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 November 5, 2010

DNFSB Staff Activity: M. Dunlevy and W. Von Holle were at Pantex to observe the first week of the B61 Operational Safety Review.

B53 SS-21 Dismantlement: Late last week, technicians suspended operations when they were unable to attach a lift plate due to a problem with a helical coil within the unit. The process engineer wrote a recovery procedure to allow two machinists, under supervision by the technicians qualified on the B53 dismantlement process, to replace the helical coil. The machinists successfully replaced it and the technicians resumed operations.

Technicians continued operations this week until they were unable to separate the pit from one of the main charge high explosive components. The unit remained in this configuration overnight and had not separated by the next morning. The process is designed to use gravity to accomplish the separation. The procedure instructs the technicians to notify the process engineer and wait. Modifications to the operating procedure and a high explosive holding plate will be required if the separation does not occur within a reasonable period of time. B&W plans to have the modified tool and procedure ready for use before they begin dismantling the next unit. Nuclear explosive safety (NES) personnel have reviewed the changes and do not believe a NES change evaluation is required. While waiting for approval of the new tool and process, facility management cycled the temperature in the cell in an attempt to hasten the separation.

Representatives from the design agencies (DAs), including subject matter experts on components important to nuclear safety (e.g., detonators), were present during most operations involving this first unit. As each component of interest became visible for the first time, operations were briefly paused to allow the DA personnel to visually examine the unit or components. Of note, two potential nuclear safety-related issues were not realized for this particular unit: (1) DA concerns about potential powder formation and large or through-wall cracking of the main charge high explosives, which drove changes to the process and (2) a detonator issue that caused the DA to modify the weapon response for electrostatic discharge scenarios, which caused B&W to modify the coatings of seven tools such that they would dissipate electric charge within one second from 100 V, instead of 5 kV.

The DOE explosives safety manual requires that the number of personnel at an operating location be the minimum consistent with safe and efficient operation, with an allowance for necessary casuals. Therefore, each nuclear explosive bay or cell has a posted personnel limit. For the purposes of training, the NES study, and the readiness assessments, the cell's limit was set to 25. The personnel limit was set to 16 for live nuclear explosive operations. During operations, the production section manager saw that a 17th person had entered the cell and promptly asked him to leave. The personnel limit is normally controlled by the cell's access control system, but the facility manager had forgotten to reduce the limit from 25 to 16 once NNSA authorized B&W to begin operations.