

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 28, 2019

MEMORANDUM FOR: Christopher J. Roscetti, Technical Director
FROM: J.W. Plaue and D. Gutowski, Resident Inspectors
SUBJECT: Los Alamos Activity Report for Week Ending June 28, 2019

Plutonium Facility–Criticality Safety and Conduct of Operations: On Tuesday, workers attempting to reduce the backlog of production residues in a processing room (see 1/25/2019 report) moved six of the approximately 170 containers from floor storage to a material management area for disposition. Due to congestion in that area, they placed special nuclear material containers on the floor instead of inside a hood as planned. The work team then questioned whether this was allowable and concluded it was not. Nuclear criticality safety personnel determined that the situation was safe and stable and recommended categorizing the infraction as a level-1 non-compliance, since no analysis exists and no credited controls are in place for storage of fissionable material in this location.

Nuclear Material Management: While the oldest container of the production residues discussed above was generated in January 2017, the majority of the 170 containers were generated in the past year as part of meeting a programmatic milestone to complete a certain number of electrorefining metal production runs. This accumulation of residues is inconsistent with DNFSB/TECH-39, which highlighted that the disposal of residues ought to be an integral part of the production process. We note that Triad management does not currently keep metrics regarding production residue accumulation/disposition and that NNSA does not explicitly factor residue disposition as part of its production milestone criteria.

RANT Shipping Facility: While performing prerequisites for accepting potential payload builds for shipment to the Waste Isolation Pilot Plant, a worker noted that the Waste Compliance and Tracking System (WCATS) showed the proposed payload exceeded the material-at-risk limits. Further investigation discovered that the WCATS software did not credit a damage ratio for pipe overpack containers. Triad's safety software testing of WCATS to support RANT safety basis compliance had not found this discrepancy. Triad personnel have updated the code. During contract transition, Triad identified the need to review WCATS to improve compliance and efficiency.

Transuranic Waste Facility (TWF): On Monday, Triad personnel determined that an unreviewed safety question (USQ) existed associated with the safety-class seismic power cutoff system (SPCS) due to potential interference with the laboratory's new counter unmanned aerial vehicle system (CUAS). During testing of the CUAS, TWF personnel had a compensatory measure to perform an existing surveillance requirement on the SPCS following any actuation of the CUAS. TWF personnel were not notified that the CUAS went live and therefore were unable to perform the surveillance requirement to assure functionality of the SPCS.

Transuranic Waste Management–Safety Basis: Facility management at TWF and TA-55 declared potential inadequacies of the safety analysis (PISA) concerning recent information on nitric acid interactions with polyols (e.g., cheesecloth) in waste (see 5/31/2019 report). The PISAs note that the potential for autocatalytic reaction is not currently evaluated in the safety bases; however, it also states that there is currently no cheesecloth waste at the facilities that have been contacted with greater than 12 M nitric acid. We note that 15.8 M nitric acid is used in the Plutonium Facility and that an important aspect of resolving these PISAs will be addressing the potential for an increased respirable release fraction from energetic reactions involving oxidizer-bearing organics. Separately, safety basis personnel determined the PISAs concerning vehicle impacts and fires at both outdoor waste pads at TA-55 represent positive USQs (see 5/24/2019 report).