

[DNFSB LETTERHEAD]

December 23, 1992

The Honorable Richard A. Claytor
Assistant Secretary for Defense Programs
U.S. Department of Energy
Washington, DC 20585

Dear Mr. Claytor:

The Board would like to acknowledge the efforts that have obviously been taken by DOE, the weapons design laboratories, and Mason and Hanger - Silas Mason to improve the procedural review process and the conduct of operations at the Pantex site in Amarillo, Texas. However, during a recent trip (December 15-17, 1992), several observations were developed by the Defense Nuclear Facilities Safety Board (DNFSB) staff, and our outside experts that indicate where problems continue to exist. Enclosed for your consideration and action are the most significant observations, concerning: weapons assembly/disassembly and dismantlement operations; personnel dosimetry; and the qualification evaluation for dismantlement (QED) process at the Pantex site.

The enclosed information may contain unclassified controlled nuclear information (UNCI); please inform me if this is the case. In the meantime, we will treat it as such. If you need any further information, please let me know.

Sincerely,

John T. Conway,
Chairman

Enclosure: Observations from Trip to Evaluate Dismantlement Operations at Pantex

c:

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May Contain Unclassified Controlled Nuclear Information.

Observations from a Trip to Evaluate Dismantlement Operations at Pantex

Background: DNFSB staff members D. Burnfield and S. Krahn, accompanied by outside experts J. Drain and K. Cooper (both of Systems Planning Corporation) visited the Pantex Site in Amarillo, Texas on December 15-17, 1992 to evaluate assembly/disassembly and dismantlement operations and the qualification evaluation for dismantlement (QED) process. Although progress has clearly been made at Pantex, and the QED efforts are continuing to progress, the staff has identified a number of observations that could affect safety. Summarized below are the three main observations developed during the subject trip.

Summary:

1. The conditional release to continue dismantlement operations or qualification evaluation for dismantlement release (QEDR) is to be issued before the final QED report. As outlined by Mason and Hanger - Silas Mason (M&H), many of the actions to resolve the findings are planned to occur over several months. This schedule seems unduly long, especially when considering that dismantlement operations are currently underway. If the QED process is to go forward as outlined, and on such an extended time schedule, the DNFSB must receive the QED final report while it is still in draft form, with all observations and analyses, and will need to receive draft QEDRs as soon as possible. Otherwise insufficient information will be available to technically review the determinations made by Sandia, LANL and LLNL and the corrective actions to be taken by M&H.
2. LLNL reported that the dosimetry used at Pantex is under-reporting personnel exposure to neutron radiation. This is a potentially significant issue from the standpoint of properly controlling worker exposure. It should receive the highest priority available for resolution.
3. Several observations regarding conduct of operations were noted. As discussed below they indicate that Pantex still requires substantial upgrading in this area. Improvements are required in both procedure development and training.

Discussion:

1. QED Resolution Process - The laboratories (Sandia, LANL, and LLNL) presently plan to release the dismantlement programs for the B-57, W-68, and W-70 via conditional QEDRs before the completion of the final reports for the QEDs (the W-48 program is on hold pending resolution of a operational problem which occurred in mid-November 1992). As discussed in the meeting held at Pantex, many of the actions to be taken to resolve the findings of the laboratories will not be completed for several months. The following approximate schedule was discussed for the remainder of the QED process for the B-57, W-68 and W-70 programs:

- a. The Conditional QEDRs are based on M&H plans to address the major findings of the QEDs and to issue a final report which discusses the observations. The QEDRs are expected to be released by early January 1993. The example, the DRAFT conditional QEDR for the B-57 program was a very brief document, and did not provide the technical rationale necessary for an independent reviewer to determine why the resolutions and schedules provided were considered to be technically satisfactory.
- b. Final QED Reports will not be available until late January, at the earliest. These reports are intended to discuss all observations made by the QED team, and to discuss how the evaluation was performed and to provide any other information deemed pertinent.

It is unclear from the very limited information provided how an independent review of the information used to make the QEDR decision can be made, based only upon the information that will be available at the time the decision is promulgated.

2. Dosimetry: An issue was discussed regarding the ability of the dosimetry used at Pantex to accurately measure neutron exposure. Both Pantex and LLNL presented data indicating that the dosimetry could not accurately establish the dose that should be assigned to a worker in high neutron radiation fields. However, the Pantex data indicated that the system presently in use would overestimate the dose received, while the LLNL data indicated that the dosimetry system in use at Pantex would underestimate the dose. Compounding technical factors included: the beta radiation field that is also present during some dismantlement operations and the moderating effect of the low molecular weight material that surrounds the radioactive material. Pantex (Battelle) is establishing a working group including LLNL, LANL, and the Pacific Northwest Laboratory (PNL) personnel to further investigate this apparent discrepancy. This issue will also be the subject of detailed DNFSB Staff review.
3. Conduct of Operations: During the trip the Staff and outside experts also toured the cells and bays where active assembly/disassembly and dismantlement work was in progress. During these tours it became clear that significant conduct of operations and procedural deficiencies remain to be corrected. Additional DNFSB staff trips will be required to review training, procedural improvements, and operations in progress. Examples of problems noted included:
 - a. A number of instances where procedures were performed out of sequence, where no such provision existed in the procedure. These instances were immediately pointed out to the cognizant Pantex (M&H) supervisor. Although, as noted below, in some cases the procedure may have been faulty, the workers did not take the necessary actions to have the procedures corrected.
 - b. Numerous instances occurred of personnel performing many steps before certifying

steps were complete, vice performing a step and certifying its completion prior to moving on to the next step.

- c. In other instances the procedures were difficult to follow as written, or the sequence of the procedures did not make sense.

Although Pantex is in the process of a long-term effort to upgrade their procedures, this is not scheduled to be completed until mid-May 1993. In the meantime, workers are forced to use procedures which are not optimally written in continuation of dismantlement operations.