DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 7, 2025

TO: Technical Director
FROM: Pantex Plant Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending March 7, 2025

Unplanned Power Outage: This week, PXD reported an unexpected loss of power in multiple nuclear explosive bays. PXD electricians determined that the power loss was caused by a ground fault in one of the substation electrical bus ducts that supplies power to the affected facilities. Subsequently, PXD electricians disconnected supply power to the bus ducts and performed inspections. In addition to confirming the ground fault in one of the bus ducts, PXD electricians noted that an adjacent bus duct had previously been modified due to similar degradation. After power was lost to the fire protection and blast door interlock systems in these facilities, PXD personnel placed affected operations in safe and stable configurations and entered the relevant limiting conditions for operations. PXD fire protection engineers established combustible standoffs and PXD facility representatives limited facility access. Currently, PXD is evaluating temporary and long-term repairs to return power to these facilities.

Nuclear Explosive Component Issue: Last week, PXD technicians noted a distinct odor in the vicinity of a certain nuclear explosive component within a facility. After exiting the facility, the technicians relayed details to personnel from other PXD groups, such as Mission Engineering and relevant safety groups. Additionally, a PXD facility representative restricted access to the facility. This week, PXD personnel from various safety organizations verified that facility conditions were safe for reentry. Subsequently, the resident inspectors and personnel from various PXD and NNSA groups entered the facility to visually assess this component. Currently, personnel from PXD and the applicable design agency are reviewing the condition of the component and evaluating whether additional measures are necessary for staging and transportation.

Nuclear Explosive Facilities: Earlier this year, PXD facility engineering personnel determined that nonconservative methodologies were used to analyze the effects of site vehicle impacts to certain nuclear explosive facilities. PXD safety analysis engineering (SAE) determined the potential inadequacy of the safety analysis represented a positive unreviewed safety question due to the potential increase in the probability and consequence of vehicle impact scenarios evaluated in the safety basis. Subsequently, PXD SAE established a small standoff distance from the facilities during vehicle use as an operational restriction (see 1/24/2025 report).

Last week, PFO approved removal of the operational restriction after reviewing the formal PXD evaluation of the safety of the situation (ESS). Within the ESS, PXD provides its rationale for asserting that a standoff distance is not necessary for safe operation of vehicles near these facilities. In the approval memo, PFO noted that, despite the increased probability of structural failure from vehicle impacts, the standoff distance is not required due to existing qualitative measures, which include “conduct of operations, robust facility design, and material-at-risk in transportation configurations or containerized.” However, the resident inspectors note that (1) concerns remain with the robustness of the facility design for these impact scenarios and (2) the transportation configurations and containers are not credited to withstand structural failure of these facilities.