

[SOE LETTERHEAD]

March 14, 1991

The Honorable Dan Quayle
President of the Senate
Washington, D.C. 20510

Dear Mr. President:

Pursuant to section 316(b) of the Atomic Energy Act of 1954, (42 U.S.C. 2286e(b)), a written report concerning the activities of the Department of Energy (DOE) with regard to the Defense Nuclear Facilities Safety Board (DNFSB) is to be submitted to Congress at the same time that the President submits the Budget to Congress. I am pleased to enclose for your information the Department's first report under this section, which is for Calendar Year 1990.

The DNFSB provides DOE with valuable external oversight. As a measure of that value, in Calendar Year 1990, the Board submitted seven recommendations to DOE. I have accepted all of these recommendations. An implementation plan for each recommendation is either being prepared or already being carried out.

Sincerely,

James D. Watkins
Admiral, U.S. Navy (Retired)

Identical letter sent to:

The Honorable Dan Quayle
President of the Senate
Washington, D.C. 20510

The Honorable Thomas S. Foley
Speaker of the House of Representatives
Washington, D.C. 20515

The Honorable Robert H. Michel
Minority Leader
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Jamie L. Whitten
Chairman
Committee on Appropriations
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Les Aspin
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, D.C. 20515

The Honorable William L. Dickinson
Ranking Minority Member
Committee on Armed Services
U.S. House of Representatives
Washington, D.C. 20515

The Honorable George Mitchell
Majority Leader
United States Senate
Washington, D.C. 20510

The Honorable Robert Dole
Minority Leader
United States Senate
Washington, D.C. 20510

The Honorable Sam A. Nunn
Chairman
Committee on Armed Services
United States Senate
Washington, D.C. 20510

The Honorable John W. Warner
Ranking Minority Member
Committee on Armed Services
United States Senate
Washington, D.C. 20510

The Honorable Robert C. Byrd
Chairman
Committee on Appropriations
United States Senate
Washington, D.C. 20510

The Honorable Mark O. Hatfield
Ranking Minority Member
Committee on Appropriations
United States Senate
Washington, D.C. 20510

**Report on Department of Energy Activities Relating to The
Defense Nuclear Facilities Safety Board -CY 1990**

1. **Introduction**

This is the first annual report by the Department of Energy (DOE) on its activities relating to the Defense Nuclear Facilities Safety Board (DNFSB). The Board was established by Section 1441 of the National Defense Authorization Act, Fiscal Year 1989 (Public Law 100-456), enacted September 29, 1988. Section 1441 amended the Atomic Energy Act of 1954, (the Act), by adding a new chapter: "Chapter 21. Defense Nuclear Facilities Safety Board."

The Board, comprised of five members sworn in on October 18, 1989, is an independent establishment in the executive branch. Its functions, as set forth in Section 312 of the Act, relate to DOE's defense nuclear facilities, and include:

- a. Review and evaluation of facility standards;
- b. Investigations;
- c. Analysis of design and operational data;
- d. Review of facility design and construction; and
- e. Making recommendations to the Secretary of Energy with respect to DOE defense nuclear facilities.

Section 316(b) of the Act requires the following:

"(b) DOE Report.--The Secretary of Energy shall submit to the Committees on Armed Services and on Appropriations of the Senate and to the Speaker of the House of Representatives each year, at the same time that the President submits the budget to Congress pursuant to section 1105(a) of title 31, United States Code, a written report concerning the activities of the Department of Energy under this chapter during the year preceding the year in which the report is submitted."

The Board, likewise, is required by section 316(a) of the Act to file a separate annual report to the Congress.

2. **Background**

Section 315 of the Act is very specific on the mechanics of handling Board recommendations, both for DOE, and the Board itself. The steps involved are the following:

- a. After receipt by the Secretary of Energy of any recommendations from the Board, the Board is required to make such recommendations available to the public in DOE's regional public reading rooms and publish the recommendations in the **Federal Register** and request public comments within 30 days of publication.
- b. The Secretary must transmit to the Board, in writing, a statement on whether the Secretary accepts or rejects, in whole or in part, the recommendations; a description of the actions to be taken in response to the recommendations; and his views on such recommendations. This response is required within 45 days from the date of publication. If necessary, the Secretary may petition the Board for extra time to complete this task, not to exceed an additional 45 days. The Secretary also must publish his response, in the **Federal Register** and request public comments within 30 days of publication.
- c. The Board may hold hearings for the purpose of obtaining public comments on its recommendations and the Secretary's response.
- d. In the event the Secretary rejects (in whole or in part) any recommendation, the Board will either reaffirm or revise the recommendation and notify the Secretary of its actions. Within 30 days the Secretary must consider the Board's action and make a final decision on either all or part of the Board's recommendations. The final decision, and the reasoning for the decision, must be published in the **Federal Register**, and a written report on the decision must be transmitted to the appropriate members of the Congress.

These procedures were not used in the CY 1990; there were seven sets of recommendations from the Board, and the Secretary has accepted all of them.

- e. The Secretary must prepare an implementation plan on each Board recommendation, or part of a

recommendation that is accepted by the Secretary in his final decision. It must be transmitted to the Board within 90 days after the publication of the final decision in the ***Federal Register***. If necessary, an additional 45 days can be obtained if certain notification requirements are met.

- f. The implementation plan is to be completed within one year. If complete implementation takes more than one year, the Secretary must submit a report to the appropriate members of the Congress setting forth the reason for the delay and indicating when implementation will be completed.

The Secretary looks to the Board to provide the Department with external oversight. The Board has access to reports and information prepared by DOE line management and by the internal oversight organizations within DOE. The Department works to keep the Board currently and fully informed.

3. **DNFSB Recommendations**

In CY 1990, the Board issued seven sets of recommendations. The Secretary accepted all seven. A description of the seven sets of recommendations, and the present status of each, is given below.

a. Recommendation 90-1 -- **Savannah River** Reactor Operator Training

The DNFSB provided six recommendations regarding the restart of the K, L and P reactors at the Savannah River Site. The recommendations relate to: operator qualifications; comparison of DOE operator qualifications and those for licensed nuclear power plants; comprehensive review of current level of qualifications to establish that the training program is sufficient; that training programs be modified as necessary to establish required qualifications; implementation of a configuration management program to assure as-built drawings are available for training operators and supervisors; and assurance that operators and supervisors are qualified in use of procedures for normal and emergency situations.

- February 22, 1990 - Board letter to Secretary.
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- February 28, 1990 - Letter published in the ***Federal Register***, 55 FR 7022.
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- April 10, 1990 - Secretary's response accepting recommendations.
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- April 13, 1990 - Letter published in the ***Federal Register***, 55 FR 13940.
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- July 13, 1990 - DOE Implementation Plan received by the Board.
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- December 31, 1990 - Supplemental response to recommendations expected in February 1991.
- Implementation of all 90-1 recommendations expected to be complete prior to the July 12, 1991, deadline.

b. Recommendation 90-2 -- **All Site** Standards

The DNFSB provided two recommendations regarding standards used in the design, construction, operation and decommissioning of defense nuclear facilities. The standards to be identified apply to the Savannah River reactors, the Rocky Flats Plant, the Waste Isolate Pilot Plant, and several facilities at the Hanford site. In addition, the Board has requested all applicable DOE orders, regulations and requirements. A second recommendation would require DOE to provide its views on the adequacy of the standards identified for protecting public health and safety, and to determine the extent to which the standards have been implemented at these facilities. In addition, the Board

expressed its belief that the Department should eventually accomplish these actions for all defense nuclear facilities under its jurisdiction.

- March 8, 1990 - Board letter to the Secretary.
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- March 14, 1990 - Letter published in the ***Federal Register***, 55 FR 9487.
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- April 18, 1990 - Secretary's letter requesting a 45-day extension of time for response to Board's Recommendation 90-2.
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- April 27, 1990 - Notice of the above published in the ***Federal Register***, 55 FR 17806.
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- June 8, 1990 - Secretary's response accepting recommendations.
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- June 12, 1990 - Letter published in the ***Federal Register***, 55 FR 23783.
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- July 6, 1990 - Board advised DOE will provide supplemental response by July 27, 1990.
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- September 14, 1990 - Secretary's letter providing supplemental response and implementation plan.
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- December 31, 1990 - Work continues on satisfying the elements of the implementation plan.
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The Department recognizes that a significant portion of the standards and criteria used to design and operate its facilities are inadequate. We agree with the Board's recommendations in this regard, and major efforts are ongoing to develop and implement applicable standards and criteria. The Department recognizes that the Board is not satisfied with the time required to gather the requested information on standards. In many cases, the information goes back 30 years and requires extensive efforts by knowledgeable persons to review and retrieve the requested information.

c. Recommendation 90-3 -- ***Hanford*** Future Tank Monitoring

The DNFSB provided four recommendations regarding the susceptibility of the old single shell high level waste tanks on the Hanford Reservation to an explosion, with resulting release of large amounts of radioactive material to the environment. Based on its studies, the Board concluded that the probability of such an explosion was low, however, it does have some residual concerns based on the uncertainties of the composition and characteristics of the tanks and the material stored in them. The Board recommended four actions for future programs for monitoring the single shell tanks: a study of possible reactions in the tanks as a source of heat generation; a program developed for continuous monitoring of the conditions in the tanks; use of alarmed indicators for monitoring conditions to aid in decision-making to neutralize any perceived abnormality; and that an action plan be developed for the measures to be taken to neutralize the conditions that may be signaled by alarms.

- March 27, 1990 - Board letter to Secretary.
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- March 30, 1990 - ***Federal Register*** Letter published in the , 55 FR 11994.
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- May 16, 1990 - Secretary's response accepting recommendations.
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- May 23, 1990 - Letter published in the ***Federal Register***, 55 FR 21219.
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- August 10, 1990 - Secretary's letter providing implementation plan.
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- August 17, 1990 - Letter published in the ***Federal Register***, 55 FR 33753.
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- December 31, 1990 - Implementation Plan to be sent to the Board in March 1991. It will incorporate the Plan for Recommendation 90-7.

d. Recommendation 90-4 -- ***Rocky Flats*** Operational Readiness Review

The DNFSB provided one recommendation, with subparts, based on the Board's extensive review of the Rocky Flats restart effort, calling for an Operational Readiness Review to be carried out prior to resumption of operations. The Board's recommendation requires establishing a group of experienced individuals with backgrounds that collectively include all important facets of the unique operations involved. The review is to include: an independent assessment of the adequacy and correctness of systems operating procedures; assessment of level of knowledge achieved during operator requalifications; evaluation of records of tests and calibration of safety systems and instruments monitoring Limiting Conditions of Operations or that satisfy Operating Safety Requirements; verification that all plant changes have been reviewed for impact on procedures, training, and requalification, and that such training and requalification have been done using revised procedures; and an examination of each building Final Safety Analysis Report to ensure that the description of the plant, procedures, and accident analyses are consistent with the plant as affected by the safety related modifications that have been made.

- May 4, 1990 - Board letter to the Secretary.
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- May 10, 1990 - Letter published in the ***Federal Register***, 55 FR 19644.
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- June 5, 1990 - Secretary's letter to Board with interim response accepting recommendations.
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- June 20, 1990 - Secretary's letter to Board accepting recommendations.
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- June 25, 1990 - Letter published in the ***Federal Register***, 55 FR 25866.
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- November 29, 1990 - Implementation Plan sent to Board.
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- December 6, 1990 - Implementation Plan published in the ***Federal Register***, 55 FR 50361.
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- December 21, 1990 - Board letter to Secretary suggesting specific revisions and changes to Implementation Plan.
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- December 31, 1990 - Revised Implementation Plan being developed for Board's approval.
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e. Recommendation 90-5 -- ***Rocky Flats*** Systematic Evaluation Program

The DNFSB provided one recommendation, with subparts, that DOE undertake a Systematic Evaluation Program (SEP) for Rocky Flats similar to the program undertaken by the Nuclear Regulatory Commission in the early 1980's. That program, as noted by the Board, was a means of evaluating older facilities against current standards, and the Board considered it appropriate for Rocky Flats as a mechanism for systematically reviewing, prioritizing, and integrating various potential facility changes. The Board recommended that this Rocky Flats SEP address all outstanding safety issues and address the following matters: effects of severe external events

(particularly seismic and high winds); effects of severe internal events (particularly fire); ventilation system performance under severe internal and external events; and the basis and procedures for making backfit decisions on which facility changes identified under the SEP would or would not be made, including the schedule for completion of these improvements. The Board recommended that this SEP be completed "over about the next four years."

May 18, 1990 - Board letter to the Secretary.

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May 24, 1990 - Letter published in the ***Federal Register***, 55 FR 21429.

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June 13, 1990 - Secretary's letter to Board accepting recommendation.

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June 20, 1990 - Letter published in the ***Federal Register***, 55 FR 25154.

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October 15, 1990 - Secretary letter transmitting Implementation Plan to Board. The Secretary indicated that an SEP also would be undertaken for the Savannah River Reactors.

October 24, 1990 - Board letter to Secretary accepting Implementation Plan.

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November 20, 1990 - Letter from the Secretary to members of Congress transmitting the Implementation Plan and the Board's acceptance of the plan.

December 31, 1990 - Quarterly Reports on the SEP will be provided to the Board.

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f. Recommendation 90-6 -- ***Rocky Flats*** Plutonium in the Ducts

The DNFSB provided one recommendation, with subparts, on criticality safety at Rocky Flats, particularly relating to plutonium accumulation in the ventilation ducts. The Board recommended that, prior to resumption of plutonium operations at the plant, DOE prepare a written program with commitments to address the accumulation in the ducts and related systems with the objectives of ensuring that a criticality event would not take place, and that the fissile material and other debris in the ventilation systems will be properly removed or substantially reduced in amount. The program should include: a description of remedial actions deemed necessary prior to resumption of operation; descriptions and justification of non-destructive assay techniques; estimation of radiation levels in areas of occupancy; determination of the effects of accumulation on the functionality of the ventilation systems which must act to protect the health and safety of the public, including plant operating personnel; justification of procedures and schedules for removal or reduction of the material in the ducts; determination of any design or operational changes necessary to prevent further accumulation; and establishment of a monitoring program for the ducts to establish that such changes are effective.

June 4, 1990 - Board letter to the Secretary.

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June 11, 1990 - Letter published in the ***Federal Register***, 55 FR 23584.

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July 24, 1990 - Secretary's letter to Board accepting recommendation, and establishing policy for dealing with this issue.

July 26, 1990 - Letter published in the ***Federal Register***, 55 FR 30499.

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August 8, 1990 - Board publishes Notice of Public Hearing in ***Federal Register***, 55 FR 32287. Public invited to present comments on Recommendation 90-2, 90-4, 90-5 or 90-6 relating to the Rocky Flats plant. The hearing was held August 30, 1990, in

Westminster, Colorado.

- November 29, 1990 - Secretary's letter transmitting Implementation Plan to Board. Plan calls for monthly progress reports to Board.
- December 3, 1990 - Board letter accepting Implementation Plan.
- December 6, 1990 - DOE Implementation Plan published in the ***Federal Register***, 55 FR 50354.
- December 31, 1990 - First monthly report prepared. Transmitted to Board January 3, 1991.

g. Recommendation 90-7 - ***Hanford*** Waste

The DNFSB provided one recommendation, with subparts, related to previous Board Recommendation 90-3, ***Hanford*** Future Tank Monitoring. The Board concluded that the Implementation Plan for 90-3 was not adequately responsive in that it did not reflect the urgency that the circumstances merit, and that was implicit in the Board's recommendation 90-3. The Board recommended that the 90-3 Implementation Plan be modified to: add necessary instrumentation immediately; add temperature instrumentation to have continuous recorded readouts and alarms; add instrumentation to monitor the composition of cover gas in the tanks; accelerate the program for sampling contents of the tanks; accelerate the schedule for the program to study the chemical properties and explosive behavior of the waste in the tanks; and include a new written action plan covering measures that would be taken in the event of an explosion.

- October 12, 1990 - Board letter to the Secretary; combines 90-7 with 90-3.
- October 18, 1990 - Letter published in the ***Federal Register***, 55 FR 42243.
- December 3, 1990 - Secretary's letter to Board accepting recommendation, and enclosing response to Recommendation 90-7.
- December 11, 1990 - Letter, with response, published in the ***Federal Register***, 55 FR 50875.
- December 31, 1990 - Implementation Plan in preparation; expected to be sent to the Board in March 1991.

The Department has taken aggressive actions to address the Hanford HLW safety issues. There are new management teams at Hanford both in DOE and contractor organizations, with senior level managers dedicated to manage HLW operations and to be responsible for the safety programs. Technical experts from universities, industry, and national laboratories have been brought in to assist in studying and resolving the Board's concerns. Comprehensive programs have been initiated which considers each of the Board's recommendations. The Department's Implementation Plan that is specifically responsive to this recommendation is in preparation and will be sent to the Board in March 1991.

4. ***DNFSB Advisory/Informational Letters***

In addition to formal recommendations, the DNFSB, in CY 1990, has sent DOE two letters providing detailed comments and advice on areas of concern to the Board. These letters provide guidance on ongoing Board reviews, and depending upon DOE's actions in response, the Board could follow-up these letters with formal recommendations. Because of the value of guidance provided, the Department has treated these letters as if they were, in many respects, recommendations. These advisory letters are discussed below.

On October 9, 1990, the Board sent the Department a letter regarding the progress and adequacy of efforts on the training of operators at the Rocky Flats Plant necessary for resumption of operations. The letter states the Board's view that operator training is not receiving appropriate attention from senior line management. It also notes inadequacies with regard to coordination of procedures development.

On December 21, 1990, the Board sent a letter stating its concern that DOE Order 5000.3A, "Occurrence Reporting and Processing of Operations Information" is not being effectively implemented. The letter lists specific concerns, requests copies of procedures implementing DOE Order 5000.3A, and briefings from the Assistant Secretary for Nuclear Energy and the Director of the Office of Nuclear Safety regarding their respective responsibilities under this DOE Order.

The Department is in the process of developing responses to both of these letters. These responses will be available in the Public Document Rooms, and in accordance with provisions of the Government in the Sunshine Act, the briefings, expected in February 1991, will be provided at public meetings.

5. Assessment

Since October 1989, when the Defense Board was established, the Board, its staff and its consultants have made numerous visits to DOE sites. Typically, those visits included tours of the facilities and DOE presentations on specific areas of interest to the Board. The Board has focused a great deal of attention on DOE's Rocky Flats Plant and Savannah River Site, as well as the Hanford Reservation near Richland, Washington, and has made several trips to those sites. In addition, Board personnel and contractors have traveled to many other DOE facilities, familiarizing themselves with the operations and associated nuclear safety issues. In CY 1990, the Board undertook approximately 40 site visits, some as full Board meetings, and some attended by individual members of the Board. In all cases, representatives of DOE Headquarters and the appropriate DOE operations offices attended and participated in the meetings.

The Defense Board has recently adopted a policy of preparing trip reports after a visit to a DOE facility. These trip reports detail the observations and concerns of the authors, and they are routinely forwarded to appropriate DOE management for information and comment. Copies of these trip reports, and responses thereto, have been made available in the DOE Public Document Rooms.

In addition to site visits, the Defense Board or its staff meets often with DOE officials in Washington regarding issues of concern to the Board. The proceedings range from information-gathering briefings, to progress meetings regarding Defense Board Recommendations, to formal briefings on generic topics, such as seismic hazards associated with DOE to status briefings on DOE programs, such as New Production Reactors or the Waste Isolation Pilot Plant. In CY 1990, there were over 40 such meetings. These proceedings typically involve presentations, question-and-answer sessions, and requests for additional information. The Board recently published proposed regulations under the Government in the Sunshine Act (55 FR 53526, December 31, 1990), and will be conducting these proceedings in accordance with those regulations.

It is the view of the Department that it has established a good working relationship with the Board. The Department's goal is to provide the Board with the information it requires as promptly as possible. The experience to date indicates that the implementation plans necessary to meet the Board's recommendations are sufficiently elaborate to require, in most cases, more than one year to complete. Therefore, the Department will advise the appropriate Committees in the Congress as to the reasons for the delay, and indicate when implementation will be completed.

6. Conclusions

The Department's goal for CY 1991 is to complete implementation of as many of the Board's CY 1990 recommendations as possible, and to respond to new Board requests and recommendations in an

expeditious fashion.