

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 21, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Zachery S. Beauvais and Miranda McCoy, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending February 21, 2020

Electrostatic Discharge (ESD): While performing a review of the applicable hazard analysis report, CNS safety analysis engineers identified that ESD hazards from the facility crane hoist to the unit are not analyzed for all configurations on one weapon program, and thus may not be adequately controlled. The Pantex documented safety analysis (DSA) requires the facility crane hoist to be electrically connected to the facility Faraday cage, with minimum resistance; however, that control was not specifically analyzed for applicability to these potential hazards. CNS safety analysis engineering determined that this situation represented a potential inadequacy of the safety analysis (PISA), and later upgraded the PISA to a positive unreviewed safety question. CNS management implemented an operational restriction to preclude hoisting activities in one nuclear explosive cell that is not currently operational.

Falling Items: While performing a monthly inspection of the facility crane assembly, CNS maintenance personnel observed a plastic cable tie, used to secure pneumatic lines, fall from the overhead facility crane hoist in a nuclear explosive bay. The hoist was parked in an approved parking location and the falling item did not have the potential to impact a nuclear explosive. The Pantex DSA requires all ceiling mounted appurtenance to remain in place. The falling cable tie represented a non-conformance with this requirement. Additionally, CNS safety analysis engineers determined that a new control was necessary to address the potential for failure of plastic cable ties and declared a potential inadequacy of the safety analysis. CNS management paused the use of facility hoists with installed plastic cable ties in nuclear areas. CNS facilities and maintenance personnel completed an immediate extent of condition review and began replacing plastic cable ties with stainless steel ties. The stainless steel ties are subject to commercial grade dedication and are not expected to fail in a similar manner. CNS had previously committed to replacing the plastic cable ties with stainless steel versions in a corrective action plan developed after a similar, previous issue (see 3/2/18 report). CNS facility engineering is releasing individual facilities after the new ties have been installed.

Nuclear Explosive Operations: CNS metrology personnel completed their evaluation of the tester and cable used for a recent failed electrical test on a nuclear explosive (see 2/14/2020 report). They did not find any anomalies that would indicate an issue with those components. CNS mission engineering submitted a request to the cognizant design agencies to confirm the applicability of existing weapon response rules related to repeating the electrical test. DOE nuclear explosive safety directives require that NNSA conduct a nuclear explosive safety change evaluation before any additional testing is performed on the unit.

The resident inspectors observed activities in the training bay related to development of prototype controls to address internal charge generation hazards on a separate program (see 1/18/19 report). CNS process and safety analysis engineers discussed human factors considerations in the process design, the design of new bonding cables and future plans for inspection of the cables prior to their initial use.