

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 20, 2015

**MEMO TO:** Steven Stokes, Technical Director  
**FROM:** Zachery Beauvais, Pantex Site Representative  
**SUBJECT:** Pantex Plant Report for Week Ending November 20, 2015

**DNFSB Staff Activity:** D. Andersen was onsite to augment the Board's site coverage.

**Potential Inadequacy of the Safety Analysis (PISA) for Charge Generating Steps:** This week, the Board staff member observed personnel from Consolidated Nuclear Security, LLC (CNS), and the design agency conduct tests to address a recently declared PISA related to triboelectric charge build-up during cell disassembly (see 11/13/15 report). The tests were performed on an inert trainer for each of the two affected weapon programs to measure voltage rise in the components during various steps in the disassembly process. CNS Systems Engineering had not developed a specific testing procedure prior to performing the tests. Most of the obtained measurements were relatively low voltage, but one of the voltage readings obtained during the tests exceeded the range of the testing equipment. The site representative and Board staff member are concerned that the use of a single measurement for each step where triboelectric charge generation is possible may be insufficient to conclusively demonstrate that hazardous levels are not possible. During their unreviewed safety question (USQ) determination, CNS Safety Analysis Engineering identified potential charge generation hazards during assembly and disassembly operations conducted in nuclear explosive bays and extended the PISA to address these hazards as well. Based partly on the results of the testing, CNS subsequently determined the conditions addressed in the PISA resulted in a negative USQ.

**Damaged Electrostatic Discharge (ESD) Dissipative Floor Covering:** On November 17, 2015, the Board staff member observed personnel from CNS Facility Engineering perform a structural inspection of the nuclear explosive bay where moisture seepage through the floor and localized delamination and cracking of the ESD dissipative floor covering were observed last week (see 11/13/15). The structural engineers examined and photographed the damaged ESD dissipative floor covering and are preparing recommendations for how to address the cause of the water intrusion and damage. CNS successfully executed a Nuclear Explosive Engineering Procedure to remove the unit from the facility earlier this week. CNS will use the bay for staging of configurations not requiring ESD dissipative floor covering until the repairs are made.

**Special Tooling Design Discrepancy:** CNS Tooling Design engineers determined that the design for an assembly stand used on two weapon programs allows for it to be manufactured with a base thickness less than the functional requirement specified in the Hazard Analysis Report (HAR) for one weapon program. Specifically, the HAR requires the assembly stand to be designed with a base height of at least 1½ inches in order to reduce the kinetic energy of carts prior to impacting a unit in the assembly stand. Considering manufacturing tolerances, the design drawings for certain revisions of the stand specify it to be manufactured from stock that could be less than the thickness required by the safety basis. The discrepancy was discovered during an extent of condition review specified as a corrective action stemming from a January 2015 PISA related to this same functional requirement (see 1/16/2015 report). CNS has removed all versions of the assembly stand subject to the thickness requirement from service in order to determine if the as-built dimensions satisfy the functional requirement. At the time of this report, these measurements have not yet been completed.