DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 3, 2025

TO: R.T. Davis, Acting Technical Director
FROM: A. Holloway and C. Stott, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending January 3, 2025

Safety Basis: Recently, PXD safety analysis engineering declared a potential inadequacy of the safety analysis (PISA) after discovering the weight of certain special tooling exceeded values reflected in safety basis documentation. PXD determined this PISA represented an unreviewed safety question. PXD is working with the associated design agency to update the weapon response for potential impact scenarios to account for this weight increase. PXD did not enact any operational restrictions as a result of this PISA due to other design features already in place that preclude an impact scenario.

Separately, PXD safety analysis engineering declared another PISA after discovering that the safety basis permitted certain electrical tester use at heights that could result in postulated drop scenarios exceeding impact energy thresholds for adverse consequences. Previously, the associated design agency lowered this impact energy threshold for the weapon configuration, but the Pantex contractor did not recognize this change and make a corresponding reduction to the allowable tester height within the safety basis. PXD has adjusted the allowable tester height and subsequently declared this issue as not representing an unreviewed safety question.

Conduct of Operations: During recent weekend overtime work, PXD production technicians paused operations in a nuclear explosive bay after receiving an out-of-tolerance result from an electrical test during assembly operations. The technicians received guidance for placing the unit into a safe and stable configuration by the on-call PXD process engineer, who arrived at the facility, and from nuclear explosive safety (NES) personnel, who spoke with the technicians by phone. After placing the unit in a safe and stable configuration, the PXD process engineer, production section manager, and production technicians discovered that several steps within the procedure had been inadvertently skipped, and that the unit was not in the expected configuration for this test. PXD NES personnel were only notified of the incorrect configuration the following Monday, and subsequently categorized this as a condition that resulted in an adverse effect on nuclear explosive safety.

During the event investigation, PXD personnel explained that the technicians were in the middle of replacing a cable with previously identified degradation. The technicians had performed the steps in the nuclear explosive engineering procedure, which then directed them back to the original procedure to perform steps that were previously completed. This practice results in the reworked steps being double stamped. The technicians that discovered the out-of-tolerance test result had started in the procedure at the last single-stamped step, rather than the last double-stamped step. Consequently, the technicians bypassed multiple steps and began performing operations much further in the procedure than expected. PXD personnel discussed their intent to brief all production technicians and production section managers on this event. PXD also discussed plans to conduct a causal analysis to evaluate how the rework process can be enhanced, as well as the turnover process between production shifts.