DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 18, 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 October 18, 2019

DNFSB Staff Activity: Members of the Board's staff held teleconferences with both field offices and contractors in support of a complex-wide review on the implementation of Technical Safety Requirements.

Plutonium Facility–Transuranic Waste Management: Last Tuesday, a third incident occurred involving a dropped transuranic waste container (see 9/20/2019 and 9/27/2019 reports). While workers were lifting a pallet with an electric jack, an unrestrained pipe overpack container fell off. The container was not damaged. Triad management subsequently instituted a new pause on drum handling activities. This Thursday, they issued a recovery plan that authorizes drum movements when released by management with compensatory measures including: (1) work must be overseen by both a non-working person-in-charge and approved enhanced temporary oversight; (2) only a specific list of drum handling equipment is allowed; and (3) workers must complete revised training on drum handling. Longer-term corrective actions include an extent of condition review and a formal causal analysis.

Plutonium Facility–Safety Basis: On October 4, 2019, Triad safety basis personnel transmitted to the NNSA Field Office for approval a revision to the evaluation of the safety of the situation regarding the interaction between nitric acid and polyols (see 9/13/2019 report). The revision acknowledges the potential for an event that is more severe than envisioned in DOE-STD-5506-2007 based on experience since the standard was issued. As such, Triad included an autocatalytic exothermic runaway reaction similar to an explosion that they modeled using an airborne respirable release fraction of 0.07. This value results in calculated offsite consequences that exceed the DOE Evaluation Guideline. As a result, Triad proposed preventing the accident using a Specific Administrative Control that prohibits the mixing of polysaccharides with greater than 12 molar nitric acid. Triad also previously asserted that these materials are not present in the existing population of waste containers.

Area G–Safety Basis: For comparison, N3B analyzes energetic chemical reactions like the polyol issue using a release fraction about 130 times lower than the value proposed by Triad. Accordingly, the same potential accident at Area G, which is closest to the site boundary, does not challenge the Evaluation Guideline. As a result, N3B does not explicitly credit controls to prevent or mitigate this hazard. The EM Field Office continues to support this position.

Last month, N3B transmitted a strategy for development of revision 7 of the Basis for Interim Operations. This strategy supplants the April 2019 proposal that the EM Field Office did not formally address (see 7/5/2019 and 9/13/2019 reports). Key aspects of the strategy for revision 7 include: (1) reliance on DOE-STD-3011-2002, DOE-STD-3009-94, and DOE-STD-5506-2007; (2) incorporation of atmospheric dispersion parameters and hazard analysis information from the abandoned safety basis that was developed using DOE-STD-3009-2014; (3) use of an updated statistical analysis for the aboveground waste inventory, and (4) removal of underground waste retrieval operations. The overall schedule assumes an exemption from the annual update requirement for 2020 and shows deliverables to the EM Field Office beginning in December 2019 with overall completion and implementation in calendar year 2021. The EM Field Office is reviewing this strategy.