

## 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 May 28, 2010

**DNFSB activity:** C. Martin was at Pantex to observe the second week of the W84 SS-21 Nuclear Explosive Safety (NES) Study.

**Emergency Management:** Last week, Pantex had a no notice emergency management exercise. The scenario involved an explosion during high explosive synthesis operations. B&W simulated an explosion, the death of two technicians in the bay, and an injury to a technician in the adjacent bay. In addition, the simulation ruptured two nearby anhydrous ammonia cylinders, complicating the initial security and fire department response. From the vantage point of the incident scene, the exercise appeared to be designed and run adequately. The fire department successfully dealt with the situation at the scene by putting out the fires, searching the building, and rescuing the injured technician within about 45 minutes of the explosion. At the critique, the evaluators discussed various issues that they had observed. The most serious issue appeared to be coordination between security personnel and the incident commander as well as various communication issues.

**Potential Inadequacy in the Documented Safety Analysis (PISA):** While performing an unreviewed safety question determination on a change to a calculation, the evaluator noticed a discrepancy between the calculation and a surveillance requirement supporting the performance of the diesel pumps that feed the high pressure fire loop. B&W subsequently declared a PISA. The calculation demonstrates that the minimum fuel volume required to support operability of the diesel pumps is 72 gallons, a value that includes the 30 gallons of unusable fuel in the tank. The surveillance requirement indicates that the minimum fuel volume required to support operability of the diesel pumps is 42 gallons. B&W believes the volume specified in the surveillance requirement was intended to reflect the minimum required *usable* fuel volume. Authorization basis personnel plan to change the surveillance requirement to align with the calculation and explicitly state whether the fuel volume includes the unusable portion of the fuel. Meanwhile, B&W determined no compensatory measures are required in response to this PISA because the maintenance procedure for the subject surveillance requirement requires the technician to verify the fuel tank is a minimum one quarter full, a level that corresponds to a volume of 131 gallons.

**Electrical Equipment Program:** B&W conducted a for cause independent assessment of the category 1, 2, and 3 electrical equipment programs following several incidents involving failures of these programs during the last year (see 1/15/10, 12/11/09, and 4/24/09 reports). The assessment team concluded the programs are in compliance with the requirements of DOE O 452.2D, *Nuclear Explosive Safety* and DOE M 452.2, *Nuclear Explosive Safety Manual*. The assessment team identified three findings, four weaknesses, and three observations. One finding captured the fact that B&W has not formally documented its process for verifying that all equipment used in nuclear explosive areas has been specifically approved for that operation. The report stated that B&W is maintaining compliance with the electrical equipment program requirements in the absence of a fully documented process because the program is being run by knowledgeable and conscientious personnel. The report went on to state that continuing to rely on this dynamic would not be a sound long-term strategy. Of additional note, the assessment team observed a lack of ownership of the electrical equipment program by any single organization at the plant. The NES organization owned these processes several years ago, but now it is not clear whether these processes belong to the organizations performing the evaluations (system engineering or tester design), or those that would identify the need for an evaluation (process engineering, tooling, or quality acceptance).