

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 17, 2025

TO: R.T. Davis, Acting Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending January 17, 2025

Nuclear Explosive Facilities: The Pantex contractor has been transitioning nuclear explosive facilities from existing electrostatic dissipative (ESD) epoxy floors to new ESD floor tiles. Pantex relies on ESD controls to prevent electrostatic discharge hazards to sensitive energetic components and certain nuclear explosives. The resident inspectors have continued to follow implementation of the ESD floor tiles since the nuclear explosive safety evaluation was held in 2023 (see 11/3/2023 report).

This week, the resident inspectors attended a PXD event investigation for a recent event in which PXD quality assurance technicians observed an electrostatic discharge from a nuclear explosive transportation cart to nearby special tooling in a special purpose facility. The resident inspectors were in attendance as they continue to follow issues related to the new, recently installed electrostatic dissipative tiles. The day after the electrostatic discharge event, PXD resumed operations in this facility after determining that changes do not need to be made to any associated process or tooling. After further analysis, PXD discovered several other nuclear explosive transportation carts, including those utilized in the facility where the discharge occurred and those used in other facilities, that may be incompatible with the ESD tiles. Preliminary information indicates that this design incompatibility could prevent the carts from properly grounding to the ESD tiling, which can cause an electrical energy to accumulate subsequently discharge, as observed by the PXD technicians (see 1/10/2025 report).

During the investigation, PXD personnel identified two gaps: first, that the tooling compatibility review did not identify the ESD tile compatibility issue for a certain cart prior to installation of the ESD tiles in that facility where that cart is used; and second, that certain drag straps—used to electrically ground nuclear explosive transport carts—are currently incompatible with the ESD tiles, as demonstrated through testing. PXD identified one candidate action: to develop an engineering evaluation documenting why PXD does not have ESD incompatibility concerns for other facilities with ESD tiles and other weapon programs within the facility where the electrostatic discharge occurred. The justification in this engineering evaluation is required to exit the stop work event that PXD previously initiated.

The Pantex contractor has previously encountered other ESD tile interface issues associated with workstands for certain weapon programs, including misalignment between a transportation cart and the workstand (see 11/29/2024 report), and damage to special tooling used to spread the load of a workstand across the ESD floor tiles (see 9/13/2024 report). Since then, PXD personnel have been evaluating modifications of certain workstands to resolve the interface issues. During previous discussions with the resident inspectors, PXD personnel presented prototypes of certain workstand modifications for the resident inspectors to examine (see 12/20/2024 report). The resident inspectors plan to continue discussions with PXD tooling and machine design and special tooling personnel as these modifications are developed and implemented.