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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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July 20, 2001

The Honorable Spencer Abraham  
Secretary of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Secretary Abraham:

The Defense Nuclear Facilities Safety Board's (Board) Recommendation 97-2, *Criticality Safety*, outlined a vision for a robust criticality safety infrastructure within the Department of Energy (DOE) and prescribed specific actions necessary to achieve this vision. These actions would build upon the successful efforts undertaken previously by DOE in response to the Board's earlier Recommendation 93-2, *The Need for Critical Experiment Capability*. A more recent survey of the criticality safety programs throughout the defense nuclear complex led to the Board's issuance of DNFSB/TECH-29, *Criticality Safety at Department of Energy Defense Nuclear Facilities*, which contains several additional suggestions for improving criticality safety throughout the complex.

The Board recognizes that much progress has been made toward meeting the 30 commitments in the Implementation Plan for Recommendation 97-2. The Board also notes that efforts in response to the Deputy Secretary of Energy's memorandum of September 18, 2000, *Continuation of Nuclear Criticality Safety Initiatives*, have resulted in significant improvements in DOE's criticality safety programs. Particularly important efforts have been aimed at improving criticality safety qualifications for both federal and contractor criticality safety engineers, and at increasing the involvement of criticality safety experts in operations. The Board strongly supports these efforts.

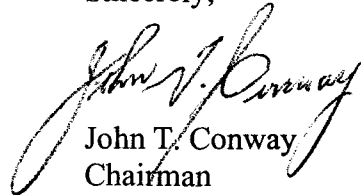
Despite the strides made thus far toward realizing the Board's vision for criticality safety within the defense nuclear complex, DOE's May 14, 2001, quarterly status report acknowledges that remaining open issues could threaten the long-term viability of DOE's criticality safety infrastructure. Additionally, although the overall vision and goals outlined in DOE's May 30, 2001, correspondence regarding DNFSB/TECH-29 are laudable, some of the proposed corrective actions lack sufficient detail to ensure that the Board's concerns will be adequately addressed.

To contemplate closure of Recommendation 97-2, the Board must be confident that the robust criticality infrastructure originally envisioned, which DOE has been working to establish, will be achieved and maintained. Issues that still must be resolved to achieve the criticality infrastructure envisioned by the Board and demonstrate its long-term viability are outlined briefly below:

- DOE has experienced considerable difficulty in providing consistent funding for its cross-cutting criticality safety program. The Board has repeatedly discussed this problem with DOE and considers it vital that a stable funding mechanism be established and institutionalized. Until a workable mechanism has been identified, DOE's criticality safety infrastructure cannot be considered sustainable.
- The availability of an experimental criticality test facility is fundamental to a viable criticality safety program. Such a facility is necessary for the hands-on training of criticality safety engineers and serves an invaluable role in providing benchmark experiments with which to validate analytical computer models for criticality safety applications. The Los Alamos Critical Experiments Facility (LACEF) is unique in the DOE complex in filling these needs. The Board is awaiting the results of studies being conducted to evaluate the merits of moving LACEF from its historical location at Technical Area (TA)-18 in Pajarito Canyon at Los Alamos National Laboratory, which it has occupied since the beginning of the Manhattan Project. It is important that there be minimal interruption of activities at LACEF in the course of any action taken to move that facility to another site.
- As part of the last Recommendation 97-2 commitment to be completed, DOE identified when contractors shall submit program plans for nuclear criticality safety qualification. It is important that DOE assess the adequacy of these plans, and communicate to the Board the results of these assessments as well as the bases used for determining adequate content and appropriate implementation schedules.
- In response to DNFSB/TECH-29, DOE committed to tasking the Nuclear Criticality Safety Program Management Team's Criticality Safety Support Group (CSSG) to provide formal comments on the 10 Code of Federal Regulations (CFR) 830 Nuclear Safety Rule Implementation Guides in order to clarify the appropriate relationship between criticality safety evaluations/controls and authorization bases. The Board wishes to be apprised of the CSSG's comments and how they are addressed.
- A strong criticality safety group within DOE's Field Offices is essential for establishing and maintaining properly functioning site nuclear criticality safety programs. It is therefore imperative that DOE Field Offices not only identify staff shortages in nuclear criticality safety (as indicated in DOE's response to DNFSB/TECH-29), but also identify the resources necessary to redress these shortages and develop schedules for effecting any necessary augmentations.

The Board looks forward to working with DOE to address these remaining issues and thereby ensure the realization and long-term viability of the robust criticality safety infrastructure envisioned in Recommendation 97-2.

Sincerely,



John T. Conway  
Chairman

c: Mr. Mark B. Whitaker, Jr.