

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 26, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: A. Gurevitch, M. Bradisse (acting), and C. Berg (acting), Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending November 26, 2021

Loss of Two-Person Control: This week, while personnel were performing fire system preventive maintenance activities in a nuclear explosive bay, a small quantity of water leaked out of the deluge system and onto other equipment. There was no nuclear material in the facility during these activities, and CNS had previously placed the facility into maintenance mode. Following the water leak, NPO facility representatives and maintenance personnel entered the facility to investigate. While in the facility, an individual opened a drawer labeled as containing Category 1 electrical equipment, assuming that the drawer was either empty—given that there was no nuclear material in the bay—or that all equipment in the facility would need to be removed anyway and inspected for water damage. The drawer contained multiple Category 1 electrical cables, which are used at Pantex to make direct connection to and interrogate the electrical circuitry of nuclear explosives. The individual replaced the equipment, exited the bay, and informed production management of what occurred approximately an hour later. At the event investigation, the individual stated that they made an incorrect assumption and should not have opened the drawer.

When personnel are present in facilities with Category 1 electrical equipment, such equipment must be secured or under the control of qualified personnel at all times. Typically, the latter statement is understood to mean that qualified personnel must either maintain visual contact with the equipment or be in a position to hear whether such equipment is being accessed and/or manipulated. At Pantex, this is referred to as “zone coverage.” At the event investigation, participants determined that a subset of the maintenance personnel in the facility were the qualified individuals maintaining zone coverage during these activities (i.e., they had custody of the bay and the equipment inside it). Those individuals stated they were maintaining zone coverage while working in the equipment interlock by keeping an inner blast door to the bay open, with direct line of sight to the equipment drawer. However, those individuals also stated that they did not see or hear the individual open the drawer. This set of events therefore constituted a loss of two-person control of the Category 1 electrical equipment and was categorized as a violation of the two-person concept for nuclear explosive operations.

CNS and NPO personnel at the event investigation and critique questioned whether zone coverage was properly maintained, and whether clear guidance exists for the responsibilities of maintenance personnel—or any other personnel—who have custody of a nuclear explosive facility. Typically, those responsibilities are well understood by production technicians, who work more closely with Category 1 and other critical equipment, but they may be less clear for other personnel who perform different types of work in these facilities. As a corrective action, CNS committed to evaluate whether roles and responsibilities, as they relate to zone coverage and custody of nuclear explosive facilities during maintenance activities, should be clarified.