

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 25, 2000

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director

**FROM:** T. Dwyer and H. Waugh, Pantex Site Representatives

**SUBJECT:** Pantex Plant Activity Report for Week Ending February 25, 2000

**DNFSB Activity Summary:** T. Dwyer was on site all week. H. Waugh remains on leave. D. Burnfield, J. DeLoach, and M. Moury were on site Tuesday-Thursday reviewing tooling-related design, configuration control, and training issues.

**Tooling-Related Issues:** Three members of the Board's staff conducted a review of the Pantex tooling design, manufacturing, and procurement program this week. As a result of the review, the staff identified 4 potential issues. Of note, these issues are markedly less-significant in programs that follow the full SS-21 process.

- ! There are no hazards analyses performed to determine the failure modes of complex tooling and to take that information, as well as historical information obtained from tooling failures, and develop a formal preventative maintenance program for tooling. In large part, tooling is operated in a "use-to-failure" mode.
- ! Functional tests for features of tooling credited with safety functions are not well-defined.
- ! Acceptance criteria for visual inspection of tooling are weak and do not provide specific information on potential failure modes that could result from normal wear and tear.
- ! The site tooling design engineers do not have a formal system to promote feedback of detailed information from Manufacturing Division on methodologies to improve tooling.

While the broad experience base of the Tooling and Machine Design Department has generally resulted in the development high quality tooling, the system is essentially expert-based. It could be improved by moving to a system based upon the principles of integrated safety management. For example, the archiving of tooling design information could be expedited, and the *Tooling Fabrication and Inspection General Requirements* (MNL-10666) could be upgraded to include more detailed guidance on such things as material selection, torquing of dissimilar-metallic joints, and welder qualification. Feedback could also be improved. Currently, there is no system to provide procurers, tooling fabricators, or tooling vendors with information on minor deficiencies identified in new tooling during receipt inspections, if the tooling is ultimately accepted without rework. Training of PTs in the use of tooling, and the reasons behind specific tooling design features, has shown some improvement in both quality and standardization [across weapons programs], but remains uneven. In particular, those PTs not on a weapons program start-up crew generally receive significantly less instruction regarding tooling design features and engineering decisions made during process flow/tooling development. During observation of PT training it was noted that PTs are sometimes performing minor maintenance on tooling. However, the limits of such minor maintenance are not defined. Further, Tooling and Machine Design personnel stated emphatically that minor maintenance by PTs is not permitted.<sup>[II.A]</sup>