

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 2, 2018

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais, Pantex Plant Resident Inspectors
SUBJECT: Pantex Plant Report for Week Ending February 2, 2018

DNFSB Staff Activity: T. Hunt observed and evaluated the second week of the nuclear explosive safety (NES) master study of special tooling and qualified containers.

Cell Emergency Lighting: CNS successfully executed a troubleshooting work order to address a fault in the electrical power supply for a subset of emergency lights in a nuclear explosive cell and completed additional testing and repairs (see 1/26/18 report). CNS revised multiple documents to cover the scope of work including adding five pieces of electrical equipment, e.g., multimeter and power meter, to the Category 3 master equipment list, adding the electrical equipment to the maintenance safety checklist while restricting their usage to cell corridors or cell equipment rooms, and modifying the proposed work order to include the equipment restrictions. CNS NES and safety basis personnel reviewed these changes per their respective change evaluation processes. During troubleshooting, the craft personnel determined that the installed voltage regulator had caused the fault. Crafts personnel replaced the voltage regulator and completed post-maintenance testing per the work order.

Second Person Verification: During an extent of condition review initiated following the discovery of incomplete implementation of controls intended to prevent pneumatic hose-whip hazards (see 1/19/18 report), CNS process engineers identified the incomplete implementation for a separate specific administrative control on the same weapon program. This discovery was determined to represent a violation of the technical safety requirements. The hazard analysis report specifies that protective covers, credited as part of the electrostatic discharge hazard control set, must be installed in certain unit configurations, and the installation must be verified by two technicians. The requirement was introduced following special tooling upgrades in 2012. Two nuclear explosive operating procedures (NEOP) were discovered to have implemented the installation steps, but failed to uniformly include the requirements for dual verification. Execution of the impacted NEOPs have been administratively paused while the procedures are updated to correctly reflect the requirements. A similar violation was identified on a separate weapon program in 2017 (see 10/27/17 report), where CNS discovered that NEOPs failed to implement dual verification requirements for tooling installation.

Qualified Containers: The resident inspectors attended a briefing provided by members of the CNS issue resolution team (IRT) to NPO and NNSA headquarters personnel on the current status of response efforts undertaken following the discovery of corrosion on AL-R8 sealed insert containers (see 5/19/17 and 12/14/17 reports). CNS team members briefed the results of the recently completed extent of condition surveillance campaign, wherein sixty-two containers were evaluated and inspected. The sampled containers encompassed all thermal categories of special nuclear material (SNM) stored at Pantex. Through the evaluation, CNS identified corrosion, of varying severity, on all examined containers from the two highest thermal categories. No corrosion was identified on the other containers. These results fit with a theoretical model that suggests the rate of corrosion is linked with the heat output of the contained SNM. The IRT presented preliminary options for permanently addressing these conditions, but will hold-off on providing a conclusive recommendation until their final results are reported.