DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 14, 2025

TO: Technical Director
FROM: Pantex Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending February 14, 2025

Staff Activity: This week, the Board's cognizant engineer was onsite to attend site activities, receive updates on recent events and issues, conduct walkdowns of nuclear explosive facilities, and provide resident inspector support.

Safety Basis: This week, PXD safety analysis engineering declared a potential inadequacy of the safety analysis after receiving formal notification from one design agency that the organization could no longer support the mechanical insult weapon response rules provided for a certain weapon program. This notification mirrors a previous communication from the same design agency for a different weapon program (see 10/20/2023 report). The design agency conveyed that this new information is related to mechanical insult weapon response threshold values (e.g., potential nonconservative assumptions regarding impactor head size and impact mitigation provided by materials within the unit).

Until updated weapon response can be provided, and control strategy adequacy determined at Pantex, PXD has instituted an operational restriction, as well as a stop-work event, to prohibit all nuclear explosive operations on this weapon program, excluding transportation and staging.

Conduct of Maintenance: Last month, PXD refrigeration mechanics opened an electrical junction box on the side of a chiller, part of the heating, ventilation, and air conditioning system for several nuclear explosive bays, to identify potential freon leaks. During this planned corrective maintenance activity, the mechanics inadvertently placed their freon detector probe in contact with the live electrical connections on the chiller. As a result of this electrical short, the breakers opened for several nuclear explosive bays, causing a loss of power to the facility. Additionally, several other nuclear explosive bays did not remain within prescribed humidity levels without this heating, ventilation, and air conditioning system in service. As a result, PXD placed operations within all the affected defense nuclear facilities in a safe and stable configuration as necessary.

During the event critique, PXD personnel noted that the mechanics are qualified electrical workers and wear some electrical personal protective equipment as part of their normal work attire. Notwithstanding, PXD did not perform a hazard analysis for this maintenance work order, which would have resulted in evaluating hazards associated with the open electrical junction boxes on the chiller. PXD stated that if the organization would have properly completed this analysis during work planning, the mechanics would have been required to wear an arc-flash-rated face shield and hood along with their normal electrical protective equipment. In response to the event, PXD plans to further assess the facility equipment. Additionally, PXD intends to brief all craft workers on the importance of recognizing changing hazards during execution of maintenance activities and initiating appropriate hazard mitigation as necessary.