

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 13, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: E. Freeman and D. Gutowski, Resident Inspectors
SUBJECT: Los Alamos Activity Report for the Week Ending September 13, 2024

Staff Activity: M. Bradisse and R. Jackson were onsite to prepare for a review of design and installation of new gloveboxes in the Plutonium Facility.

Plutonium Facility–Criticality Safety: Last week, workers brought several legacy items into the bonecrusher glovebox for pulverization and processing. While preparing the items, the workers noticed that one item exhibited sparking. To avoid a potential energetic event, they segregated that item per procedure (see 6/14/2024 report), processed the remaining items in the bonecrusher, and separated the resulting pulverized material into multiple containers. However, while removing this processed material from the glovebox, a container was inadvertently left unlabeled in the glovebox. This week, a different set of workers brought additional items into the glovebox for processing. After pulverizing these items, the workers attempted to load the material into the unlabeled container, which they thought was empty. After discovering that said container had pulverized material inside, they paused work and declared a potential process deviation. Upon reviewing the inventory data for the glovebox, facility personnel determined that the box exceeded the posted criticality safety mass limit. At the fact finding for this event, the workers stated that the potential energetic item garnered a lot of their attention because of a fire in the bonecrusher late last year (see 11/10/2023 report); this distraction likely contributed to the container being missed. Recovery of the glovebox and room is in progress.

Plutonium Facility–Decontamination and Decommissioning: Late last week, Triad personnel commenced size reduction of pencil tanks. These safe geometry tanks are being removed from laboratory rooms to allow space for future equipment installations. They are being cut with a saw inside a glovebag installed inside of a contamination control tent in a laboratory room.

PF-400–Radiological Control: Last Wednesday, workers in PF-400 were heating a vial of plutonium and hydrochloric acid solution on a hot plate inside a vented hood. During the heating process, the solution experienced a rapid boiling event which splashed liquid outside of the vial and onto the hood sash, the hot plate, the surrounding surface area, and on the ground. Responding radiological control technicians surveyed the room and the workers; there was no personnel contamination. However, they discovered significant contamination levels within the fume hood and on the floor in front of the hood. Work in this room is restricted pending further decontamination efforts. The likely cause of this rapid boiling was superheating in the smooth interior surface of the glass vial. Corrective actions under evaluation include: developing means to avoid superheating such as adding nucleation sites or agitating solutions during heating, adding additional personal protective equipment such as face shields, and communicating this event to other workers who heat samples.

Legacy Facilities: The Independent Verification Review team completed the onsite portion of its review of implementation of the new safety basis for Building 21-0257 and the Industrial Waste Lines (see 9/6/2024 report). At their outbrief, the team members stated their conclusion that the safety basis can be implemented and presented one post-start finding related to training.