

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 22, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: D. Gutowski, Resident Inspector
SUBJECT: Los Alamos Activity Report for the Week Ending March 22, 2024

Transuranic Waste–Safety Basis: Last Friday, the NNSA Field Office conditionally approved a consolidated evaluation of the safety of the situation and justification for continued operations to address potential chemical incompatibility in transuranic waste drums due to nitrated spent ion exchange resin. This applies to the Plutonium Facility, the Chemistry and Metallurgy Research Building, the Transuranic Waste Facility, and PF-400. The first three facilities declared potential inadequacies of the safety analysis in late 2020 following review of information contained in DNFSB/TECH-46, *Potential Energetic Chemical Reaction Events Involving Transuranic Waste at LANL* (see 12/25/2020 report). PF-400 was not a nuclear facility at that time and the resin hazard at this facility was evaluated in January 2024. The approved document applies to resin volumes of less than 20 milliliters and includes two compensatory measures. First, all transuranic waste drums containing ion exchange resins will be limited to less than 20 plutonium equivalent curies or will be overpacked into a standard waste box. Second, ion exchange resins will be rinsed with hydrochloric acid prior to disposal unless testing has determined the process using the resins reduces nitrates to non-detectible concentrations. The field office's approval directed a change to clarify the wording of this second compensatory measure. This safety basis document does not cover disposal of spent resins from the aqueous nitrate process where a hydrochloric acid rinse is inadvisable. Those currently have no approved disposition path, and the lack of an approved waste process was one of the prestart findings from the recent federal readiness assessment (see 3/8/2024 report).

Area G: On Monday, N3B personnel compliantly moved the standard waste box containing potentially reactive TECH-46 drums from Dome 232 back to Dome 33 where such waste containers are normally segregated and stored (see 3/21/2024 report).

Last Friday, N3B submitted three major modification determinations to the Environmental Management Field Office for concurrence. These apply to three activities not covered in the current safety basis or in the new safety basis in development. The first proposed activity is the Pit 9 Retrieval Project which will retrieve buried transuranic waste packages into a new ventilated enclosure where they will be vented. These containers have limited characterization and are largely unvented. The second activity is the High Material at Risk (MAR) Glovebox Project. This involves installing a new glovebox in Dome 375 with fire suppression and ventilation systems to process transuranic waste drums with substantially higher MAR than currently authorized processing activities. These new systems are expected to be credited as safety-class. The last activity is the Dome 375 Facility Upgrade. This project will upgrade systems within Dome 375 to support the other two projects. It is expected that some of these upgrades will need to be credited as safety-class. N3B concluded that all three of these projects are major modifications and are planning to develop future safety basis documentation to support them pending field office concurrence.