

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: Timothy Dwyer, Technical Director
FROM: Matthew Duncan and Rory Rauch, Pantex Site Representatives
SUBJECT: Pantex Plant Report for Week Ending December 3, 2010

B53 Operations: The pit and a main charge high explosive (HE) component have yet to separate on the first B53 SS-21 production unit. Tooling design engineers are in the process of redesigning the HE holding plate to expedite the separation for both the current unit and future dismantlements. As previously reported, tooling design engineers have modified the design of the HE holding plate to increase the downward force on the HE component using two spring-loaded jackscrews (see 11/12/10 report). Recently, tooling engineers further revised a specification of the tool by requiring lubrication of the compression ring assembly. This change reduces the frictional forces associated with the torquing of the ring, thereby increasing the radial compression on the pit and enhancing the ability of the tool to hold the load generated by the pit, jackscrews, and HE. Manufacturing personnel plan to install this revision of the tool on the in-process unit early next week.

Tooling engineers are also designing an enhanced version of the HE holding plate for future dismantlements or in the event that the two-jackscrew revision is ineffective. This modification would add two jackscrews (for a total of four) to maximize the amount of force on the HE component while remaining below weapon response screening thresholds for both the HE and the pit (with an acceptable weapon response margin remaining). Tooling engineers anticipate that this design will be available by the end of January 2011.

Two weeks ago, PXSO questioned some aspects of the analysis associated with the original version of the HE holding plate. Upon further investigation, B&W concluded that the analysis did not fully demonstrate whether the tool could support all anticipated loads with the required minimum safety factors. B&W subsequently declared a potential inadequacy of the safety analysis. Tooling engineers have since completed the analysis and testing to fully demonstrate compliance with the subject requirement. Accordingly, the unreviewed safety question (USQ) determination associated with this discovery was negative.

Positive USQ: B&W declared a positive USQ after new information revealed a previously unanalyzed hazard created by the transportation of B53 main charge high explosives in an HE cargo truck (see 11/26/10 report). B&W submitted the evaluation of the safety of the situation (ESS) for the newly identified hazard to PXSO for approval this week. If approved, the ESS will allow restart of B53 loading dock operations based on an analysis that demonstrates that the newly identified scenario is beyond extremely unlikely. This frequency is primarily driven by the relatively small distance in which nuclear facilities are proximate to the HE cargo truck route.

Technical Safety Requirement (TSR) Violation: After further discussion, B&W declared a TSR violation for the chemical control program issue described in the 11/19/10 report.