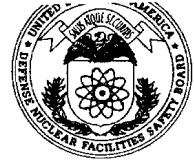


John T. Conway, Chairman
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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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May 20, 1997

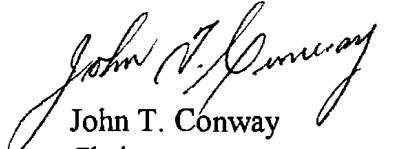
The Honorable Federico F. Peña
 Secretary of Energy
 1000 Independence Avenue, SW
 Washington, D.C. 20585-1000

Dear Secretary Peña:

On December 23, 1996, the Department of Energy (DOE) issued a Notice of Proposed Rulemaking and Public Hearings on proposed amendments to 10 CFR Part 835, *Occupational Radiation Protection*. In accordance with an agreement with the DOE Under Secretary, the Defense Nuclear Facilities Safety Board (Board) had arranged to have members of its staff work with members of DOE's staff during 1996, to identify and resolve issues related to the proposed amendments. This staff coordination continued during the public comment period. Members of the Board's staff attended both public hearings, and reviewed the proposed amendments and supplementary information published in the *Federal Register*, available draft guidance documents, and all the public submittals in the rulemaking docket.

The enclosure to this letter provides suggestions for your consideration regarding the proposed amendments. The Board desires to be kept apprised of the changes to the proposed amendments in response to the public comments, and to be given the opportunity for review and comment prior to their release for publication as the final rule. To this end, the Board is prepared to have members of its staff continue to work closely and in a timely manner with members of the DOE's staff.

Sincerely,


 John T. Conway
 Chairman

c: The Honorable Alvin L. Alm
 The Honorable Tara J. O'Toole
 The Honorable Victor H. Reis
 The Honorable Eric Fygi
 Mr. Mark B. Whitaker, Jr.

Enclosure

Enclosure

Suggestions Regarding Proposed Amendments to 10 CFR Part 835, *Occupational Radiation Protection*

Design and Control. The removal of §835.1002, “Design,” gives the appearance of downgrading the importance of design in ensuring occupational radiation safety. This is counter to the Board’s emphasis on the importance of radiological engineering in the design, safety management, and work planning processes.

Setting the regulatory design objective to be the same as the occupational dose limit, as DOE proposes in its amendments, does not reflect the practices of good designers or the needs of operating facilities for flexibility. Neither does this view align with the defense-in-depth strategy used throughout the related Implementation Guide, DOE Order (Order 420.1, *Facility Safety*), and Contract Requirements Document (CRD), all of which are based on the premise that no one layer of protection is completely relied upon to ensure safe operation. Although it does not include quantitative design criteria, DOE Order 420.1 does state: “Non-reactor nuclear facilities shall be designed with the objective of providing multiple layers of protection to prevent or mitigate the unintended release of radioactive material to the environment.” This language covers only protection against *release of radioactive materials*, not design of radiation protection features (e.g., shielding).

It is important for DOE to ensure continuation of the defense-in-depth strategy in the design of facilities, equipment, and systems that can affect exposure to both radiation and radioactive materials. Therefore, it would be advisable to consider retaining sufficient language in §835.1002 requiring conservative quantitative design margins to control both radioactive materials and radiation. This approach, if supplemented by detailed guidance and suitable modifications of the CRD, would go far toward maintaining the defense-in-depth strategy.

Emergency Exposure Guidelines. Rule 10 CFR 835, as drafted for amendment, would delete the emergency exposure guidelines. This deletion is based on the existence of guidance in other DOE standards, such as emergency management guidance. The Board staff has determined that adequate guidance does not exist in other DOE standards that have been issued for use or review. The Environmental Protection Agency’s (EPA) manual *Protective Action Guides and Protective Actions for Nuclear Incidents* does provide adequate guidance, similar to that proposed for deletion, but is not referenced in the amendments. The Nuclear Regulatory Commission directs establishment of guidelines and references the EPA protective action guidelines in 10 CFR 50.47. The staff believes it would be advisable to examine the reference to emergency exposure guidelines and the location of the guidelines in DOE standards to ensure completeness and appropriate implementation.

Furthermore, the amendments lack clarity and continuity of requirements regarding dose limits and accidents and emergency doses. The term "accident" is used inconsistently and ambiguously, which would result in complications in implementation and compliance. It is difficult to determine when accident doses are to be included or excluded from annual occupational dose limits. The staff believes the terms "accident" and "emergency" should be defined clearly and used consistently.

Radiation Safety Training. The staff favors Alternative 4 since it would place in the Radiation Protection Program the general requirement that "individuals responsible for implementing the requirements of 10 CFR 835 have the appropriate education, training and skills to effectively discharge these responsibilities." If the language were appropriately structured, it could address *all key radiation protection personnel* in their particular organizations and would be consistent with recently issued technical guidance DOE-STD-1107-97, *Knowledge, Skills, and Abilities for Key Radiation Protection Positions at DOE Facilities*. Additionally, Alternative 4 could be combined with Alternative 2 in such a way as to achieve the necessary training commensurate with the hazards and the work for key radiation protection positions, including the Radiation Control Technicians.

10 CFR 835 Technical Content of Definitions. The Board staff's review of the proposed amendments identified a number of safety-related terms that are not clearly defined (e.g., "accident," "emergency," "radioactive material area"). Further, there is frequent use of unquantifiable terms, such as "adequate" or "acceptable," that could lead to wide differences in interpretation. The need for attention to these matters, which were discussed with DOE staff in March 1997, has been given new impetus by the large number of public comments regarding clarification of definitions. Organizations that must conform to the rule are requesting additional definitions (e.g., "radioactive material," "contamination," "radiation source," "radiation generating devices"), as well as more precise definitions of terms already in the rule. Thus it is probable that DOE could considerably improve the rule by judicious modification of some terms and addition of others.