

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 31, 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 January 31, 2020

Plutonium Facility–Fire Protection: Earlier this month, subcontractor personnel started installing new fire doors between the laboratory rooms and the corridors. As of this week, approximately half of these doors are partially installed. The new doors currently lack astragals, leaving substantial exposure gaps. Some of the doors are also not aligned correctly and do not properly self-close or self-latch. These conditions will need to be resolved in order to credit the doors in the fire hazards analysis and safety basis in the future.

Facility personnel resolved installation issues associated with the anchorage of one of the new seismically qualified backup diesel generators for the electric fire pumps (see 7/28/2017 report). The generator is expected to begin commissioning next week. Once operable, the generator will ease some of the safety basis requirements on the diesel fire pumps. The diesel fire pumps have been undergoing troubleshooting due to recent smoky exhaust, knocking, and lubrication system issues. Triad plans to replace the diesel pumps with delivery expected in October 2020.

Transuranic Waste Operations: Earlier this month, Triad personnel received the results of independent laboratory analyses on surrogate materials intended to verify the acceptability of residue salts from the direct oxide reduction process used to produce plutonium metal (see 11/15/2019 report). The results show that surrogate salts prepared with up to 30 percent stoichiometric excess of calcium metal generate gas with hydrogen concentrations that do not exceed the criteria under UN Division 4.3, *Dangerous When Wet*. As a result, Triad expects Central Characterization Program (CCP) personnel will be able to revise chemical compatibility evaluations to support the certification of waste containers with pyrochemical salt residues generated in process runs using up to 30 percent excess calcium. For greater amounts of calcium or failed runs, Triad is exploring the need to perform additional oxidation campaigns to minimize reactivity and simplify the waste certification process.

Last month, CCP issued a revision to the interface document used to govern their relationship with Triad. The revision includes important corrective actions to ensure Triad subject matter experts review various enhanced acceptable knowledge documents, including chemical compatibility evaluations. In particular, the calcium metal concern discussed above involved factually inaccurate statements that propagated through at least three acceptable knowledge documents.

Last Thursday, Triad safety basis personnel transmitted to the NNSA Field Office an evaluation of the safety of the situation (ESS) concerning the interaction of nitric acid and polysaccharides in the Chemistry and Metallurgy Research building. The ESS provides similar analysis and the same control set as previously proposed and approved for the Plutonium Facility (see 11/8/2019 report).

Area G: On Monday, N3B personnel entered their initial confirmatory process subsequent to Triad's declaration of a potential inadequacy of the safety analysis (PISA) related to using a spatula-like tool during flammable gas sampling operations at the Transuranic Waste facility (see 1/24/2020 report). On Thursday, N3B declared a PISA for flammable gas sampling operations at Area G. Flammable gas sampling, which is performed by CCP personnel, is now paused at Area G.