Wednesday, a staff team conducted a series of web conferences with personnel from EM Headquarters, the EM Field Office, and N3B to discuss current issues with the safety basis for Area G and the approach to assure safe operations while developing a modern safety basis.

Transuranic Waste Management: Last Friday, Plutonium Facility workers observed sparks while drumming out transuranic waste. They followed proper procedure and left the room, pulled a fire alarm, and contacted the operations center. Fire department personnel responded and determined that no fire condition existed. Triad's subsequent evaluation indicated no obvious damage to the glovebox, no release of radioactive material, and no injuries to the workers present at the time.

On Monday, Triad personnel conducted a fact-finding for this event. Attendees discussed the fact that the waste being disposed of included filters from an inert atmosphere glovebox used to weld non-radioactive metals including titanium alloy. Consequently, the group believes the likely explanation for the event was that metallic welding condensates on the filters underwent a pyrophoric reaction when a different waste item was added to the drum and breached a bagged filter allowing the influx of oxygen. Triad management: paused waste bag-out operations associated with materials from the welding gloveboxes; commenced a review of the waste records to determine if these filters exist in waste containers elsewhere at the laboratory or at the Waste Isolation Pilot Plant (WIPP); and entered the New Information process to determine whether the safety basis properly considers this energetic chemical reaction.

We note that this energetic chemical reaction underscores the need for Triad to fully address the concerns outlined in DNFSB/TECH-46 (see 12/25/2020). To date, Triad has identified and taken action for potential energetic reactions associated with cellulosic materials and ion exchange resins. They have also recently begun an extent-of-condition review to look for other potentially incompatible waste constituents; however, this search will be challenging because most of the waste from the facility falls under a single waste stream. For example, WIPP produced a chemical compatibility evaluation for this stream that indicates that there are more than 100 primary chemicals and materials of concern present, as well as about 150 others found at insignificant levels. This evaluation identified titanium as a material of concern, but concluded that powdered forms do not exist in the facility or that actions would be taken to render it unavailable for adverse reactions.

Plutonium Facility–Radiological Control: On Wednesday, a worker alarmed the hand and foot monitor at the exit of a laboratory room. Responding radiological control technicians found all six individuals in the room with high levels of contamination on their personal protective equipment and three of them also had skin contamination. During decontamination activities, a continuous air monitor alarmed in the decontamination room. There was also a continuous air monitor alarm in the original laboratory room following egress of the workers. Facility management will hold a fact-finding next week.

Safety Basis: Last month, Triad transmitted to the NNSA Field Office the 2021 annual update to the safety basis for the RANT Shipping Facility. This is the first annual update produced at LANL where such updates no longer require federal approval under the revision to 10 CFR 830, *Nuclear Safety Management*.