DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004
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September 16, 1997

The Honorable Victor H. Reis
Assistant Secretary for Defense Programs
Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585-0104

Dear Dr. Reis:

The Department of Energy (DOE) recently completed its Milestone I Review for the W78 Seamless Safety-21 (SS-21) Project at the Pantex Plant. The staff of the Defense Nuclear Facilities Safety Board (Board) observed the two parts of this review on August 13 and 27, 1997. The Board's staff noted that the DOE-Albuquerque (DOE-AL) Assistant Manager of National Defense Programs, who attended the August 13 review, demonstrated a "demanding customer" attitude, greatly enhancing the effectiveness of the review. The Board believes that continued involvement of senior managers at this level (i.e., assistant operations office managers and equivalent positions at DOE Defense Programs, the DOE Amarillo Area Office, the design laboratories, and the Pantex operating contractor) is crucial to the successful incorporation of an integrated safety process into the disassembly and inspection and assembly processes of nuclear weapons at the Pantex Plant.

While the W78 SS-21 Milestone I Review was completed successfully, the Board's staff observed that senior DOE managers identified and discussed several ideas and expectations for enhancing the integrated safety process for nuclear weapons disassembly and assembly processes. The DOE-AL Assistant Manager recognized that there was a great deal of variation in the understanding and knowledge of guidance contained in EP 401110, *Integrated Safety Process for Assembly and Disassembly of Nuclear Weapons*, among meeting participants, and proposed the development of a program management course to address this problem. Finally, laboratory representatives expressed a strong desire to review and comment on the training lesson plans for the production technicians. It would be valuable for DOE to incorporate these items and other lessons learned from this review into the next revision of EP 401110, which the Board understands is being prepared. A staff trip report containing some observations from these meetings is enclosed for your information and use. The Board looks forward to continued progress in this important area.

Sincerely,

John T. Conway
Chairman

c: Mr. Mark B. Whitaker, Jr.
Mr. Bruce G. Twining

Enclosure

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 29, 1997

MEMORANDUM FOR: G. W. Cunningham, Technical Director

COPIES: Board Members

FROM: J. A. DeLoach

SUBJECT: Observations on the W78 SS-21 Milestone I Review, August 13 and 27, 1997

This memorandum documents observations on the W78 Seamless Safety-21 (SS-21) Milestone I Review meetings conducted at the Pantex Plant on August 13 and 27, 1997. These observations were made by members of the staff of the Defense Nuclear Facilities Safety Board (Board) J. A. DeLoach, H. Waugh, and T. Dwyer. These observations are focused on the use and application of the guidance provided in interagency engineering procedure EP 401110/B, *Integrated Safety Process for Assembly and Disassembly of Nuclear Weapons.*

The purpose of the W78 SS-21 Milestone I Review was to address and discuss the status of the process development, the safety basis (e.g., Hazard Analysis Report and Authorization Basis Control Document), the schedule, and the trade-offs among issues concerning safety criteria and resources. During a Milestone I Review, a number of deliverables are presented to the Management Team, such as the Weapons Safety Specification (WSS), the Preliminary Hazard Analysis Report (PHAR), trainer requirements, baseline process flowcharts, and test equipment concepts. The Milestone I Review is one of several planned activities for the project to develop the disassembly and inspection and assembly processes for the W78, incorporating SS-21 features as described in EP 401110/B and the W78 SS-21 *Integrated Safety Process Project Plan.* Full SS-21 implementation for the W78 program is scheduled by March 1999. Approximately 50 personnel participated in the meeting, including representatives from various Department of Energy (DOE) offices, the Pantex operating contractor, and the national laboratories.

During the August 13 review, the WSS and the PHAR were delivered; however, some weapons response data had not yet been completed. Overall, this meeting addressed the majority of criteria for a Milestone I Review, with the exception of the review of the tooling design, which was only partially completed and deferred to August 27 for a more detailed review. During the August 27 review, the Management Team raised over a dozen concerns with the tooling design for the Tooling Task Team to resolve. The tooling design review was effective and thus completed the last required activity for the Milestone I Review. Based on the reviews of August 13 and 27, the Management Team concluded that the W78 SS-21 Project Team had successfully completed Milestone I, contingent on some minor corrective actions.

The following are some specific observations by the Board's staff:

- Of particular note, the DOE Albuquerque Operations Office (DOE-AL) Assistant Manager of National Defense Programs attended the August 13 meeting and demonstrated a "demanding customer" attitude. She pressed for resolution of many issues, demanded to know who was responsible for various project tasks, and insisted that the best experts be enlisted to work on these tasks. This senior DOE-AL manager's involvement proved to be beneficial and resulted in greater effectiveness of the review.

- Among the many participants, there was a great deal of variation in the understanding and knowledge of guidance in EP 401110/B and of basic program management principles. This variation hindered the discussion and resolution of some issues during the meeting. The DOE-AL Assistant Manager of National Defense Programs recognized these problems and proposed that, with the assistance of Sandia National Laboratories (SNL), a program management course be developed for personnel involved in SS-21 projects.

- Several ideas and expectations for enhancing the integrated safety process were discussed or asserted by senior DOE-AL managers during the review. It would be valuable if these ideas and expectations, as well as lessons learned from this review, were incorporated into the next revision of EP 401110. It may be noted that DOE managers have recognized the need to revise EP 401110.

- Laboratory representatives expressed a strong desire to review and comment on the training lesson plans for the production technicians. Past experience from safety evaluations of various weapons programs has caused some concern among the laboratory representatives about the performance and knowledge of the production technicians involved in the assembly and disassembly processes.

- All production technicians and operations managers (i.e., first-line supervisors) had attended a 3-day training course on the W78 weapon system at SNL, which had been developed jointly with Los Alamos National Laboratory (LANL). The production technicians criticized the course for containing too much theory (the first day of the course is devoted to theory and weapons design features). Additionally, only the initial group of production technicians receives the benefit of this training. It is typically not provided to new production technicians once the program has been approved.

The Board's staff will continue to monitor the progress of the W78 SS-21 process. Specifically, the staff will monitor the continued implementation of the guidance in EP 401110/B.