

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 1, 2022

MEMORANDUM FOR: Christopher J. Roscetti, Technical Director
FROM: D. Gutowski and J. Plaue, Resident Inspectors
SUBJECT: Los Alamos Activity Report for Week Ending April 1, 2022

Plutonium Facility–Infrastructure: On Tuesday evening, facility personnel shut down the ventilation system for the north half of the facility because of malfunctioning damper actuators. As a result, all normal mission activities in the north half were terminated. Maintenance personnel were able to restore the system by Thursday evening. Repair efforts were hindered by insufficient spare parts. The affected portion of the facility also experienced several continuous air monitor alarms during the ventilation outage. On Thursday, facility personnel declared the instrument air system, which supports the ventilation system, degraded but operable following issues with an air dryer.

In a letter to the Board dated March 15, 2022, the NNSA Administrator stated that they are no longer pursuing a safety class active confinement system (see 3/18/2022 report). The resident inspectors note that both the actuators and the instrument air system that failed would have required upgrades to support the previous documented plans to achieve a safety class system. NNSA’s letter now lists these upgrades as open, meaning that no plans exist for upgrades.

Plutonium Facility–Safety Basis: On Monday, NNSA Headquarters conditionally approved the safety basis addendum associated with the receipt of large quantities of heat source plutonium (see 11/26/2021 report). The conditions of approval, required by April 29, 2022, involve addressing outstanding comments on the addendum and wording changes to a technical safety requirement. In approving this addendum, NNSA Headquarters accepted an “exigent condition” where there is no viable control strategy to meet DOE’s evaluation guideline for postulated consequences to the public. In this case, NNSA accepted bounding mitigated consequences to the public that range from 490 to 3,175 rem depending on the amount of radioactive material assumed to leak out of the building structure following a post-seismic fire. NNSA deemed the risk acceptable based on the conservatism in the analysis, the low likelihood that the accident occurs, and the limited number of shipments. The primary controls credited to protect the public are the shipping containers (which must be received by May 2024 before certifications expire) and the seismic power shutoff system (which has an acknowledged deficiency and cannot prevent all fire ignition sources following an earthquake). Work associated for this activity will be primarily performed in four gloveboxes where only one of the gloveboxes meets minimum seismic requirements.

Transuranic Waste Management: On Wednesday, Triad sent the NNSA Field Office a progress report on actions associated with an inadequacy with the safety analyses they declared in December 2020 for three nuclear facilities following issuance of DNFSB-TECH-46, *Potential Energetic Chemical Reaction Events Involving Transuranic Waste at Los Alamos National Laboratory*. The report notes that they plan to resubmit an evaluation of the safety of the situation by the end of July 2022—about a year after N3B received approval on its evaluation for Area G (see 7/23/2021 report). The report also notes that an extent-of-condition review to complete chemical compatibility analyses for activities in the Plutonium Facility should be completed by the end of fiscal year 2022. The report justifies the schedule delays due to ongoing research effort to study the reactivity of anion exchange resins. Meanwhile, the resident inspectors note that NNSA has yet to develop a defensible general solution for determining a *de minimis* amount of incompatible chemical mixtures.