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 August 20, 2010

Lightning Safety: In a letter to DOE dated June 22, 2001, the Board communicated concerns about unanalyzed hazards that could result from a lightning strike to a nuclear explosive facility. Specifically, the Board identified the possibility that resultant electromagnetic fields could induce electrical currents in sensitive components through indirect energy transfer mechanisms. In a letter dated March 30, 2007, following several years in which experts focused their efforts on understanding and protecting against direct energy transfer mechanisms, the Board reiterated its concern and stated that considerable uncertainty remained regarding the magnitude of this potential indirect lightning threat. For the past three years, the nuclear security enterprise electromagnetic committee (NSEEMC) has placed considerable effort toward understanding the magnitude of this threat by refining its model of the electromagnetic environment generated in a nuclear facility following the design basis lightning strike and calculating the response of the detonator cable assemblies (DCAs) for each weapon program to this environment. Recently, the design agency representatives from the NSEEMC completed the work to conclude that the DCAs in free space (i.e., absent of any coupling effects from tooling) for all weapon programs screen from the electromagnetic environment generated by the design basis lightning strike.

The NSEEMC considers the work to characterize the indirect lightning threat to DCAs in free space complete; however, the committee must now extend its analysis to cover weapon tooling and other equipment. The committee is drafting the implementation plan for this effort, which could take several years to complete.

Issues Management: Pantex utilizes a Corrective Action Review Team (CART) to enhance the quality, continuity, and consistency of its issues management process. The CART consists of volunteers from the pool of qualified causal analysis facilitators, personnel from the quality and performance assurance department, and a PXSO representative (who participates in an oversight capacity). The team reviews randomly selected quality, safety, and security issues and evaluates these issues for timeliness of identification, adequacy of the extent of condition, quality and appropriateness of the causal analysis, and effectiveness of corrective actions. The CART's goal is to review approximately 250 issues (20 percent of all issues tracked by the Issues Management department) each year. The results of the CART review are provided to the issue owner and the issues management point-of-contact for the affected division(s). However, the CART, which is chartered by standing order, is not currently empowered to re-open issues if significant problems with the execution of the issues management process are found. B&W management plans to transfer the CART charter from the standing order to a work instruction, at which time the CART's authority would be expanded to allow the team to re-open issues when necessary.

Conduct of Operations: Recently, W76 technicians were unable to get a lifting fixture to pass the vacuum decay test in preparation for a pit removal operation. Upon removing the fixture and inspecting the assembly, they noticed that the technicians from the previous (grave) shift had left pieces of cleaning tissue on the pit. The technicians judged these particulates to be the cause of the failed vacuum decay tests and appropriately suspended operations. Process engineering developed a recovery procedure that directed the technicians to re-clean the pit. Technicians successfully executed the recovery procedure and the remainder of the disassembly. Manufacturing management briefed the responsible technicians on the need to verify the absence of excess material following cleaning operations.