

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 11, 2025

TO: Technical Director
FROM: Pantex Plant Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending July 11, 2025

High Pressure Fire Loop (HPFL): This week, a PXD facility representative declared the HPFL system inoperable after being notified by PXD fire protection engineering that a diesel fire pump was not operating correctly. During a weekly operability verification for a diesel fire pump to satisfy HPFL surveillance requirements, PXD fire protection engineers discovered a surging condition in which the pump output pressure was erratic. Currently, PXD only has two available diesel fire pumps due to an ongoing construction and upgrade project for a separate fire pump house (see 6/27/2025 report). At the time of this event, PXD had not yet implemented the recently approved compensatory measures that would have provided an allowance within the Limiting Condition for Operations (LCO) to utilize the electric maintenance pump should one of the two required diesel fire pumps fail. As a result of this event, PXD declared the HPFL system inoperable and entered the applicable LCOs, which require placing all operations within defense nuclear facilities into a safe and stable configuration.

During troubleshooting, PXD fire protection engineers determined that a sensing line for the pump discharge pressure—used to govern the rotational speed of the diesel fire pump—was obstructed with air. After bleeding the air from the sensing line, PXD reperformed the verification test with passing results. Currently, PXD fire protection engineering believes air was introduced into the system during recent annual preventive maintenance activities and is developing actions to include instructions to bleed potential air accumulation from this line for future HPFL maintenance activities. Additionally, PXD is planning to convene a fact-finding meeting to identify performance gaps and develop any additional corrective actions.

Nuclear Explosive Safety (NES) Master Study: Earlier this year, a NES study group (NESSG) conducted a NES master study for special purpose facilities at Pantex. The scope of this study included facilities such as rampways, corridors, loading docks, magazines, and special purpose nuclear explosive bays, including those used for radiographic evaluations, mass properties tests, and vacuum chamber operations (see 2/28/2025 report). Last week, the NESSG released its final report, which documented two findings, twenty-one deliberation topics, and three senior technical advisor comments. The two findings are related to the electrostatic dissipative (ESD) environment relied upon within some of these facilities. In the first finding, the NESSG identified unmitigated energy sources in certain facilities with partially controlled ESD environments. The NESSG highlighted concerns with the possibility of an electrostatic discharge event, such as the one that occurred earlier this year (see 1/10/2025 report), given the potential consequences when certain nuclear explosives are present. The NESSG concluded that the presence of unmitigated energy sources does not meet the intent of the requirements in DOE Order 452.2. In the second finding, the NESSG documented concerns regarding the test methodology used for the new ESD tiles (see 5/16/2025 report). The NESSG listed several ways in which the tests may not adequately assess the ability of the tiles to perform their safety function. The NESSG concluded that “[t]he ESD floor tiles have not been adequately validated through analysis and testing” and noted that this issue may not be unique to these facilities.