

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 20, 2023

TO: Timothy J. Dwyer, Acting Technical Director
FROM: A. Boussouf and D. Gutowski, Resident Inspectors
SUBJECT: Los Alamos Activity Report for the Week Ending October 20, 2023

Plutonium Facility and Radioactive Liquid Waste Treatment Facility (RLWTF)–Tritium: Triad personnel held a fact-finding meeting to discuss the recent event involving tritium migration from the Plutonium Facility to RLWTF (see 10/6/2023 report). In addition to the atmospheric conditions that allowed tritium to reenter the Plutonium Facility through the building air intake, more tritium than usual was released during operations because the gas treatment system, a non-credited system that reduces the amount of tritium released up the stack, was not functioning properly. Released amounts were within permit limits. Safety basis personnel concluded that the event did not constitute a potential inadequacy of the safety analysis for either facility. In RLWTF, while the increase in tritium concentration exceeded the drinking water thresholds the facility uses as a limit, it was orders of magnitude lower than the amount of tritium analyzed in the safety basis. For the Plutonium Facility, while there was an acknowledgement that this scenario where material returned to the facility was not analyzed in the safety basis, the quantities were so small, they could be considered as contamination level and were covered in other hazard analysis scenarios. The resident inspectors believe it would be prudent to do a more thorough, bounding analysis of this type of scenario as part of the development of the new safety basis for the Plutonium Facility. Triad personnel are continuing to recover from the event and are actively decontaminating the inlet air dryers. They also plan to decontaminate the glovebox where the tritium work took place, repair and upgrade the gas treatment system, and rewrite procedures for tritium operations to include weather condition checks and other improvements.

Plutonium Facility–Infrastructure: NNSA’s Technical Independent Project Review team issued the final report for its review of a subproject of the Los Alamos Plutonium Pit Production Project (see 8/4/2023 report). The report concluded that the safety basis documentation is at an appropriate level of maturity for this stage of the project with an approved safety design strategy and a submitted preliminary documented safety analysis. The report had eight recommendations, three of which were within the technical scope. Those were: update the technical maturation plan to identify critical attributes of systems that need to be identified to support achievement of technical readiness level seven, complete an analysis of upset conditions within a glovebox that could result in fire and explosion hazards, and identify and implement actions to accelerate assessment of actual demands for utilities and balance of plant systems to determine if modifications/upgrades are required to ensure that final installed systems will fully support mission needs.

The Plutonium Facility exited its outage and returned to normal operations on Monday (see 10/13/2023 report). During the final stages of the outage, facility personnel replaced many of the sprinkler heads in one side of the basement to support the upcoming 50-year replacement cycle. They also completed planned high voltage electrical work.

Federal Oversight: The Environmental Management Field Office conducted training for all staff on oversight. This training was a corrective action stemming from an assessment of the N3B contractor assurance system and the Field Office’s oversight activities earlier this year (see 2/24/2023 report). The training covered the fundamentals of oversight including contractual requirements; executing oversight activities such as assessments and surveillances; and effective issue identification and communication. The Field Office is planning additional training on this topic.