

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 October 7, 2011

DNFSB Staff Activity: J. Deplitch was onsite to observe the emergency exercise.

Emergency Exercise: Pantex conducted a graded full participation emergency exercise this week. The first event was a simulated elemental tritium release from a reservoir in a nuclear explosive bay. Two hours later, exercise controllers simulated an explosion with dispersal of plutonium in a second nuclear explosive bay. These two events resulted in a simulated site area emergency and a simulated general emergency, respectively. Almost all personnel on the plant site not involved in controlling, observing, or evaluating the exercise were required to respond as if it were real. To the extent practical, all offsite entities that would be involved or impacted in a real incident also participated (typically these interfaces are simulated in annual emergency exercises). These entities included DOE and NNSA headquarters and other federal agencies such as the Veterans' Affairs Health Care System (contaminated/injured site employees would be decontaminated/treated in an Amarillo area hospital), the city of Amarillo, Armstrong County, Carson County, and the state of Texas.

Process Anomaly: This week, PXSO approved a justification for continued operations (JCO) for the proposed process for disassembling the remainder of a unit with a damaged detonator cable assembly (DCA). The proposed process involves cutting the DCA to jettison the damaged area, packaging the damaged portion of the DCA in a pipe container, and covering any exposed areas of the undamaged portion of the DCA with polyimide tape and an electrically insulating cover prior to continuing normal operations. The most significant compensatory measure identified in the JCO involves reducing the electrostatic discharge hazard environment from the typical mitigated environment on this program to 100V for the sequence of steps in which the DCA is being cut and taped. Operations on this unit cannot continue until PXSO approves the nuclear explosive safety change evaluation (NCE) of the proposed recovery operation. The NCE group has completed deliberations and the chair expects to transmit the NCE report to PXSO early next week.

Blast Door Interlocks (BDIs): B&W submitted and PXSO approved a change to the documented safety analysis that upgrades BDI systems for nuclear explosive bays (Bay BDIs) from safety-significant to safety-class. The Bay BDIs were originally designated as safety-class but PXSO approved a downgrade of the system to safety-significant in 2005 in part because the system did not meet the single-failure criterion of Institute of Electrical and Electronics Engineers Standard 379 (see 3/4/05 report). PXSO has accepted B&W's proposal to perform a failure modes and effects analysis of the existing design. The results will then be used to revise the design adequacy review of the Bay BDI system by the end of January 2012. In the meantime, PXSO has determined that the risk of continuing to operate with the existing design of the Bay BDI system is acceptable for the following reasons: 1) failure of the system does not actively compromise the bay structure, 2) failure of the system does not immediately result in an insult to explosives or nuclear material, and 3) B&W credits an administrative control to act as an independent check to ensure that at least one personnel blast door and one set of equipment blast doors remain closed, except for short durations.