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# ANNUAL REPORT TO CONGRESS

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DEFENSE NUCLEAR FACILITIES  
SAFETY BOARD



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FEBRUARY 1990

Section 316.(a) of the Atomic Energy Act of 1954 as amended requires that an annual report by the Defense Nuclear Facilities Safety Board be submitted to Congress at the time of the President's budget message to Congress. Although the Board has been in existence for only 96 days, it has concluded that an initial report containing an account of its activities to date might be welcomed by the Congress.

ACTIVITIES OF THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD  
A REPORT TO THE CONGRESS

Introduction

PL 100-456 amended the Atomic Energy Act of 1954 as amended, to add a new Chapter 21 establishing the Defense Nuclear Facilities Safety Board. The Board is composed of 5 members appointed by the President with the advice and consent of the Senate.

On August 4, 1989, the President submitted to the Senate the following nominations to the Board:

John T. Conway of New York  
A. J. Eggenberger of Montana  
Edson G. Case of Maryland  
John W. Crawford, Jr. of Maryland  
Herbert J. C. Kouts of New York

Hearings were held by the Armed Services Committee of the Senate on October 17, 1989, and subsequent to the Committee's favorable report the Senate on October 18, 1989 consented to the nominations. Oaths of office were administered to the Board members on October 25, 1989.

The following is a report by the Board as to its activities during the period since its members were sworn in.

Administrative Activities:

The first three pressing administrative problems facing any new organization are financing, staff, and office location. Ordinarily, these matters would not be covered in the Board's report. However, the last two have been especially vexing during the Board's early days.

Financing:

Sec. 1442 of PL 100-456 (the enabling legislation dated September 29, 1988) provided for the transfer of funds from the Department of Energy to the Board in an amount not to exceed \$7,000,000 for its operation in fiscal year 1989. Of this amount, \$2,000,000 was available in carryover funds at the time the Board came into existence in FY 1990. By PL 101-101, the Congress appropriated \$7,000,000 for the Board for FY 1990. These sums less Gramm-Rudman-Hollings restrictions total \$8,865,000, which is available to the Board for operation during FY 1990.

Staff:

The Board is authorized by law to

- (1) hire such staff as it considers necessary to perform the functions of the Board, but not more than the equivalent of 100 full-time employees; and
- (2) procure the temporary and intermittent services of experts and consultants to the extent authorized by section 3109(b) of title 5, United States Code, at rates the Board determines to be reasonable.

In addition, the Board is authorized to use employees of other government agencies with the consent of the heads of the other agencies. Under the latter authority, the Board promptly requested assistance from the Federal Energy Regulatory Commission (FERC), an independent agency. FERC has been most helpful by assigning to the Board for a period up to 120 days, three of its personnel with specialized administrative experience. The Board also requested and received assistance from the Department of Interior in assigning to the Board a technically qualified employee for a period not to exceed 6 months beginning January 29, 1990.

The Board's need for competent technical employees is acute considering the scope of its statutory functions and the large number of facilities under its purview, and a number of technically qualified persons have been interviewed for permanent staff positions. The Board wants to ensure that rigorous attention is given to identification and consideration of details bearing on public health and safety aspects of DOE's defense nuclear facilities. Despite urgent need for technical staff, it was agreed at the outset with the Secretary of Energy that the Board would be sensitive to incursion into the ranks of the Department's technical personnel. An ultimate loss rather than gain in the overall national interest might well result from depletion of the talents available to the Department.

The Office of Personnel Management has been helpful in connection with the recruitment effort. However, the OPM has advised that the Board is not statutorily exempt from the requirements of Title 5 of the United States Code governing appointment of employees and classification of employee positions in the competitive service. In other words, the Board does not have flexibility such as, for instance, does the Nuclear Regulatory Commission, which possesses the authority pursuant to Section 161.d of the Atomic Energy Act of 1954 as amended, to employ persons without regard to a number of otherwise applicable requirements if it deems such action necessary to the discharge of its responsibilities.

Despite difficulty in obtaining permanent technical staff, the Board has been fortunate in engaging the services of several highly competent people in an independent contractor relationship. These are noted in the descriptions below of activities the Board has initiated in connection with individual

DOE facilities. In addition, the assistance of the MITRE Corporation has been enlisted by contract. The MITRE program is discussed in more detail below.

On December 20, 1989, the Board met with Admiral Kenneth Carr, Chairman of the Nuclear Regulatory Commission and members of his staff, to explore areas in which the NRC might assist the Board in its work. It was agreed that the Board in implementing required Federal Drug Plans (including Employee Assistance measures) could avail itself of the NRC program on a reimbursable basis. It was also agreed that NRC would explore the possibility of the Board's using NRC procurement assistance.

On December 1, 1989, the Board held a meeting with officials of the General Accounting Office to discuss a number of reviews and investigations conducted by the GAO of defense nuclear facilities. Among those in attendance were Mr. J. Dexter Peach, Assistant Comptroller General, Mr. Keith O. Fultz, Director of Planning and Reporting and former Director for Energy Issues, and Mr. Victor S. Rezendes, the current Director for Energy Issues. The GAO officials were generous of their time and were most cooperative in helping the Board focus on important issues with which it will be dealing.

About the same time, representatives of the National Science Foundation advised that their Agency would be pleased to assist the Board in procurement matters.

#### Office Location:

The Board and the Secretary of Energy agreed at the outset that the Board, as an independent establishment, should not be quartered in facilities of the Department of Energy. However, for lack of other adequate government space, it has been necessary for the Board during its organizational period to operate temporarily out of two rooms in the basement area of the Forrestal Building, while seeking another location in proximity to DOE headquarters.

The General Services Administration (GSA) at first advised that no government facilities would be available to meet the Board's needs for at least six months. Subsequently, and with the direct intervention of the Administrator and his Deputy, GSA has located temporary office space which is expected to be available early in February 1990. Permanent quarters are expected to be available sometime later in the year. At one point, the GSA attempted to negotiate a lease for permanent office space for the Board in the Comptroller of the Currency Building, close to DOE headquarters. However, the Post Office Department exercised an earlier option for the space under a need to expand from its nearby new Post Office Building.

#### Facilities under Board Cognizance:

Discussions are underway with the Department of Energy concerning facilities over which the Board has oversight responsibility. Completion of identification of these sites continues to be a high priority of the Board. DOE sites that

ave generated the major concerns, principally the Savannah River Site, the Rocky Flats Plant, and the Waste Isolation Pilot Plant, are currently assigned top priority, in that order. Other production and utilization facilities operated for national defense purposes are also easily identifiable. However, some facilities involve defense activities in part. For instance, the uranium enrichment facilities now in operation are used in part to supply product to the Naval Nuclear Propulsion Program (but are not covered by Executive Order No. 12344, referred to in Sec. 318(1)(A) of the Atomic Energy Act.

Then there are nuclear facilities that were used for defense purposes in the past, but are now dormant except for pending cleanup, or whose use now is such as to raise a question as to whether they are encompassed by the definition of defense nuclear facilities in Sec. 318 of the Act. Outstanding examples are the Athabasca facility in Missouri and the uranium isotope enrichment plants not now in use.

Questions regarding the Board's jurisdiction can also be raised in regard to such facilities as those at the Nevada Test Site that are unrelated to testing of nuclear weapons (e.g. a temporary storage facility for TRU waste from Lawrence Livermore Laboratory, destined eventually for the WIPP facility, and facilities at the Pantex site that may not be related to assembly of nuclear weapons). The Board will use its best judgment to determine precisely which facilities it will oversee.

Within the brief period of its existence, the Board has not been able to conduct the study called for by Sec. 320.(2)(c) of PL 100-456. That study will be carried through during the coming year, and the results will be included in the next annual report provided in conformance with the legislation.

#### Activities Related to Facilities of DOE: Savannah River.

The Board has initiated its independent external oversight activities at the Savannah River Site (SRS), starting with a site visit on November 7-9, 1989. Activities at the site are continuing, with an emphasis on reactor restart programs. Three follow-up visits to SRS have been made by specialist teams selected and led by Board members. The Board's current review activities emphasize DOE Orders and standards, organizational and management procedures and concepts, safety evaluation reports, quality assurance, operator training, pre-start-up testing, probabilistic risk assessment, seismic engineering, thermal-hydraulics, integrity of piping and vessels, non-destructive examination and testing, configuration control, and conduct of operations. The Savannah River Site is regarded by the Board as among its highest priority assignments.

The Board has acquired the assistance of several expert consultants to supplement its capabilities in a number of key areas. At the present time these areas and the consultants are:

Seismic Engineering. - DOE's SRS contractor has undertaken

an extensive program in seismic engineering, some of which is to be completed before restart of the reactors. This includes retrofit and upgrade of certain reactor facilities and components important to safety, to render them adequately resistant to earthquakes. This is to be followed by a long-term retrofit program for these safety-related components.

Expert consultants who are assisting the Board in review of seismic activities include:

- H and H Consultants, Inc. (Dr. William J. Hall, principal investigator)
- Paul C. Rizzo Associates, Inc. (Dr. Paul C. Rizzo, principal investigator)
- Stevenson & Associates (Dr. John D. Stevenson, principal investigator).

Thermal-Hydraulics. - A study by a Committee of the National Research Council of the National Academy of Engineering has established the need for an improved understanding of thermal-hydraulic aspects of performance of emergency cooling systems of Savannah River Reactors. Analysis to determine the power levels at which the reactors can operate safely depends critically on this understanding. The SRS contractor has initiated an extensive program of experiments and analytical development to clear up the questions that have been identified. The following expert consultants are assisting the Board in its review of these activities:

- Brookhaven National Laboratory (Dr. Uphendra Rohatgi, principal investigator)
- Dr. Long-Sun Tong

Integrity of Piping and Vessels. - The vessels and the accessible primary stainless steel piping of the Savannah River Reactors are undergoing extensive non-destructive examination, to determine their freedom from cracks or other defects that could threaten sustained capability for cooling of the reactors. At present the Board is being assisted in its review of this activity by Dr. John Weeks, of the Brookhaven National Laboratory. Additional consultants should soon join Dr. Weeks in this task.

Training and Qualification. - In the Board's view, one of the most important activities under way at the Savannah River Site is the retraining and qualification of reactor operators and plant operators. The Board is following this program and evaluating it. Assistance is being provided by System Planning Corporation, with John F. Drain as the principal investigator.

Standards. - The activity of the MITRE Corporation, discussed below, is presently focused on the Savannah River Site.

#### Rocky Flats Plant.

Another high priority facility receiving Board attention is the Rocky Flats Plant. While plans had been made to visit this site in early December, it was deemed prudent to postpone the

visit so as not to complicate reviews and assessments being carried out by a cadre of DOE officials and inspectors, including a visit by the Secretary of Energy following the change of operating contractors.

The Board made its first visit to the Rocky Flats Plant during the week of January 15, 1990. The purpose was to gain knowledge at first hand of the features of the Plant, of its condition, of the manner in which operations are being carried out, and of such problems potentially affecting public health and safety as might be thought to exist. It was recognized that this visit would help identify areas on which the Board should concentrate early reviews and evaluations.

During its visit, the Board met with Governor Roemer of Colorado, Congressman Skaggs, representatives of citizen organizations with concerns about the environment and weapons proliferation, and a group of labor union officials representing workers at the Rocky Flats Plant.

Based on its visit, briefings by DOE staff, and reviews of documents, the Board has identified several areas, including the following, as requiring early further evaluation by the Board from the standpoint of public health and safety:

- Training and qualification of operating personnel.
- Discipline in operations, including matters such as use of procedures, availability of up-to-date drawings, and identification of systems and components.
- Compliance with DOE Orders and standards.
- Adequacy and completeness of work being undertaken prior to resumption of operations in plutonium facilities.
- Scope and influence of engineering in activities leading to resumption of operations and to modification of facilities.
- Seismic protection.
- Probabilistic risk assessments.

As is being done in connection with restart of Savannah River reactors, the Board expects to use highly qualified consultants to assist it in these evaluations.

Waste Isolation Pilot Plant (WIPP).

The Board made an initial familiarization visit to the WIPP Facility on January 15-16, 1990. During the visit, presentations were made by senior Westinghouse and Department of Energy personnel, relating the history of the Project and the current issues facing Project management. The Board also toured the Waste Handling Building and the underground areas including those being used in numerous experiments for characterizing the Facility.

The Board plans to schedule a number of follow-up visits by teams including expert consultants and staff. The schedules for these are to be so developed that subsequent Board actions should have no unnecessary impact on the readiness of WIPP to receive waste for the test phase of operation of the Facility.



Hanford Site.

Three members of the Board visited the Hanford Site on December 11-13, 1989. The presentations by the Department of Energy personnel of the Richland Operations Office and the Westinghouse contractor for the site were concentrated on the cleanup activities under way, the activity being conducted in preparation for the restart of operations at the Purex Plant, the work being conducted toward dry standby status of the N-Reactor, and the work in the Plutonium Finishing Plant.

In its visit to Hanford, the Board was especially interested in reviewing a safety matter that had initially been brought to its attention by Senator John Glenn. This concerned the possibility that existing storage tanks at the site for high level waste from fuel reprocessing might be subject to chemical explosions. Analysis has been made in the past by DOE's Hanford contractor, to establish their position that the possibility of such an explosion is very low. This question was discussed in some detail during the visit, and the Board has requested and has subsequently been provided with the documents containing this analysis and the conclusions that had been drawn. Steps have been taken by the Board toward an independent review of the analysis and the conclusions.

Review of Standards.

The Board is required to review and evaluate the content and implementation of the Department of Energy standards related to the design, construction, operation, and decommissioning of DOE defense nuclear facilities (including all applicable DOE Orders, regulations, and requirements at each of the DOE defense nuclear facilities.) Recognizing the importance and urgency of accomplishing this extensive review and evaluation, the Board has already initiated the tasks involved and has engaged the assistance of the MITRE Corporation in this activity. A plan has been developed which identifies the areas in which standards are to be examined, describes the scope of the effort involved, and organizes the work in phases, together with associated schedule, milestones, and resource requirements. A framework for assessment is being developed under which reference standards are being assembled, and criteria for determining their adequacy developed.

The assessment activity is beginning at the Savannah River Site, and is to be continued at other DOE facilities consistent with the priorities established by the Board. An important aspect of this standards assessment will be a comparative evaluation between nuclear and other standards used by the DOE for safety purposes and those which are used in the licensing and regulation of commercial nuclear power reactors.

*John T. Conway*

John T. Conway, Chairman

*J. Eggenberger*

J. Eggenberger, Vice Chairman

*Edson C. Case*

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