

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 26, 2016

MEMO TO: Steven Stokes, Technical Director
FROM: Zachery Beauvais, Pantex Site Representative
SUBJECT: Pantex Plant Report for Week Ending February 26, 2016

DNFSB Staff Activity: E. Gibson and D. Shrestha held quality assurance related discussions with Consolidated Nuclear Security, LLC (CNS) and NNSA Production Office (NPO) personnel.

Canned Subassembly (CSA) Removal: PTs successfully removed the CSA from a unit where the normally executed process had previously failed to allow its removal (see 2/19/2016 report). Following receipt of a Special Instruction Engineering Release (SIER) from the cognizant design agency, CNS Production and Manufacturing Engineering personnel developed a Nuclear Explosive Engineering Procedure (NEEP) to remove installed tooling, inspect the unit, reinstall the tooling and attempt CSA removal. The NEEP allowed PTs to use the workstand to apply an upward force to the CSA. In the event that the CSA did not release, the NEEP directed the PTs to leave the pressure applied to the unit for less than one working shift. During the first attempted removal last week, additional components remained attached to the CSA, increasing the load on the tooling. The SIER and NEEP acknowledged the possibility that this may occur and CNS Tooling and Machine Design developed an engineering evaluation (EE) of the potential loads. The EE concluded that the tooling would support the load from the CSA and additional attached components with a safety factor of 2.18:1. While the specific tooling is not credited in the DSA to perform a load bearing function, the special tooling design manual does require such tooling to be designed with a 3:1 safety factor. Tooling and Machine Design personnel determined through engineering judgement that this margin was acceptable for a one time operation. The site representative observed the configuration after the removal was completed. The CSA displayed minor scratches, discoloration and localized residue. The residue was noticeably rougher than the CSA case and may have impeded removal. While in the facility, the site representative observed a piece of special tooling hanging from an electrical outlet box and shared this observation with the Production Section Manager. He agreed that this was not the optimal staging location for the tool but stated that it is a common practice on this program.

Cracked High Explosive Removal: PTs attempted to perform a NEEP developed to complete disassembly of a unit with a cracked conventional high explosive charge (see 1/15/2016 and 2/19/2016 reports). The site representative observed this operation. The NEEP developed for this operation directs PTs to separate the charges along the equator. On two occasions during the separation, PTs consulted the CNS process engineer to provide guidance when the separation approached the cracks. In each of these cases, the process engineer determined that the tape and bands installed on the charge would prevent the separation from extending to the crack and advised the PTs to proceed. The operation required significant physical effort from the PTs and generated debris from the high explosive crumbling along the path of the separation – a common occurrence for similar processes. PTs were able to successfully separate the charges; however, they were unable to separate a significant component from the intact charge. The NEEP acknowledges this possibility and directs CNS to monitor the configuration until the component releases. At the time of this report, the component had not separated from the charge. CNS Production and Manufacturing Engineering personnel are considering different options to proceed with disassembly and removal of the cracked charge.