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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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February 22, 2008

The Honorable J. Clay Sell
Deputy Secretary of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Mr. Sell:

The Defense Nuclear Facilities Safety Board (Board) recently completed its review of draft DOE-STD-1189, *Integration of Safety into the Design Process*. This review followed a detailed technical exchange between the Board's staff and Department of Energy (DOE) personnel tasked with the standard's development. To a large extent, our respective staffs have resolved the majority of safety-related concerns. The Board believes that the draft standard, when properly implemented, will help DOE effectively design new hazard category 1, 2, and 3 nuclear facilities. The standard addresses many of the concerns expressed by the Board during public hearings held to improve the integration of safety early in the design process for defense nuclear facilities.

The Board points out two remaining issues that require additional attention from DOE. However, the Board believes that the benefit of issuing and implementing DOE-STD-1189 expeditiously, outweighs the need to resolve these issues before the standard's issuance. Any changes to the standard resulting from the resolution of these issues should be incorporated in the most efficient manner practicable.

One issue is that the development of DOE-STD-1189 necessitates modifying other DOE directives to ensure that the system of directives is properly aligned. For example, Appendix A of DOE-STD-1189 replaces the existing guidance for determining seismic design criteria and the associated classification of systems, structures, and components (SSCs) as safety-class or safety-significant; however there is no provision in Appendix A to cancel the existing (and at times inconsistent) directives addressing these topics. The Board believes a concerted effort by DOE is needed to identify the many directives impacted by DOE-STD-1189 and revise them in a timely fashion. Otherwise, it is likely that full implementation of DOE-STD-1189 will be unnecessarily complicated or even prevented by competing or contradictory directives.

A second issue is that Appendix B, "Chemical Hazard Evaluation," and Appendix C, "Facility Worker Hazard Evaluation," are advisory, and individual projects will not be required to implement them. Since these appendices are used to classify safety-related SSCs, it is unclear to the Board why these appendices would not be mandatory, particularly since the approach for

protection of the public and collocated and facility workers is normally based on the severity rather than the type of hazard, i.e., chemical or radiological. Additionally, the design criteria derived by applying these appendices do not provide the requisite system and component reliability, e.g., separation and redundancy needed for protection of the public. Safety-related systems must be designed and maintained to higher standards than non-safety-related systems and these standards must effectively address the potential of hazards to harm the public, workers, and the environment. To implement DOE-STD-1189 effectively, DOE should carefully consider the need to implement Appendices B and C to ensure that the criteria governing design of safety-related controls are adequate to protect the public, independent of the hazard type.

Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests, within 60 days of receipt of this letter, (1) a report identifying DOE directives that require revision as a result of DOE-STD-1189 and a schedule for their revision, and (2) a briefing describing the technical basis for the safety and design criteria provided in Appendices B and C of DOE-STD-1189.

Sincerely,

A handwritten signature in black ink, appearing to read "A. J. Eggenberger". The signature is fluid and cursive, with the first name "A. J." written in a smaller, more compact style than the last name "Eggenberger".

A. J. Eggenberger
Chairman

c: Mr. Glenn S. Podonsky
Mr. Mark B. Whitaker, Jr.