DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004-2901
(202) 694-7000

March 8, 2000

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

Dear Mr. Glauthier:

The Defense Nuclear Facilities Safety Board (Board) has reviewed your response of December 22, 1999, to the Board's August 26, 1999, reporting requirement on the state of implementation of Department of Energy (DOE) Order 425.1A, *Startup and Restart of Nuclear Facilities*. The Board is encouraged by the comprehensive corrective actions developed by the DOE team. However, the report does not fully address the problem of repeated premature declaration of readiness by line management. It appears that this problem is often due to line management's failure to develop and apply a well-defined set of prerequisites for certifying readiness.

Often the prerequisites are little more than a reiteration of the "core requirements" of DOE Order 425.1A. Lacking is a reasonable set of executable actions under each applicable "core requirement" that, when performed by line management could be expected to bring the operation into a state of readiness for that area. The application of the prerequisites by line management has also been problematic. Satisfaction of the prerequisites has not been tracked and verified with the rigor necessary for senior managers to declare readiness with confidence. It appears that additional focus on the development and use of prerequisites for an Operational Readiness Review or readiness assessment is warranted.

In addition, the Board noted that some field offices performed self-evaluations that were inconsistent with recent observations made by its staff. The Board's staff continues to observe those shortfalls identified in the Board's August 26, 1999, reporting requirement. A recent example is the observations by the Board's staff during the startup of a nuclear explosive operation at the Pantex Plant. These observations are documented in the enclosed staff report.

The Board is pleased to note that in addition to a commitment providing more oversight by the Office of Independent Oversight (EH-2), the Lead Program Secretarial Officers (LPSOs) will be performing their own reviews to determine the effectiveness of corrective actions and

ensure that startup/restart programs are adequate. The Board would like to be briefed on the results of the LPSOs' oversight reviews and EH-2's plans for future reviews.

If you have any questions on this matter, please do not hesitate to contact me.

Sincerely,

John T. Conway
Chairman

c: Mr. Mark B. Whitaker, Jr.

Enclosure

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Staff Issue Report

January 28, 2000

MEMORANDUM FOR: G. W. Cunningham, Technical Director
J. K. Fortenberry, Deputy Technical Director

COPIES: Board Members

FROM: D. L. Burnfield

SUBJECT: Review of Status of W62 Disassembly and Inspection Program, Pantex Plant

This report summarizes the results of a review performed by members of the staff of the Defense Nuclear Facilities Safety Board (Board) in support of the Board's Recommendation 98-2, *Safety Management at the Pantex Plant*. Staff members D. Burnfield, M. Helfrich, and T. Dwyer and outside expert R. West met with representatives of the Department of Energy (DOE) and Mason and Hanger Corporation (MHC) during November 15–December 24, 1999, to review preparations for restarting the W62 Disassembly and Inspection (D&I) Program. The staff also observed the initial D&I operations during January 5–January 14, 2000.

Background. In October 1999, MHC conducted a management self-assessment (MSA). The team members did not write findings to be resolved, but stated concerns in paragraphs of the final report. This made it uncertain what actions were necessary for readiness to be declared. The team considered the recently revised Nuclear Explosive Operating Procedures (NEOPs) to be an improvement over those used during the previous Nuclear Explosive Safety Study (NESS) Revalidation, which was attempted in 1998. However, the team noted that numerous procedure changes had been identified during the MSA and indicated that the assessment was more of a procedure validation than a dress rehearsal for the readiness assessment. The MSA also identified problems with operator proficiency, for which the corrective action taken was tabletop training on the revised NEOPs. The MSA report noted that deficiencies in operator performance had been recognized as a weakness prior to the MHC Readiness assessment. Because of the draft status of the Activity-Based Controls Document (ABCD) used for the MSA, the team noted problems in verifying that the procedures implemented the controls necessary to maintain the safety envelope. The team verified resolution of its concerns regarding the procedures without observing use of the changed procedures, conducting a tabletop review instead.

W62 Mason and Hanger Corporation Readiness Assessment. On October 29, 1999, the W62 Program Manager reported to the plant General Manager that the W62 D&I process was ready to undergo the contractor readiness assessment. The memorandum to this effect noted that all prerequisites had been met except for the following issues, which remained open at the

time of the declaration of readiness: the three Conditions of Approval from the approval letter of the DOE Albuquerque Operations Office (DOE-AL) for the Hazard Analysis Report and ABCD, the need to revise the authorization basis to reflect site programs to be implemented in accordance with the Critical Systems Safety Manual versus the Technical Safety Requirements, and the fact that the cell NEOP had not yet been distributed for use. According to the prerequisites, all core requirements had to be completed. The more significant core requirements included issuance of correct procedures, approval of facility safety documentation describing the safety envelope, the need for operators to be trained, and implementation of the requirements of conduct of operations.

The MHC Readiness assessment was conducted October 29–November 11, 1999, and resulted in 28 pre-start and 13 post-start findings. Some of the more significant findings concerned deficiencies associated with the flowdown of W62 controls, content of NEOPs, procedural compliance, and operator proficiency. The readiness assessment team concluded that W62 D&I operations could be conducted safely upon resolution of all pre-start findings and approval of action plans for all post-start findings. After the readiness assessment, the team observed retraining of Production Technicians on the bay NEOP and redemonstration of the cell NEOP, which resulted in a requirement for the MHC readiness assessment team to observe cell training.

MHC's process for preparing and verifying readiness for conducting W62 operations was flawed. The correction of problems noted during the MSA was ineffective in that the MHC readiness assessment resulted in 28 pre-start findings, many of which were the same as those identified by the MSA. The correction of the pre-start findings from the MHC readiness assessment was ineffective in that the flowdown of some authorization basis controls could not be demonstrated, procedures still needed multiple revisions, and operators lacked proficiency. Readiness for starting the DOE readiness assessment was declared with the authorization basis containing contradictions between the ABCD and the lightning protection engineering instruction. The poor quality of the closure packages used to verify the correction of pre-start findings from the MHC readiness assessment contributed to DOE's inability to determine readiness. In many cases these packages were incomplete, indicated acceptance of corrective actions without adequate demonstration of correction, or did not expand the review to additional areas when the finding clearly indicated that the noted deficiencies were only examples of larger problems. Additionally, there was no clear path to resolution for two recently identified issues related to lightning protection.

W62 Department of Energy-Albuquerque Operations Office Readiness Assessment. The DOE readiness assessment began late on the afternoon of November 29, 1999, and was completed on December 2, 1999. Activities on the morning of the second day were ineffective because security issues prevented access to a bay. Thus the readiness assessment was accomplished in less than 3 days. The readiness assessment resulted in five pre-start and nine post-start findings. Many of these findings had been provided to the readiness assessment team by the NESS team, which performed a more thorough review.

Observation of the DOE readiness assessment and review of the report of results indicated that the readiness assessment was ineffective in determining readiness and specifying the issues to be resolved. The staff noted the following problems with the DOE readiness assessment:

- The biographies of the team members indicated that two members did not have the knowledge and experience required to conduct their assigned portions of the review.

- The time allotted for the readiness assessment was insufficient to provide an in-depth evaluation of readiness, especially given the fact that some team members were not knowledgeable and experienced in their assigned areas.

- Weaknesses in technique limited the ability of the team to identify deficiencies. Most significant was a lack of reference to standards and procedures to verify correct performance of evolutions or determine answers to questions.

- The NESS Group was relied upon for most of the issues related to conduct of operations that were noted. This group was not required to be knowledgeable concerning conduct of operations, and although it identified a significant number of deficiencies, it did not note some others that occurred.

- While concurrent performance of the readiness assessment and NESS reviews yielded some benefits as noted in the preceding item, in general it was distracting to the NESS review. In addition, the primacy offered to the NESS Group inhibited the readiness assessment team from efficiently and effectively completing its equally important function—confirming readiness.

- The readiness assessment did not cover several functional areas required to be addressed by the DOE Implementation Plan. Further, the report of results did not sufficiently document the incompleteness of the review.

- The report of results also did not provide findings for all of the issues revised during the assessment, nor did it adequately characterize the extent of some of the significant deficiencies of the readiness assessment.

W62 Nuclear Explosive Safety Study Review. The NESS Review was performed during a 3-week period and consisted of briefings, demonstrations, and deliberations. The NESS Group identified eight new recommendations (one pre-start and seven post-start) and endorsed six previously identified corrective actions (three pre-start and three post-start). After the review, two of the post-start issues were upgraded to pre-start on the basis of the input of the DOE-AL manager. The NESS Group performed in an efficient and effective manner. The staff believes it is only because of the thorough review performed by this group that the W62 D&I process may be ready to proceed.

W62 Disassembly and Inspection Operations. None of the reviews discussed above adequately covered the W62-specific operations in the special-purpose bays. As a result, the procedures for handling of the W62 during radiography were significantly flawed. These errors were not discovered until the first unit was moved into the bay, and resulted in confusion on the part of the technicians and possibly in the use of tooling in an unapproved configuration. A number of other minor procedural errors were noted during mechanical operations in the bay that ought to have been corrected before initial operations.