DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 3, 2016

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais, Pantex Site Representatives
SUBJECT: Pantex Plant Report for Week Ending June 3, 2016

Concrete Strength Testing: CNS conducted and the site representatives attended a critique held to gather information necessary to determine the events that led to concrete installed in two nuclear explosive cells as part of a high pressure fire loop lead-in replacement project not meeting code specified strength requirements (see 11/6/2015 and 5/27/2016 reports). Pantex senior management attended and actively participated in the critique. Failures occurred within multiple organizations that allowed this event to occur. The original project design treated the affected portion of the floor as part of the safety class structure. Following an acceleration of the project schedule and changes to the splice technique used in the project, design engineering requested that facility engineering determine if the cell floor was designated as a safety class structure. A facility engineering staff member informally responded that it was not credited for its structural integrity, a position not currently supported by engineering management. The site manual that defines the design change process as it relates to modifications to safety systems requires that the authority for the authorization basis determine if the unreviewed safety question determination for the design change remains valid. This process was not initiated or completed. Following the incorrect determination that the structure was not part of the safety class system, design engineering changed the design to use a rapid set concrete mix, rather than the originally specified mixture, to facilitate the accelerated timeline. They also decided to not perform concrete cylinder tests as part of the placement, based partly on published test results from the rapid set concrete supplier. The published strengths significantly exceeded those obtained through recent testing of cores taken from the installed floor. CNS is determining a path forward to correct the condition and install flooring that meets applicable requirements.

Emergency Drill: A site representative observed CNS conduct an emergency training drill requiring the Emergency Response Organization to respond to a car bomb explosion in a non-nuclear area of the plant from an alternate emergency operations center (AEOC). Personnel from the Emergency Management Department provided effective coaching and training feedback to players throughout the drill and as part of the post-drill hotwash. The drill demonstrated technology resource challenges similar to a January exercise conducted at a separate AEOC location (see 1/29/2016 report).

Pause in Operations: Production technicians (PT) paused operations in a nuclear explosive cell this week after encountering a foam component that would not separate per the normal process. As part of the determination to declare the unit safe and stable, the nuclear explosive safety representative requested that the PTs lower the assembly and move the swing arm installed on the workstand to protect the unit. Production and Manufacturing Engineering developed a nuclear explosive engineering procedure directing the PTs to score the adhesive material, separate the foam component from the unit using plastic spatulas, and manually remove the component. PTs successfully executed the procedure. The site representatives observed the component after removal and discussed the operation with the PTs, whom noted that they had not seen this condition previously for units from this program. Complete disassembly of the unit required a cut and cap operation as well, a credible deviation allowed by the nuclear explosive operating procedure.