DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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June 28, 2001

General John A. Gordon
Administrator of the National
Nuclear Security Administration
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0701

Dear General Gordon:

The Defense Nuclear Facilities Safety Board (Board) has reviewed the *Justification for Continued Operations (JCO) of W88 Assembly, Disassembly, and Inspections in Building 12-85*, AB-01-0031; the Safety Evaluation Report (SER) by which the U.S. Department of Energy, National Nuclear Security Administration (NNSA) approved the JCO; and the *W88 Annualization of Frequencies Increased Risk Scenarios*, SB-MIS-331007, analysis prepared by the Pantex contractor in support of the JCO. Although NNSA has accepted the latter analysis and approved the JCO, the Board is concerned that errors and admitted deficiencies in the analysis, together with the lack of design agency involvement, undermines the credibility of the authorization basis process at Pantex.

The W88 JCO focused on two scenarios. In the first, the contractor proposed adding floor mats and barrier paper to bare workstation surfaces to reduce the risk of a high explosive detonation or deflagration (HEDD) from an accidental drop of high explosive. Given the number of operations that involved lifts of high explosives, the contractor calculated that the risk of a HEDD was significantly higher than previously approved. The contractor calculated that with the addition of floor mats and barrier paper, the risk of a HEDD was well below the previously approved level.

Although the contractor calculated a level of risk that is consistent with NNSA guidelines for HEDD, the analysis is flawed. The contractor treats the floor mats as general mechanical parts in estimating their failure rate. Such treatment ignores the differences between the failure of energy-absorbing/dissipating material and the failure of a mechanical component. This critical flaw raises significant questions about the validity of the calculated risk for this scenario. Furthermore, NNSA failed to obtain a weapon response evaluation from the design agency, violating NNSA's internal procedures as set forth in Chapter 11.8, Section 4.5, of the Development and Production (D&P) Manual.

In the second scenario, the Pantex contractor calculated that the risk of a HEDD from hand tools dropping onto cased high explosives was also significantly higher than previously approved in the *W88 Assembly and Disassembly & Inspection Operations Hazards Analysis Report*. But, rather than propose compensatory measures, the contractor dismissed its own analysis as overly conservative without performing a more credible assessment. The contractor noted that a "more rigorous" analysis performed for the W78 Disassembly and Inspection program dismissed the risk of HEDD in the tool drop scenario as below NNSA guidelines. The contractor asserted (and NNSA agreed in its SER) that a more rigorous analysis for the W88 would yield a result that was "orders of magnitude less" than the contractor's assessment for the W88 because the W88 uses the same high explosives as the W78.

Although the contractor characterized the W78 analysis as "more rigorous" as compared with the W88 analysis, the referenced W78 analysis has not yet been approved. Furthermore, NNSA failed to require concurrence of the design agency on the use of W78 weapon response data in the analysis of the W88 scenario. This failure violates NNSA's internal procedures for the use and application of weapon response data, as set forth in Chapter 11.8, Section 4, of the D&P Manual.

The Board is troubled by NNSA's acceptance of an admittedly flawed analysis to support a JCO and by NNSA's disregard for the D&P Manual guidelines on the use of weapon response data. Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests that NNSA (1) provide a report within 30 days of receipt of this letter that documents a technically defensible analysis of the scenarios discussed above, and (2) provide a report within 60 days that outlines corrective measures NNSA will take to ensure that hazard and safety analyses satisfy the expectations of NNSA guidelines for the use and application of weapon response data. In addition, the Board strongly suggests that NNSA revise the SER as necessary to take the corrected analysis into account.

Sincerely,

John T. Conway
Chairman

c: Mr. David E. Beck
Mr. Richard E. Glass
Mr. Daniel E. Glenn
Mr. Mark B. Whitaker, Jr.