

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 15, 2019

MEMORANDUM FOR: Christopher J. Roscetti, Technical Director
FROM: J.W. Plau and D. Gutowski, Resident Inspectors
SUBJECT: Los Alamos Activity Report for Week Ending March 15, 2019

Chemistry and Metallurgy Research (CMR) Building–Conduct of Operations: During the past year, operators had been retrieving items from tube vaults in the floor of Wing 9, repackaging them into various shipping containers, and returning them to the floor space above the tube vaults. Last Friday, a relatively new operator appropriately questioned whether the criticality safety limit approval allowed him to store the shipping containers on the floor, given that the limits are specified as “per floor hole location.” Nuclear criticality safety personnel determined that situation was safe and stable and recommended categorizing the infraction as a level-1 non-compliance. Their procedures define a level-1 non-compliance as an operation conducted with fissionable material such that a criticality safety evaluation would have been required, no analysis has been conducted, and no credited controls are in place. Triad management conducted two fact-findings this week that revealed significant weaknesses in conduct of operations, training, and implementation of the nuclear criticality safety program. Given these and other recent issues (see 2/15/2019 report), Triad management paused Chemistry Division activities in CMR, the Plutonium Facility, and the Radiological Laboratory Utility Office Building pending corrective actions.

Plutonium Facility–Radiological Safety: Last Thursday, while changing gloves on a glovebox used for plutonium-238 aqueous processing, an operator inadvertently lost control of the gloves resulting in contamination levels in excess of the monitoring instrument’s range to a large portion of the protective clothing covering his arm. All workers involved were wearing air purifying respirators and there were no indications of an uptake. At the fact-finding, Triad managers noted the remarkable response of the radiological control technicians who were able to fix the contamination and remove the protective clothing from the worker without further spreading contamination. Management also directed further study on opportunities to improve the glove change process to avoid this problem, which had occurred previously a few years ago. The resident inspectors note that radiation protection personnel continue to pursue routine use of powered air-purifying respirators (PAPR) for these types of high-hazard jobs. PAPRs offer workers greater comfort and better respiratory protection. The primary impediments to deployment include locating storage space and completing necessary training.

Plutonium Facility–Safety Basis Compliance: On Tuesday, Triad personnel conducted a fact-finding to learn from an unplanned entry into the limiting condition for operations associated with an exceedance of the material-at-risk (MAR) limits for the outdoor transuranic waste storage pads that occurred last Wednesday. Fact-finding personnel discussed issues with the formality of procedural execution used to pre-check limit compliance ahead of material movements, as well as human performance concerns associated with the MAR Tracker software. In particular, Triad personnel noted that MAR Tracker has necessitated numerous work-arounds since about 2015. For example, the current MAR surveillance procedure requires about 60 separate manual data manipulations. Fact-finding personnel determined that some of these data manipulations were skipped resulting in an inaccurate result for the pre-check conducted last week. Updates to MAR Tracker to eliminate these manipulations have been underway for nearly a year and are expected to be implemented in about a month.

Severe Weather: On Wednesday, the laboratory experienced snow and high winds prompting Triad management to declare a discretionary emergency. They staffed the Emergency Operations Center for several hours to improve response to many downed trees and power outages.