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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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April 24, 2007

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

Dear Mr. D'Agostino:

In May 2005, the Defense Nuclear Facilities Safety Board (Board) issued a letter to the National Nuclear Security Administration (NNSA) outlining issues related to the conduct of nuclear explosive operations at the Pantex Plant. Since that time, the Board has observed that responsible senior managers have renewed their resolve to achieving and maintaining a high degree of formality in the conduct of nuclear explosive operations and have achieved positive results. While encouraged by these positive results regarding the *performance* of technical procedures used to control operations involving weapon components and assemblies, the Board has observed that these procedures contain significant weaknesses in their quality and consistency. These procedures are relied upon by production technicians to perform work safely, and are essential to maintaining an effective conduct of operations program.

Department of Energy Order 452.2C, *Nuclear Explosive Safety*, requires that nuclear explosive operations be performed in accordance with approved written procedures. Pantex's technical procedures—including Nuclear Explosive Operating Procedures, Nuclear Explosive Engineering Procedures, Operating Procedures, and Engineering Instructions—provide the formal engineered work instructions used to control operations involving weapon components and assemblies. These procedures need to establish a safe process for implementing nuclear explosive safety requirements in the broadest sense. They must place proper emphasis on preventing accidents; detecting abnormal conditions; and protecting the public, workers, and the environment. To be effective, they must also be readable, clear, usable, consistent, comprehensive, and accurate. Independent reviews and validations of the procedures prior to their use are integral to ensuring that they are developed and issued without errors that could reduce the safety of the operations they address. Adherence to a rigorous change control protocol during the process of procedure revision is also an important aspect of ensuring that only high-quality procedures are issued for use.

Several recent examples of inadequacies in technical procedures indicate that improvements are needed in the process for procedure development, review, validation, and configuration management. These examples are provided below:

- A procedure did not include a step to remove vacuum before lowering a unit in the workstand. As a result, components separated unexpectedly.

- A procedure did not have a requirement to ensure that a critical cable was properly positioned before a component was lifted and installed.
- A procedure directed the use of an inadequate lightning isolator during a hoisting operation that violated a technical safety requirement.
- A procedure did not include steps to remove and reinstall a protective cover before performing the required operation.

In addition to these examples of inadequacies in technical procedures, procedural deficiencies were identified during the B83 NNSA readiness assessment, the B83 contractor readiness assessment for the limited life component exchange, and the NNSA operational readiness review for the Special Nuclear Material Component Requalification Facility. The Board's site representatives, Pantex Site Office facility representatives, and BWXT nuclear safety officers have documented additional examples of procedural deficiencies while observing operations.

Although production technicians usually discover and report procedural deficiencies before problems arise, they should not be relied upon to recognize all inadequacies in procedures before performing potentially hazardous actions. The procedures must be accurate when issued so that technicians can be confident that work can be conducted safely. Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests a briefing from NNSA within 30 days of receipt of this letter that should provide the following information:

1. NNSA's assessment of the quality of technical procedures for nuclear and nuclear explosive operations at Pantex.
2. The specific measures that NNSA plans to take to improve the quality of technical procedures to an acceptable level for nuclear and nuclear explosive operations at Pantex.
3. A specific deadline (month and year) for the completion of each measure identified in response to Item 2.

Sincerely,



A. J. Eggenberger  
Chairman

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