

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 1, 2025

**TO:** Technical Director  
**FROM:** Pantex Plant Resident Inspectors  
**SUBJECT:** Pantex Plant Activity Report for Week Ending August 1, 2025

**Conduct of Operations:** Last week, PXD gas laboratory engineers received abnormal gas sample analysis results from a nuclear explosive during assembly operations. Upon further investigation, PXD discovered that the production technicians had used an incorrect gas cylinder, introducing improper gas into the unit during the operation. While this gas does not pose a safety concern, PXD issued a nonconformance for the unit. This week, PXD convened a fact-finding meeting after developing a nuclear explosive engineering procedure and resuming operations. At this meeting, PXD noted that there is no requirement or consistency concerning the color of gas cylinders used at Pantex. Additionally, while setup steps within the applicable procedure specify which gas to use, the actual operational steps do not delineate this information. Despite identifying these contributing factors, PXD listed only one performance gap, which stated that incorrect gas was used in a nuclear explosive. PXD personnel discussed plans to perform a causal analysis for this event to develop actions to prevent recurrence.

Previously, after a similar event in which technicians connected an incorrect gas cylinder to a unit, the Pantex contractor determined that the technicians did not verify the gas cylinder contents or identification number, as required by the operating procedure. As a result, the contractor developed a corrective action to increase the font size on gas cylinder labels, despite identifying several other potential corrective actions—e.g., color-coding gas bottles or labeling (see 6/9/2023 report). During the current fact-finding meeting, the resident inspectors asked if these actions were complete, but PXD personnel present did not know the status of those actions.

**Fire Alarm Receiving System (FARS):** This week, PXD conducted fact-finding meetings to discuss the inadvertent loss of communications between FARS and the Emergency Services Dispatch Center (ESDC) during maintenance activities (see 7/25/2025 report). During this meeting, PXD fire protection engineering explained that maintenance activities had been performed on FARS the previous day, resulting in trouble signals for numerous nuclear explosive and special nuclear material facilities. Because these trouble signals mask fire suppression system alarms and actuations, PXD entered the applicable limiting conditions for operations (LCO) for an inoperable FARS. This LCO only requires a status check of the affected fire protection systems once per shift. PXD returned FARS to service and exited the LCO without performing a test of the system. The following day, PXD performed subsequent maintenance that was not expected to disrupt FARS communications. Upon completion of this maintenance, PXD again did not test the system. Hours later, the ESDC received trouble signals indicating that FARS was unable to send fire suppression system alarm or actuation communications to the ESDC. This raises several questions, including (1) whether PXD can meet all other related Technical Safety Requirements (TSR)—e.g., timely fire department response to fires—when FARS does not communicate fire suppression system alarms or actuations to the ESDC, (2) whether PXD can exit an LCO without performing surveillance testing on the affected system, and (3) whether failure to enter the LCO for maintenance meets TSR expectations. Currently, PXD plans to conduct a causal analysis for this event to develop actions to prevent recurrence.