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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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June 1, 1993

The Honorable Hazel R. O'Leary  
Secretary of Energy  
Washington, DC 20585

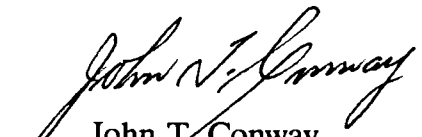
Dear Secretary O'Leary:

On June 1, 1993, the Defense Nuclear Facilities Safety Board, in accordance with 42 U.S.C. § 2286a(5), unanimously approved Recommendation 93-3 which is enclosed for your consideration. Recommendation 93-3 deals with Improving DOE Technical Capability in Defense Nuclear Facilities Programs.

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 93-3 TO THE SECRETARY OF ENERGY  
pursuant to 42 U.S.C. § 2286a(5)  
Atomic Energy Act of 1954, as amended.

Dated: June 1, 1993

Effective functioning of any organization, whether in the private sector or government, is highly dependent upon the capabilities of people and the way they are guided and deployed. Nowhere is this dependency more crucial than in the Department of Energy's defense nuclear complex, where the potential hazards inherent in nuclear materials production, processing, and manufacturing, require high quality technical expertise to assure public and worker safety.

Nuclear weapons development and production have progressed over the years from early efforts of a small group of highly talented, ingenious individuals in scientific laboratories to employment of thousands of workers in industrial-type production environments. While the national response to today's changing international scene is resulting in down-sizing of the nuclear stockpile and a change in mission of many of the defense nuclear facilities, the need remains for continuing vigilance to protect public and worker health and safety. In fact, a case can be made for the need for greater vigilance now throughout the weapons complex because of: increased risk of equipment mishaps in aged facilities, loss of existing technical expertise through attrition and down-sizing, and a reduced inclination for young engineers and scientists to get involved in the nuclear weapons field.

Nevertheless, the level of scientific and technical expertise in the DOE of defense nuclear facilities and operations has been declining. The Defense Nuclear Facilities Safety Board in its last three annual reports has observed that:

"... the most important and far reaching problem affecting the safety of DOE defense nuclear facilities is the difficulty in attracting and retaining personnel who are adequately qualified by technical education and experience to provide the kind of management, direction and guidance essential to safe operation of DOE's defense nuclear facilities."

The Board has not been alone in calling attention to the problem. Congressional perception of the need to upgrade DOE technical expertise is evident in the Board's enabling legislation. The need for such up-grading is further underscored by assessments made by a number of other groups over the past decade, as the attached excerpts from their reports indicate.

A reputation for technical excellence is a strong attraction for talented individuals. Organizations with strong technical missions commonly cite technical excellence as a goal towards which management should strive. However, sustained leadership emphasis and deliberate actions are required if the reality of technical excellence is to be achieved.

Actions by the Board, such as recommendations and public hearings, have resulted in some efforts on the part of certain DOE organizations and M & O contractors to upgrade existing staff and recruit better qualified personnel. However, such efforts have not been coordinated DOE-wide and have been well short of the need. The Board believes that a more aggressive, broad-based and well-coordinated program directed at the enhancement of the technical capabilities of the DOE staff should be defined and implemented.

The Board recognizes the difficulty any on-going organization faces in developing programs targeted at upgrading competence of staff. Such efforts rarely succeed without strong endorsement, involvement, and guidance by the organization's top management and without the impetus provided by objective appraisals made by outside, independent experts. Further, the sheer size, differing requirements, and dispersion of DOE staff complicates both the problem and the solution. Nonetheless, the strong correlation between technical excellence and assurance of public health and safety compels this Board to urge that DOE give high priority to the problem of attracting and retaining technical personnel with exceptional qualifications. More specifically the Board recommends that DOE:

1. Establish the attraction and retention of scientific and technical personnel of exceptional qualities as a primary agency-wide goal.
2. Take the following specific actions promptly in the interest of achieving this goal.
  - a. Seek excepted appointment authority for a selected number of key positions for engineering and scientific personnel in DOE programmatic offices, in other line units and in the oversight units responsible for the defense nuclear complex.
  - b. Establish a technical personnel manager within the Office of the Secretary to coordinate recruitment, classification, training, and qualification programs for technical personnel in defense nuclear facilities programs.
3. Develop a broadly-based program, giving consideration to the following:
  - a. DOE Internal Initiatives.
    - (1) Develop a set of mutually supportive actions which DOE could take, within existing personnel structures, to enhance capabilities.  
Measures warranting consideration:
      - (a) Plan and execute a system for using attrition to build technical capability.

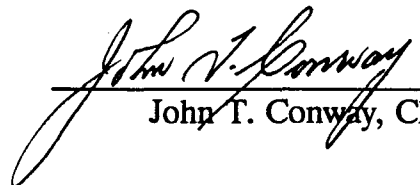
- (b) Review the performance appraisal system for technical employees for its effectiveness in determining basic pay, training needs, promotions, reductions in grade, and reassignment/removal.
- (c) Review and improve programs for training and assigning technical personnel. (This activity would be coordinated with actions taken, planned to be taken, in response to Board Recommendations 90-1, 91-6, 92-2, and 92-7.)
- (d) Explore with the Secretary of Defense the possibility of assigning to DOE defense nuclear facilities activities a number of outstanding officers with nuclear qualifications who may now be surplus to DOD needs.
- (e) Establish initiatives designed to take advantage of skills of marginal technical performers and re-train them.
- (f) Expand Headquarters/Field personnel exchange programs for highly qualified junior technical staff to promote understanding of all aspects of technical issues including their resolution.

**b. Independent External Assessments.**

- (1) Use respected, independent, external organizations such as the National Research Council of the National Academy of Sciences, and the National Academy of Public Administration to assess DOE's ongoing and planned actions directed at attracting and retaining personnel with strong technical capabilities and to make recommendations for enhancements. Such assessment could include:
  - (a) Government-wide and/or DOE personnel recruitment and development policies and practices that may be effective inducements to government service.
  - (b) Comparison of DOE methods of building a qualified technical staff with qualifications comparable to those of other government agencies with predominant technical missions.

c. DOE Internal Assessments.

- (1) Perform an in-depth assessment of educational and experience requirements of key positions and develop both a short-term and long-term plan for key personnel development. Such assessment could include:
  - (a) Identification of qualifications (education and experience) required in key positions (above GS-14) in DOE Headquarters and field organizations with responsibilities for safely carrying out the defense nuclear program.
  - (b) Evaluation of incumbents for their ability to meet such qualification requirements.
  - (c) Evaluation of current availability within DOE of fully qualified personnel to fill these positions.
- (2) Develop an action plan to meet needs thus identified.

  
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John T. Conway, Chairman

REFERENCE DOCUMENTS IDENTIFYING  
DOE TECHNICAL PERSONNEL PROBLEMS

1. "A Safety Assessment of Department of Energy Nuclear Reactors," DOE/US-0005, March 1981.

An important contributing factor [to the lack of adequate attention by DOE Headquarters' organizations to the nuclear safety aspects of its reactors] is the lack of sufficient numbers of highly competent technical people in Headquarters' organizations with nuclear safety responsibilities. Field Office organizations also suffer from this lack.

2. National Research Council Reports:

- a. "Safety Issues at the Defense Production Reactors," National Academy Press, 1987.

The committee concludes that the Department, both at headquarters and in its field organizations, has relied almost entirely on its contractors to identify safety concerns and to recommend appropriate actions, in part because the imbalance in technical capabilities and experience between the contractors and DOE staff is of sufficient magnitude to preclude DOE from comprehensive DOE involvement in the operation of the production reactors. The committee recommends that the Department acquire and properly assign the resources and talent necessary to ensure that safe operation is being attained.

- b. "Safety Issues at the DOE Test and Research Reactors," National Academy Press, 1988.

The suitability of the existing [DOE organizational] arrangement is undermined by the absence of adequate staff in the DOE line management who are sophisticated on safety and operational matters .... In effect, the system relies almost exclusively on the skills and competence of the contractors.

- c. "The Nuclear Weapons Complex: Management for Health, Safety, and the Environment," National Academy Press, 1989.

Constant attention must be paid to the maintenance and improvement of technical capabilities. Concerted efforts are needed to recruit competent technical personnel at all levels; and DOE must maintain an environment for the retention of employees by providing challenging assignments, meaningful participation in decision making, and professional advancement. Strong training programs are necessary to build a culture in which health, safety, and environmental considerations are seen as an integral component of operations.

3. Secretary of Energy letter to the President, December 20, 1991.

... the technical knowledge and skills of many DOE managers and employees are not sufficient to do their jobs.

4. S. Conf. Rep. No. 232, (to accompany S. 1085), 100th Cong., 1st Sess. (1987).

The Board is expected to raise the technical expertise of the Department substantially, to assist and monitor the continued development of DOE's internal ES&H organization, and to provide independent advice to the Secretary.

5. Advisory Committee on Nuclear Facility Safety ("Ahearne Committee") letter to the Secretary of Energy, March 24, 1989

We recommend that you streamline management to make responsibilities clear, that you put knowledgeable people in line positions of responsibility, and that you give them authority. This is important for assurance of nuclear safety. Solving the DOE's problems will require upper management and operating personnel to work together closely and effectively. This will not be possible if the staff must work through buffers of people who are not technically competent.

6. "Hazards Ahead: Managing Cleanup Worker Health and Safety at the Nuclear Weapons Complex," Office of Technology Assessment, 1993.

EM ... lacks adequate numbers of qualified staff to develop occupational health and safety programs suited to EM line operations and has little capacity to assess contractors' performance in health and safety matters.

The DOE Office of Environment, Safety and Health (EH) does not have enough qualified field staff to monitor contractor operations.