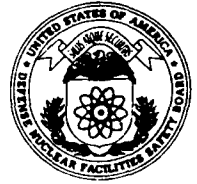


John T. Conway, Chairman
A.J. Eggenberger, Vice Chairman
John W. Crawford, Jr.
Joseph J. DiNunno
Herbert John Cecil Kouts

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004
(202) 208-6400



September 27, 1994

The Honorable Hazel R. O'Leary
Secretary of Energy
Washington, DC 20585

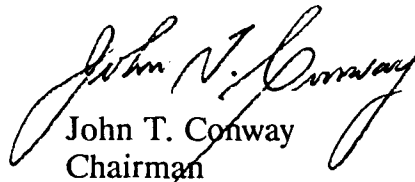
Dear Secretary O'Leary:

On September 27, 1994, the Defense Nuclear Facilities Safety Board, in accordance with 42 U.S.C. § 2286a(5), unanimously approved Recommendation 94-4 which is enclosed for your consideration. Recommendation 94-4 deals with Deficiencies in Criticality Safety at Oak Ridge Y-12 Plant.

42 U.S.C. § 2286d(a) requires the Board, after receipt by you, to promptly make this recommendation available to the public in the Department of Energy's regional public reading rooms. The Board believes the recommendation contains no information which is classified or otherwise restricted. To the extent this recommendation does not include information restricted by DOE under the Atomic Energy Act of 1954, 42 U.S.C. §§ 2161-68, as amended, please arrange to have this recommendation promptly placed on file in your regional public reading rooms.

The Board will publish this recommendation in the Federal Register.

Sincerely,


John T. Conway
Chairman

Enclosure

Copy to: Mark B. Whitaker, EH-6

RECOMMENDATION 94-4 TO THE SECRETARY OF ENERGY
pursuant to 42 U.S.C. § 2286a(5)
Atomic Energy Act of 1954, as amended.

Dated: September 27, 1994

The Defense Nuclear Facilities Safety Board (Board) has issued a number of recommendations concerning formality of operations, including Recommendation 92-5, *Discipline of Operations in a Changing Defense Nuclear Facilities Complex*. In that recommendation, the Board stated that facilities scheduled for continued operations should develop a style and level of conduct of operations which is comparable to that achieved at commercial nuclear facilities. Recommendation 92-5 further noted that, prior to achieving an acceptable level of formality, major improvements were required in a number of areas, including safety analysis reports, limiting conditions of operation, and training and qualification of personnel.

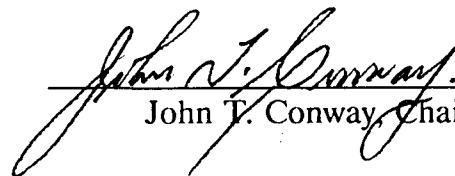
The Board and its staff have been monitoring the Department of Energy's (DOE) efforts to implement an acceptable level of conduct of operations at the Y-12 Plant in Oak Ridge, Tennessee, which is scheduled for continued operations. The Board has forwarded a number of reports to DOE during the last two years indicating the existence of safety-related concerns regarding operations at Y-12. DOE and its operating contractor, Martin-Marietta Energy Systems (MMES), have taken some actions to correct deficiencies; however, a number of recent events have led the Board to the conclusion that more aggressive and comprehensive management actions are required to bring the level of conduct of operations at Y-12 to a satisfactory level.

The Board notes that during the past four months a number of violations of Operational Safety Requirements and other safety limits have occurred at the Y-12 Plant. Most recently, the Board's staff identified a substantial violation of nuclear criticality safety limits within a special nuclear material storage vault at Y-12. When the staff identified this deficiency to on-site personnel, including a senior MMES manager, an MMES nuclear criticality safety specialist, and one of DOE's facility representatives, immediate corrective actions that were required by Y-12 procedures were not taken. In fact, proper corrective actions were not taken until the Board's staff informed the DOE Y-12 Site Manager. Subsequently MMES curtailed a number of operations at the Y-12 Plant. Reviews of compliance with nuclear criticality safety limits at the Y-12 Plant revealed that a widespread level of non-compliance exists.

In its Annual Report to Congress (February 1994) the Board noted that personnel and procedures are complementary elements in implementing conduct of operations. The report stated, "The health and safety of the public and workers rest on a properly trained workforce accomplishing tasks in a formal, deliberate fashion in accordance with reviewed and approved procedures." In responding to the Board's Recommendation 93-6, *Maintaining Access to Nuclear Weapons Experience*, DOE is evaluating the impact of expertise presently being lost through ongoing staff reductions on their ability to perform nuclear weapons dismantlement at Y-12.

The Board recognizes that DOE and MMES management have begun taking aggressive actions to correct the specific problems of adherence to nuclear criticality safety limits, since the nuclear criticality safety occurrence referred to above. However, the Board believes that more remains to be done. Accordingly, the Board recommends that:

- (1) DOE determine the immediate actions necessary to resolve the nuclear criticality safety deficiencies at the Y-12 Plant, including actions deemed necessary before restarting curtailed operations and any compensatory measures instituted. These actions should be documented, along with an explanation of how the deficiencies remained undetected by MMES and DOE (line and oversight).
- (2) DOE perform the following for defense nuclear facilities at the Y-12 Plant:
 - (a) An evaluation of compliance with Operational Safety Requirements and Criticality Safety Approvals (CSAs), including a determination of the root cause of any identified violations. In performing this assessment, DOE should use the experience gained during similar reviews at the Los Alamos plutonium facility and during the recent "maintenance mode" at the Pantex Plant.
 - (b) A comprehensive review of the nuclear criticality safety program at the Y-12 Plant, including: the adequacy of procedural controls, the utility of the nuclear criticality safety approvals, and a root cause analysis of the extensive level of non-compliance found in recent reviews.
 - (c) A comparison of the current level of conduct of operations to the level expected by DOE in implementing the Board's Recommendation 92-5.
 - (d) Development of plans, including schedules, to address any deficiencies identified in the analyses conducted above.
- (3) DOE evaluate the experience, training, and performance of key DOE and contractor personnel involved in safety-related activities at defense nuclear facilities within the Y-12 Plant to determine if those personnel have the skills and knowledge required to execute their nuclear safety responsibilities (in this regard, reference should be made to the critical safety elements developed as part of DOE's response to the Board's Recommendation 93-1).
- (4) DOE take whatever actions are necessary to correct any deficiencies identified in (3) above in the experience, training, and performance of DOE and contractor personnel.



John T. Conway, Chairman