

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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October 15, 2009

The Honorable Thomas P. D'Agostino
Administrator
National Nuclear Security Administration
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0701

Dear Mr. D'Agostino:

Development and implementation of nuclear and nuclear explosive operating procedures at the Pantex Plant are closely monitored by the Defense Nuclear Facilities Safety Board (Board). The Board recognizes that improvements have been made since the Board's letter of April 24, 2007 on this subject, and acknowledges the sustained effort necessary to realize continuing improvements.

The enclosure to this letter summarizes observations identified by the Board's staff during recent reviews of technical procedures at the Pantex Plant.

Consistent with the Board's continuing interest in this important subject, and pursuant to 42 U.S.C. § 2286b(d), the Board requests a detailed briefing during the Board's next visit to the Pantex Plant on any actions taken or planned to strengthen processes used to develop and implement technical procedures, and the schedule for implementing them, at the Pantex Plant.

Sincerely,

A handwritten signature in black ink, appearing to read "John E. Mansfield".

John E. Mansfield, Ph.D.
Vice Chairman

Enclosure

c: Mr. Steven C. Erhart
Mr. Mark B. Whitaker, Jr.

Enclosure

Issues Related to the Development and Implementation of Technical Procedures at the Pantex Plant

Fewer than half of revised procedures undergo a formal validation and verification process. One means of minimizing the number of procedural errors that occur on the production line is to have end-users validate new or revised procedures on a weapon trainer unit before implementing them on a war reserve unit. Department of Energy (DOE) Order 5480.19, *Conduct of Operations Requirements at DOE Facilities*, states that the procedure review process should involve a walkthrough or similar validation. Since metrics were established more than a year ago, about 45 percent of procedure changes have been validated, and only a small percentage of those were full validations (most were read-only).

Process and tooling engineers are not spending sufficient time in operating areas; the result is poor communication between manufacturing and engineering division personnel. Process and tooling engineers generally visit nuclear explosive areas only when a program is starting up or an issue arises. Since many procedural issues are related to tooling, having process and tooling engineers routinely walk down operations together would provide an opportunity to improve interdepartmental communication while allowing technicians to provide direct feedback on the functionality and usability of the procedures and tooling.

The procedure revision process is cumbersome and slow. Many of the procedures reviewed by the Defense Nuclear Facilities Safety Board's (Board) staff had numerous outstanding changes, some more than 6 months old, awaiting incorporation into revised procedures. DOE Order 5480.19 recommends that procedures be revised if changes have been outstanding for more than 6 months or a procedure is affected by more than five changes. Current practice at Pantex is for changes to be transcribed manually into a procedure by the production technicians until they are captured in a revision. This increases the possibility of error.

In the past year, there have been several instances in which actions described in the documented safety analysis or technical safety requirement (TSR) controls have not been properly reflected in implementing procedures. DOE Order 452.2D, *Nuclear Explosive Safety*, requires that procedures for nuclear explosive operations be in compliance with technical requirements. The Board's staff is aware of an ongoing site initiative to validate the flowdown of programmatic controls and believes this effort needs to be completed as soon as possible.

The content of the B&W Writer's Manual for Technical Procedures is ambiguous or inconsistent or misapplied in certain areas, leading to the development of procedures that are more likely to result in human error. The staff observed numerous examples of procedural steps that contained more than one action or in which safety-related actions were specified in notes. These practices are not permitted under DOE and Pantex requirements because of the increased probability that an action will be missed. Also, the method used to identify critical steps in procedures is not sufficiently clear, and could lead to technicians implementing the steps incorrectly. The manual used to direct the development and review processes for technical procedures was written and is

maintained solely by the engineering division. Since technical procedures provide detailed instructions for performing work, it would be beneficial if the end users (i.e., manufacturing division personnel/production technicians) ensured that the procedures' content, writing style, and format meet their needs by reviewing the manual and providing feedback and suggested improvements to process engineering personnel.