

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 25, 2019

TO: Christopher J. Roscetti, Technical Director
FROM: Zachery S. Beauvais and Miranda McCoy, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending October 25, 2019

Safety Basis: CNS safety analysis engineering (SAE) recently declared potential inadequacies of the safety analysis (PISA) related to a variety of technical issues.

- CNS SAE identified that hazards related to the use of a task exhaust stand on multiple weapon programs may not be bounding. CNS previously identified concerns related to the electrical continuity of this piece of tooling (see 7/12/19) and addressed the concerns through physical modifications. CNS SAE declared an additional PISA impacting three separate weapons programs that use this tooling. CNS management has paused the use of task exhaust on these programs and SAE is developing a JCO to implement compensatory measures related to the use of this equipment.
- While performing an extent of condition review for legacy safety basis issues, CNS SAE identified unrelated errors in probability calculations performed by software used for Pantex safety basis development (i.e., Collaborative Authorization for the Safety-basis Total Lifecycle Environment – Pantex). The errors changed the stated accident likelihoods for events after controls had been applied. SAE later determined that this situation represents an unreviewed safety question.
- The Pantex documented safety analysis includes a specific administrative control restricting the movement of nuclear explosives, certain joint test assemblies and high explosives over floor grates present in nuclear explosive cells. CNS SAE identified that the control should have also applied to the movement of other explosive types over floor grates. While operations with these other types of explosive components are not normally performed in nuclear explosive cells, CNS instituted operational restrictions barring these components from entering impacted facilities.
- The cognizant design agencies provided new information to Pantex identifying several additional internal charge generation hazards on one weapon program. An NNSA issue resolution group was previously established to address these hazards (see 1/18/19 report) and a team from CNS and the design agencies performed additional electrical testing related to these hazards. Operations on this program remain paused.
- CNS SAE prepared a JCO following the identification of a PISA and USQ related to the use of commercially procured components within credited special tooling (see 10/18/19 report). The JCO identifies one set of compensatory measures, which requests NPO approval to apply the design standards currently captured in the CNS internal special tooling manual to commercial components in credited special tooling. NPO reviewed and approved the JCO with one condition of approval requiring CNS to develop a plan to determine the safety margin between the actual load and manufacturer's rated load for commercial components utilized in credited load bearing special tooling.