DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004
(202) 208-6400

September 22, 1992

The Honorable James D. Watkins
Secretary of Energy
Washington, DC 20585

Dear Mr. Secretary:

On September 22, 1992, the Defense Nuclear Facilities Safety Board, in accordance with 42 U.S.C. § 2286a(5), unanimously approved Recommendation 92-7 which is enclosed for your consideration. Recommendation 92-7 deals with Training and Qualification.

42 U.S.C. § 2286d(a) requires the Board, after receipt by you, to promptly make this recommendation available to the public in the Department of Energy's regional public reading rooms. The Board believes the recommendation contains no information which is classified or otherwise restricted. To the extent this recommendation does not include information restricted by DOE under the Atomic Energy Act of 1954, 42 U.S.C. §§ 2161-68, as amended, please arrange to have this recommendation promptly placed on file in your regional public reading rooms.

The Board will publish this recommendation in the Federal Register.

Sincerely,

John T. Conway
Chairman

Enclosure

RECOMMENDATION 92-7 TO THE SECRETARY OF ENERGY

pursuant to 42 U.S.C. § 2286a(5)
Atomic Energy Act of 1954, as amended.

Dated: September 22, 1992

Since its inception, the Defense Nuclear Facilities Safety Board has emphasized that a well constructed and documented program for training and qualifying operations, maintenance, and technical support personnel and supervisors at defense nuclear facilities is an essential foundation of operations and maintenance and, hence, the safety and health of the public, including the facility workers. A substantial portion of the Board's efforts has been devoted to on-site observation and review of personnel and supervisor selection, training, qualification, certification and facility operation.

The Board recognizes and commends DOE's efforts to date to upgrade training programs at its defense facilities. While the Board applauds the effort expended in developing DOE Orders 5480.18A, *Accreditation of Performance-Based Training for Category A Reactors and Nuclear Facilities* and 5480.20, *Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities*, implementation of these Orders to date has been slow and the Board continues to find common deficiencies at most facilities it visits. DOE nuclear facility Maintenance and Operations (M&O) Contractors were required by DOE Order 5480.20 to submit implementation plans called Training Implementation Matrices (TIMs) for each nuclear facility by November 8, 1991. The Order does not contain a time requirement for DOE to approve the TIMs and, for the facilities reviewed by the Board and its staff, DOE has not approved the plans they have received to date.

Until the TIMs are approved, training at defense nuclear facilities is governed by more general requirements contained in DOE Orders on safety (DOE Order 5480.5 *Safety of Nuclear Facilities* and DOE Order 5480.6 *Safety of DOE-Owned Reactors*) that have been in effect since September 23, 1986. Despite the long standing requirements of these Orders, the contractors at the many different facilities evaluated by the Board have not yet, in our view, provided management attention and resources for training and qualification commensurate with the health and safety implications of their defense nuclear programs. Indications at each of these sites demonstrate weaknesses in contractor training programs that have potential negative safety consequences. For example:

> A primary measure of an effective training program is the level of knowledge of the personnel and supervisors. At almost all defense nuclear sites, there are numerous technical personnel and supervisors of defense nuclear activities who do not adequately understand many basic fundamentals of engineering, chemistry, nuclear physics, and radiation protection to the extent required to ensure safe operation or maintenance of the facility to which they are assigned.

Written examinations at many sites often consist of unchallenging multiple choice and short answer questions which do not adequately assess operator knowledge. Additionally, written operator qualification exams do not effectively correlate fundamental engineering principles with job specific knowledge requirements. As a result, management may not have sufficient information to determine if technical personnel in a defense nuclear facility have achieved a level of expertise required to safely conduct their activities.

As stated in DOE Order 5480.20, Program Senior Officials are responsible for assuming "line management responsibility and accountability for reactor and non-reactor nuclear facility personnel qualification programs." The contractors' lack of effective implementation of DOE Orders concerning training is indicative of the need for more emphasis, direction and guidance on training by line management at DOE Headquarters and Field Offices. For example, the Department has been slow to extend the underlying principles of Board Recommendation 90-1 to other defense nuclear facilities. Recommendation 90-1 called for the development of an effective training program at Savannah River Site K-reactor. It is especially disturbing that despite the successful application of Recommendation 90-1 to K-reactor and the Replacement Tritium Facility, DOE has not improved training of corresponding technical personnel at some other Savannah River Site defense nuclear facilities.

Primarily as a result of assessments conducted by the Board's staff at the Hanford Site, the Pantex Plant, the Savannah River Site non-reactor facilities, the Oak Ridge Y-12 Plant, and the Rocky Flats Plant, but also because of reviews conducted elsewhere in the defense nuclear facilities complex, the Board believes there is a need for DOE to take action to further strengthen training of technical personnel at defense nuclear facilities. While the benefits of training are felt in many ways, the recommendations below are to be seen for their positive effects on assuring public health and safety. Therefore, in keeping with the Board's statutory requirements and recognizing the priority DOE has placed on the facilities listed above, the Board recommends for these sites that:

1. The Department take timely action to expand senior management's involvement in implementing training programs at defense nuclear facilities and to enhance senior management's communication of the importance of effective training and qualification programs to all levels within relevant DOE and contractor defense nuclear facilities organizations, particularly within line organizations. With regard to operations, maintenance, and technical support personnel, the Department should determine what personnel, funding, organizational, or managerial strengthening actions are needed to (a) elevate the priority and importance of training and qualification programs to assure public health and safety; (b) communicate the importance of training and qualification from the highest level of management to all appropriate Department personnel; (c) expand personnel and supervisor training and qualification guidance and increase program resources to facilitate the rapid review,

approval, and implementation of training and qualification programs; and (d) make other changes as are warranted.

2. Where it is found to be necessary, the Department strengthen organizational units responsible for training and qualification at the DOE Field Offices, DOE Area Offices, and contractor organizations responsible for defense nuclear facilities at these sites, especially to include the appropriate technical qualifications of the personnel assigned to defense nuclear activities. The infrastructure, responsibilities, and resources of the training and qualification programs of those organizations need to be strengthened to expedite implementation of existing and additional training and qualification requirements issued by DOE.

3. The Department accelerate efforts internal to DOE to improve training and qualification programs of operations, maintenance, and technical support personnel at defense nuclear facilities. An integral part of this effort should be an assessment of the roles and effectiveness of technical oversight groups to ensure that these groups' reviews, at all organizations and levels within the defense nuclear facilities complex, appropriately recognize the importance of training and qualification to public health and safety. The Department's program should also consider restructuring on-site technical oversight groups to ensure that training and qualification are afforded adequate attention and team members possess the technical expertise necessary to effectively evaluate training and qualification programs of operations, maintenance, and technical support personnel.

4. The Department and its contractors establish and implement measures to improve training and qualification programs of operations, maintenance, and technical support personnel at defense nuclear facilities that embody the principles applied at the Savannah River Site K-reactor in response to Board Recommendation 90-1. These measures, adjusted commensurate with the risk associated with operating each specific facility, should include consideration of elements such as:

   a. Incorporation of appropriate applicable guidance on training and qualification comparable with trade, professional, and industry standards for reactor and non-reactor nuclear facilities. While the Board does not necessarily endorse all guidance contained in these standards, it believes they are important sources of information which can be productively used by DOE in identifying improvements for DOE's programs.

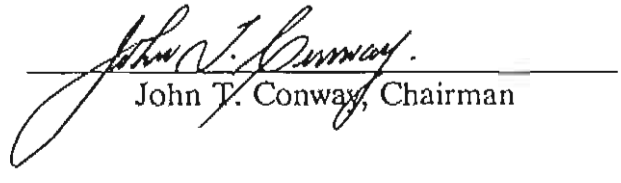
   b. Identification of differences between current requirements and applicable trade, professional, and industry standards and implementation of supplemental measures necessary to compensate for the differences identified until training and qualification programs at defense nuclear facilities achieve a level at least equal to trade, professional and industry standards.

c. Extension of the performance-based training principles described in DOE Order 5480.18A to all defense nuclear facilities. Particularly the requirements to: 1) determine the current level of knowledge of appropriate personnel, supervisors, and managers of technical activities by means of written, oral, and practical examinations covering job specific process knowledge requirements as well as fundamentals concepts required to perform a job in a manner that protects the safety of the worker and the public; 2) delineate the training necessary to ensure that these personnel achieve and maintain the qualifications of their respective positions; and 3) evaluate individuals' knowledge level and training curriculum to ensure that the training program effectively prepares these personnel to safely operate, maintain, or support the facility to which they are assigned.

d. Extension of current continuing training, retention testing, and periodic requalification programs to require these personnel to demonstrate continued improvement with increasing experience.

e. Maintenance of readily accessible, auditable records to identify required training and objectively verify training received by these personnel and supervisors including the degree of success achieved.

We believe it is essential that the Department and its contractors accomplish the above for each DOE defense nuclear facility. The facilities specifically identified in this Recommendation are those which the Board understands to be among those which have high priority within the Department and on which the Board has focused its attention.



John T. Conway, Chairman

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

[Recommendation 92-7]

Training and Qualification

AGENCY: Defense Nuclear Facilities Safety Board.

ACTION: Notice; recommendation.

SUMMARY: The Defense Nuclear Facilities Safety Board (Board) has made a recommendation to the Secretary of Energy pursuant to 42 U.S.C. 2286a concerning Training and Qualification. The Board requests public comments on this recommendation.

DATES: Comments, data, views, or arguments concerning this recommendation are due on or before October 28, 1992.

ADDRESSES: Send comments, data, views or arguments concerning this recommendation to: Defense Nuclear Facilities Safety Board, 625 Indiana Avenue, NW., suite 700, Washington, DC 2004.

FOR FURTHER INFORMATION CONTACT: Kenneth M. Pusateri or Carole J. Council, at the address above or telephone (202) 208–6400.

Dated: September 23, 1992.

John T. Conway,

Chairman.

[Recommendation 92–7]

Training and Qualification

Dated: September 22, 1992.

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John T. Conway,
Chairman.

Appendix—Transmittal Letter to the Secretary of Energy

Defense Nuclear Facilities Safety Board

625 Indiana Avenue NW, Suite 700, Washington, DC 20004, (202) 208-6400

September 22, 1992.

The Honorable James D. Watkins,
Secretary of Energy, Washington, DC 20585

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Sincerely,

John T. Conway,
Chairman.

Enclosure

[FR Doc. 92-23468 Filed 9-25-92; 8:45 am]
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