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A.J. Eggenberger, Vice Chairman
John W. Crawford, Jr.
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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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September 27, 1995

Mr. Mark Whitaker
Department of Energy
1000 Independence Avenue
Washington, DC 20585

Dear Mr. Whitaker:

Enclosed for your information and distribution are eight Defense Nuclear Facilities Safety Board staff reports. The reports have been placed in our Public Reading room.

Sincerely,

A handwritten signature in black ink, appearing to read "George W. Cunningham".

George W. Cunningham
Technical Director

Enclosures (8)

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 23, 1995

MEMORANDUM FOR: G.W. Cunningham, Technical Director**COPIES:** Board Members**FROM:** Matthew B. Moury, Pantex Program Manager**SUBJECT:** Pantex Site - DNFSB Staff Report - Conduct of Operations and Training and Qualification Program Review.

1. **Purpose:** This memorandum documents the results of a review of conduct of operations and training and qualification programs at Pantex. Defense Nuclear Facility Safety Board (Board) staff members J. DeLoach, T. Dwyer, M. Moury, and H. Waugh, and outside expert D. Volgenau conducted the review during the period April 19-21, 1995. Board Member Mr. J.W. Crawford, Jr. participated on one day of the review.
2. **Summary:** The training and qualification programs and the implementation of conduct of operations at Mason and Hanger-Silas Mason Company (M&H) and the Department of Energy (DOE) Amarillo Area Office (AAO) were reviewed. This review was accomplished through discussions with responsible managers, reviews of directives and records, attendance at scheduled field meetings, observation of work practices in the field, and interviews with managers, supervisors, engineers, and operators. The following summarizes the major observations from the visit.
 - a. Except for the Facility Representative (FR) program, DOE-AAO is significantly behind M&H in implementing conduct of operations and an effective training and qualification program. Progress in the training area appears to be hindered by a lack of senior DOE-AAO management attention, compounded by a lack of cooperation between the DOE Albuquerque Operations Office (DOE-AL) and DOE-AAO.
 - b. M&H has made good progress in formulating a sound training and qualification program. Not all of the elements of this program have been formalized, however, and for those formalized and implemented, there are decided differences in the quality of program implementation between divisions. An effective self-assessment system is not fully implemented and a fundamentals training program has only been conceptualized. A system that effectively tracks the qualification and training status of each M&H individual has been developed.
 - c. Many procedures and directives have been developed to assist in implementing conduct of operations principles and to satisfy the requirements of the *Pantex Plant Conduct of Operations Action Plan (COOAP)*. Although progress has been made, the effectiveness of

the implementation is uneven across the site. Currently, the program appears to emphasize satisfying the near-term COOAP requirements rather than generating a true understanding of conduct of operations principles in managers, supervisors, and operators and ensuring continued long-term improvement in the formality of operations at Pantex.

3. **Background:** Staff reviews in 1993 resulted in formal Board reporting requirements on training and qualification, forwarded July 6, 1993, and conduct of operations, forwarded November 4, 1993. The DOE responses to the Board's letters included corrective action plans to address the deficiencies with the programs. This review was a follow-up to assess the progress made in implementing DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities* and DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*.

4. **Discussion:**

- a. DOE-AAO Training and Staffing

1. Except for the FR program, DOE-AAO is significantly behind M&H in implementing a sound training and qualification program. DOE-AAO did not demonstrate that training and qualification of their personnel was a top priority receiving constant management attention nor did they demonstrate a full understanding of the immense benefit that could be derived from a high-caliber training and qualification program. The following issues illustrate the status of the DOE-AAO program:
 - (a) The training and qualification program appeared relatively ineffective based on the results of level of knowledge interviews conducted on six DOE-AAO technical personnel. For example, several DOE-AAO personnel could not adequately explain general radiological controls, the characteristics of tritium, safety analysis reports, or the hazards associated with a particular operation.
 - (b) A DOE-AAO procedure (102.1.0) governing qualification and training became effective April 15, 1995. Most of its provisions have not been implemented and plans for the complete implementation have not been formalized.
 - (c) DOE-AAO has obtained copies of all of the draft Recommendation 93-3 Functional Area Qualification Standards and has also reportedly performed a job task analysis for all DOE-AAO federal employees. However, DOE-AAO is *not using the DOE-Human Resources (HR) qualification program*. DOE-AAO intends to address the program requirement to develop Site Specific Functional Area Qualification Standards by creating just three such standards.
 - (d) DOE-AAO has developed Individual Development Plans (IDPs) for all federal employees, as required. However, it was reported that these were developed by (in

various cases) the associated Assistant Manager, the associated (division) training coordinator, or the first line supervisor, as opposed to being a combined effort of the employee in question and his first line supervisor as described in DOE Order 3410.1A, *Training*, and section 5.6 and Appendix F of the mandatory interim guidance in *Professional Development of Federal Technical Personnel*. It was also apparent that IDPs were not being used to determine training needs and there was no coordinated effort to plan, identify, or obtain needed training at DOE-AAO. During the staff review, three separate, unconnected efforts to identify training needs were described.

- (e) DOE-AL's training division's stated role is to "support DOE-AAO training goals." Given the state of DOE-AAO training presented above and several obvious communications problems regarding IDPs, Recommendation 93-3 activities, and requested training approval, greatly improved cooperation will be required by DOE-AAO and DOE-AL to build a program that supports the DOE-AAO manager's training needs and his vision for the DOE-AAO staff.
2. DOE-AAO has made progress in the FR Program. A process for recruiting candidates is in place and a training and qualification program has been implemented. Several FRs were recently qualified and assigned to facilities. Further enhancements to their training and qualification program to ensure full compliance with DOE Orders 5480.19 and DOE Standard 1063, *Establishing and Maintaining a Facility Representative Program at DOE Nuclear Facilities*, are in early stages of formulation. A daily DOE-AAO FR morning conference call meeting was attended. This meeting provided for an interchange of important, operationally-related information that has occurred since the last meeting between FRs and DOE-AAO management. It was an interactive meeting and indicative of an effort to oversee M&H actions. During the review it was clear that the inability to upgrade the technical competence of the rest of the DOE-AAO technical staff has placed a significant technical burden on the FRs.
 3. DOE-AAO has pursued upgrading the level of technical expertise of the staff through the hiring process and an increase in the authorized personnel ceiling from eighty-six to ninety-six has been approved. Although the total number of people on the staff has only increased by one over the last three years, the mix has changed significantly, with a large increase in the number of people with technical backgrounds. Despite DOE-AAO's recruiting efforts, it has been difficult to attract quality candidates to fill the positions. Even with the issuance of the DOE-HR manual *Manager's Guide to Administrative Flexibilities*, DOE-AAO reported difficulty obtaining travel pay, hiring bonuses, "double-dipping" approvals, excepted service authority, and upper steps authorizations for GS pay grades. For example, DOE-AAO submitted a request for one excepted service position. The initial request was rejected (documentation inadequacies); the resubmittal required six weeks for approval. Due to the urgency of the need for an individual in the position, DOE-AAO was forced to fill the billet using the standard personnel system.

b. Mason & Hanger Training and Qualification Program

M&H has made progress in formulating a sound training and qualification program; however, not all of the elements of this program have been formalized or implemented. For example, the production supervisors have not received additional technical training, as required by DOE Order 5480.20A, above that required for production technicians. For those elements of the program that have been implemented, there are decided differences in the quality of the program between divisions. In addition, an effective self-assessment program is not in place. A fundamentals training program is planned, but has not been formulated. M&H training records and the Training Records and Certification System (TRAC) program appeared to be very effectively managed and used.

c. Conduct of Operations

1. The COOAP was developed from the recommendations made by the independent conduct of operations assessments performed in January and November 1994. The focus to date by DOE and M&H appears to be on completion of the administrative issues addressed in the COOAP with limited assessment of actual operational improvement in the facilities. No DOE plans to ensure continued improvement in the conduct of operations at Pantex, beyond the completion of actions required by the COOAP, were evident. Following the staff review, DOE-HQ stated a plan was being developed to address this deficiency; however, the plan is currently conceptual. Adherence to the tenets of conduct of operations and continuous improvement in the formality of operations will require focused management attention. The following specific examples of adherence issues and a lack of attention to detail were identified during Board staff observation of weapons and maintenance operations:

- (a) Production technicians performed procedural steps in a formal, but inconsistent, manner. The reader did not always observe what the operator was doing after reading a procedural step. During the performance of a pre-operational check, one technician performed a check of a blast door interlock while he was out of sight of the verifier. The interlock was verified as satisfactory by the technician who did not observe its operation.
- (b) The Radiological Work Permit (RWP) next to a bay entrance was not completed according to the DOE Radiological Control Manual. The sign-off sheet did not contain either the RWP or revision number. The RWP stated that alpha, beta, gamma and neutron radiation was expected, yet the estimated maximum exposure portion of the RWP was marked as not applicable. The estimated removable contamination levels were stated as greater than a high value, while the latest weekly area survey showed all areas surveyed to be a factor of ten less than this. The area survey had not been signed by a supervisor as required by the form.

- (c) The General Instructions section of a maintenance procedure includes the following statement: "Action steps in Section 5 TASK INSTRUCTIONS are for guidance and are NOT intended to be performed step by step." Two maintenance technicians who were very familiar with these maintenance procedures, therefore, *did not follow step-by-step*, resulting in several minor supporting requirements being missed (e.g., public address announcements when system taken out of service, etc.).
 - (d) The process of transferring a facility to various modes for maintenance, repair, and operations has been formalized; however, many flaws in the process were observed. For example, no system post-maintenance testing was specified or performed, although the four different critical safety systems were manipulated and the pre-operational checklists may be performed again following maintenance at the discretion of the facility manager.
 - (e) Material deficiencies with the fire suppression system (valve stem packing leaks) were observed but not documented by the fire department technicians operating the system. No deficiency tag existed as required by local procedures. Upon questioning, the technicians stated that such items are normally reported verbally to their supervisor.
2. The Manufacturing Division has recently (February 1995) effected an organizational restructuring designed to improve the weapons assembly and disassembly operations by clearly delineating the roles of the division operations, facility, and program managers. Although briefings on this restructuring have been given to individuals in the division, the details of the restructuring have not been formally promulgated. Meanwhile, the certification process for weapons evolutions and actual weapons operations continue. The lack of formal promulgation of this restructuring is not in keeping with the requirements placed on managers, supervisors, and operators by DOE Order 5480.19.
 3. The M&H Drill Program was reviewed. Only three drill sets have been run thus far in 1995; all three were very simplistic. The Drill Schedule for the remainder of 1995 averages only four drill sets per quarter over all of the Manufacturing Division.
- 5. Follow-up Activities:** The Board's staff will continue to follow conduct of operations and training and qualification program implementation as part of normal staff reviews of Pantex activities.