

**[DOE LETTERHEAD]**

June 21, 1993

The Honorable John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, NW, Suite 700  
Washington, D.C. 20004

Dear Mr. Chairman:

This letter is to provide Revision 2 to the Department of Energy Implementation Plan for the Defense Nuclear Facilities Safety Board's Recommendation 91-6. As committed in my letter of April 27, 1993, the enclosed revised Plan is responsive to the issues and deficiencies identified by the Board in the Implementation Plans that the Department has previously submitted.

This second revision to the Implementation Plan describes a more self-critical examination of the status of radiation protection programs at the Department of Energy defense nuclear facilities and demonstrates my commitment to take needed actions. This implementation Plan details the specific commitments with detailed milestones and provides an aggressive schedule to implement identified improvements.

The Department will keep the Board informed of our progress by providing quarterly status reports.

Sincerely,

*Hazel R. O'Leary*

Enclosure

REVISION 2 TO THE  
DEPARTMENT OF ENERGY IMPLEMENTATION PLAN FOR  
RADIATION PROTECTION PROGRAM IMPROVEMENT  
AT THE DEPARTMENT OF ENERGY DEFENSE NUCLEAR FACILITIES

On December 19, 1991, the Defense Nuclear Facilities Safety Board issued Recommendation 91-6 dealing with radiation protection issues at Department of Energy defense nuclear facilities. In a letter dated January, 31, 1992, as amended on March 30, 1992, the Department accepted the Board's recommendations. The Department response committed to provide an Implementation Plan to the Board that would address each of the Board's specific recommendations.

The Department initially submitted an Implementation Plan on June 17, 1992. By letter dated August 5, 1992, the Board informed the Department that the Plan was inadequate and nonresponsive to many specific recommendations contained in Recommendation 91-6. A revised Implementation Plan was developed and submitted to the Board by the Department on January 15, 1993. In a letter dated March 23, 1993, the Board notified the Department that many of the deficiencies that the Board identified in the original Implementation Plan remained in the revised plan and, therefore, remained inadequate.

In a letter to the Board dated April 27, 1993, Secretary Hazel O'Leary reiterated the Department's commitment to providing an adequate Implementation Plan for Recommendation 91-6 and resolving issues identified by the Board in a responsive and timely manner. Secretary O'Leary also committed that deficiencies identified in the Department's Recommendation 91-6 Implementation Plan will be addressed in this second revision and submitted to the Board no later than June 21, 1993.

This second revision to the Department's Recommendation 91-6 Implementation Plan has been prepared to accommodate the Board's responses to the Implementation Plans that were previously submitted by the Department and the Board's original recommendations. Extensive discussions with the Board staff during the development of this revision to the Implementation Plan were conducted, as offered by the Board and accepted by the Department, in order to assure an adequate response.

This second revision to the Implementation Plan describes a critical examination of the status of radiation protection programs at the Department of Energy defense nuclear facilities and the long-term commitments and actions the Department will undertake to further strengthen these programs. The revision to the Implementation Plan further details the specific commitments with milestones and provides an aggressive schedule to implement identified improvements to the Department's radiation protection programs and practices. Five technical tasks have been identified that, upon completion, will adequately fulfill each of the Board's specific recommendations. Each of these five tasks identifies the associated recommendations the Department's actions are addressing. A purpose and discussion are provided along with commitments for the Department to take specific actions consistent with an identified schedule.

The Department is committed to achieving identified milestones and will monitor progress towards reaching the milestones identified in this Implementation Plan. In the event that milestones or schedules cannot be met, the Board will be notified and the milestones or schedules modified. As progress towards reaching milestones is monitored, the Department will identify the need to modify the Implementation Plan or its milestones as early as possible. The Assistant Secretary for Environment, Safety and Health will be responsible for recommending changes to the Plan or its milestones to the Secretary of Energy for approval and notifying the Board of the need to make adjustments to the Implementation Plan or its milestones as implementation proceeds. The Department will keep the Board informed of its progress in achieving milestones and commitments by providing quarterly status reports to the Board as described under a sixth task.

Note: Due to the current reorganization within the Department, this Implementation Plan frequently refers to the generic term "oversight organization." This is meant to include independent radiation protection program performance at the Department of Energy defense nuclear facilities and compliance reviews that are typically conducted through a combination of the Department of Energy Headquarters and Operations Office and contractor assessments and audits. Once the reorganization is complete and the Department has formally redefined the "oversight organization," references to oversight organizations and issues contained in this Implementation Plan will be reviewed, modified, as appropriate, and provided to the Board within 120 days following the establishment of the oversight organization structure.

Task 1: Develop and issue a Department of Energy policy statement on radiological health and safety. [Responds to Board specific recommendation 1.]

Purpose: To disseminate throughout the Department of Energy complex the commitment of the Department to conduct its radiological operations in a manner that ensures the health and safety of all its employees, contractors, and the general public.

Discussion: On June 8, 1993, the Secretary of Energy officially signed and forwarded to the Board the "Department of Energy Radiological Health and Safety Policy." This policy statement will assure that the goals of the Department's radiation protection program are clearly articulated. This policy statement addresses all of the features discussed in the first specific recommendation provided by the Board in its Recommendation 91-6. Specifically, the policy statement states that the Department will conduct its radiological operations in a manner that ensures the health and safety of all its employees, contractors, and the general public. The policy statement emphasizes that in achieving this objective, the Department shall ensure that radiation exposures to its workers and the public, and releases of radioactive material to the environment, are maintained below regulatory limits and deliberate efforts are taken to further reduce exposures and releases in accordance with a process that seeks to make any such exposures or releases as low as reasonably achievable. The Department is fully committed to implementing a radiological control program of the highest quality that consistently reflects this

policy. The complete policy statement is provided in appendix A to this Implementation Plan.

The provisions in both the revision to the Department of Energy Order 5480.11 and Title 10 Code of Federal Regulations part 835 implement and support the Department's policy statement. Therefore, the Department no longer plans to reproduce the policy statement directly in either the revision of the Order or the preamble to the final rule, as originally discussed with the Board. To assure wide dissemination throughout the Department of Energy complex and to the general public and to institutionalize the policy statement, the statement will be issued as a Department of Energy Notice and published in the Federal Register.

**Commitment:** The "Department of Energy Radiological Health and Safety Policy" was signed by the Secretary of Energy on June 8, 1993, and will be published in the Federal Register and as a Department of Energy Notice as soon as possible. No further action is planned on this task.

**Task 2:** Review existing radiation protection training programs at defense nuclear facilities and develop and implement a plan for an expanded training program at these facilities.

**Discussion:** The Department recognizes that additional radiological protection training is required at all levels from line workers through program management at defense nuclear facilities. The Department's January 15, 1993, correspondence to the Board described actions taken by the Department to address the concerns raised in the Board's specific recommendation 2a. This response was accepted in the Board's March 23, 1993, response.

As described in the Department's January 15, 1993, letter to the Board, an extensive review of available training programs supporting radiation protection programs was conducted by the Department between February 1992 and June 1992. This included reviews of training materials used by Westinghouse, Martin Marietta, EG&G, and the Training Resources and Data Exchange. In addition, guidance on radiological training contained in "Guide to Good Practice in Radiation Protection Training," the Training Resources and Data Exchange Oak Ridge Associated Universities 88/4-99, "Guidelines for Training and Qualification of Radiological Protection Technicians," Institute of Nuclear Power Operations, and "Standard Guide for Radiological Protection Training for Nuclear Facility Workers," the American Society for Testing and Materials E-1168-87, were also used. A task group consisting of training experts and health physicists from the Department, Department of Energy contractor personnel, and outside experts reviewed the material in those documents and extracted the best elements of each training program. Based on this review and provisions in the Department of Energy Radiological Control Manual, four standardized core training courses for general employees (General Employee Radiological Training), radiological

workers (Radiological Worker I and II), and radiological control technicians were developed. Following the development of the standardized core course materials, recommendations by the Department of Energy contractor training professionals were solicited and incorporated into the final training materials through pilot training of the courses, distribution of the draft training materials for comment, and a training workshop.

The final training materials were distributed to the Department and the Department of Energy contractors on November 4, 1992. The Department of Energy sites are required to add their own site-specific information to the standardized core training to ensure that training specific to individual sites is included for all workers. All training conducted after December 1, 1992, was targeted to be conducted in accordance with the standardized core training material and training of all affected workers is planned for completion by June 1994. The schedule for full implementation of the standardized core training materials is identified in each of the updated site Radiological Control Manual implementation plans. The Radiological Control Coordinating Committee critically evaluates the status of implementation of the standardized core training through their review and monitoring of the site-specific Radiological Control Manual implementation plans. The Radiological Control Coordinating Committee will work to accelerate and advance implementation of standardized core training at defense nuclear facilities. The Department of Energy Standardized Core Training Materials have been included as appendix B to this Implementation Plan.

Chapter 6 of the Department of Energy Radiological Control Manual establishes the requirements to ensure that personnel have the training to work safely in and around radiological areas and to maintain their individual radiation exposure and the radiation exposures of others as low as reasonably achievable. The standardized core courses and training materials were developed based on the requirements of the Radiological Control Manual and are to be used to establish a consistent level of knowledge, skills, and abilities of line workers who may receive occupational exposure at the Department of Energy defense nuclear facilities.

The development and content of the four standardized core training courses are fully responsive to the Board's specific recommendations 2a through 2g for line workers and Radiological Control Technicians. The standardized core training materials, developed and maintained by the Department of Energy Headquarters, are a comprehensive training program consisting of lesson plans, viewgraphs, student handbooks, qualification standards, question banks, and wallet-sized training certificates. Satisfactory completion of the standardized core training, in conjunction with the site-specific materials, satisfies the qualification criteria for that radiation protection position.

In order to maintain the excellence embodied in the standardized core course training materials, they were designed to be updated periodically to reflect any

improvements in methods and techniques and training program content that could better protect Department workers. Improvements may be identified through the post-training evaluation program (which will be developed, as committed to in this Implementation Plan) or in response to changes identified in program assessments. To help accomplish this, three training committees were established in October 1992 to deal with:

- update of the existing four standardized core training courses;
- training for facility or site-designated personnel who will control access, facilitate use, and maintain test bank questions; determine the mix of questions for specific examinations; and add to the test bank as necessary; and
- development of additional standardized core training courses.

Training has also been developed by the Office of Defense Programs to promote excellence and consistency of training for Operations Office personnel who monitor and evaluate contractor radiation protection activities at the Department's defense nuclear facilities (Facility Representatives). This training consists of two courses in conduct of radiological operations: a two-week course for Facility RepresentativeS, including health physics theory and practices, inspection techniques, and a Radiological Control Manual overview; and a two-day course for supervisors and managers of Facility RepresentativeS designed to facilitate achieving excellence in radiological control activity improvements. All course materials will be sent to each of the Operations Offices by June 30, 1993. The Department will provide further details on its commitment to fully implement the conduct of radiological operations training for Facility RepresentativeS in the Department's Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 92-2.

In addition to the four existing standardized core courses for workers and the conduct of radiological operations courses, at the most recent meeting of the three training committees, held in April 1993, the Committee charged with the development of additional standardized core training courses identified several courses necessary to satisfy the requirements of the Radiological Control Manual for other radiological training. The purpose of these courses is to elevate the level of knowledge, skills, and abilities of those positions having greater discretionary judgment concerning radiation protection matters beyond that provided workers in the standardized core training. These key positions include management, technical support personnel, planners, radiological control personnel (other than Radiological Control Technicians), radiographers and radiation generating device operators, and emergency response personnel. The list of courses currently under development is provided to demonstrate to the Board the level of commitment to radiological training the Department and its contractors have made. These courses,

to the extent these apply to defense nuclear facilities, are:

- Management Training - Higher Level Training for Supervisors per the Department of Energy Order 5480.20
- Management Training - Manager/Radiological Control Manual
- Technical Support Personnel (As Low As Reasonably Achievable) and Schedulers
- Radiological Control Personnel
- Radiographers
- Radiation Generating Device Operators
- Emergency Response Personnel
- Training for Tour Groups and Visiting Dignitaries, Scientists, and Specialists
- Plutonium Facilities
- Uranium Facilities
- Tritium Facilities
- Contamination Control for Bio-med Researchers
- Health and Safety Technicians
- Auditors and Inspectors

A brief explanation of the current development status, including milestones for development, use, and implementation for each of the training courses above, will be provided to the Board as committed below.

Subtask 2.1: Radiological Control Training [Responds to Board specific recommendations 2a and g]

Purpose: To prepare comprehensive documentation of the technical basis used in the development of existing Radiological Control Core Training Courses. To prepare similar documentation for new courses and maintain documentation current as courses are updated and revised.

Discussion: As noted above, the Radiological Control Manual identifies a series of training requirements in chapter 6. Based on these requirements, four standardized core training courses have been developed and implementation initiated at defense nuclear facilities. Additionally, a series of "other radiological training" courses are under development. This Implementation Plan provides the following specific commitments to document the technical bases for existing and future radiological training courses and to maintain and improve the content of the training program through continuing program evaluations.

- Commitment: 1. Based on the approved site-specific Radiological Control Manual implementation plans, the Department will provide the Board with a complete listing of standardized core training material implementation milestones by June 30, 1993. These milestones will identify when standardized core course materials will be fully implemented, including development of the site-specific training materials. General Employee Radiological Training, Radiation Worker I and II, and Radiological Control Technician Training for all affected workers using the standardized core training material will be completed by December 1994. A brief explanation of the current development status, including milestones for development, use, and implementation, for each of the additional standardized core training courses will be provided to the Board by June 30, 1993. Since the Department is to update the Secretary on Radiological Control Manual implementation progress in an annual report that is expected to be issued at the end of each calendar year beginning in 1993, the Department will advise the Board of the status of the efforts to fully implement the standardized core training courses during the first quarterly status report following the secretarial update.
2. By December 1993, for each of the existing standardized core training courses, the Department will document each course's technical basis including a description of how pertinent references and standards were used or why certain documents were not used including, at a minimum, those references suggested by the Board in Recommendation 91-6 and its attachment. In addition to the technical basis for each training course, the basis for any identified refresher or continuing training requirements will also be documented.

Similar technical basis documentation will be included during the development of future courses, as well. As course materials are revised and updated, these technical bases will be updated, as needed.

3. The Department's defense nuclear facilities will also ensure the effectiveness of Department and contractor training provided to workers through post-training evaluations on a continuing basis. Post-training evaluations will be used to identify opportunities for improving course



materials, upgrading instruction methods and techniques, and the need for additional training. By October 1993, the Department will identify the criteria to be used for developing a post-training evaluation program. The post-training evaluation program will be developed and distributed to the Department of Energy contractors by May 1994. Because not all defense nuclear facilities have fully implemented the standardized core training materials, contractors will be permitted six months to fully implement a post-training evaluation program, following implementation of the standardized core training. Those defense nuclear facilities that have implemented the standardized core training materials prior to the availability of the post-training evaluation program must implement the program by December 1994. At least annually, Cognizant Secretarial Officers and Operations Offices will request and coordinate contractor input to the Office of Health Physics and Industrial Hygiene recommendations for upgrading and improving standardized core training materials. These recommendations will be evaluated and incorporated, as appropriate. Additionally the post-training evaluations will be used to maintain and upgrade the site-specific portions of these training courses. The Department of Energy oversight organizations will monitor program implementation and adequacy.

Subtask 2.2: Qualification and Performance of Radiation Protection Personnel [Responds to Board specific recommendations 2b through f]

Purpose: To delineate the level of knowledge, skills, abilities, and other qualifications necessary for key radiation protection personnel positions (both as identified in the Radiological Control Manual and any additional positions with a discretionary decision-making role in radiological matters) at the Department of Energy defense nuclear facilities, based on professional and industry standards and guidance. In addition, the qualifications of the incumbents in these key positions will be evaluated, and the need for supplemental training identified. Means to demonstrate the effectiveness of the organization and continued maintenance of an acceptable level of performance will be specified.

Discussion: The Radiological Control Manual establishes many of the positions important for maintaining and improving radiological control performance at defense nuclear facilities. Specifically, the Manual provides the level of knowledge, skills, and abilities for four standardized core groups of workers; general employees who are not expected to receive occupational exposure in excess of 100 mrem per year, radiological workers working in uncontaminated radiological areas, radiological workers working in contaminated areas, and radiological control technicians. Basic qualifications and training requirements are provided for other positions, also. For example, the qualifications for Radiological Control Managers are discussed in article 142. Chapter 6 of the Radiological Control Manual provides training requirements for other personnel as previously discussed. However, a complete

description of the level of knowledge, skills, and abilities is not provided. The Department commits in this Implementation Plan to develop this criteria.

- Commitment:
1. The Department will determine the key radiation protection positions both as identified in the Radiological Control Manual and any additional positions with a discretionary decision-making role in radiological matters (e.g., Radiological Control Manager, Radiological Control Program Advisors, Health Physicists, Radiological Control/Health Physic Technicians, Dosimetrists, Facility Representatives, managers, and supervisors) at defense nuclear facilities by August 1993.
  2. The Department will complete the identification of the level of knowledge, skills, abilities, and other qualifications needed for each key radiation protection position consistent with Office of Personnel Management and the Department of Energy contracting procedures by February 1994. A comprehensive document describing the level of knowledge, skills, abilities, training and other qualifications for these key radiation protection positions will be developed by April 1994. Position descriptions and their corresponding training and qualifications requirements for key radiation protection positions will be documented in the appropriate Department of Energy Order, Notice, and/or the Radiological Control Manual by August 1994. As provided in the Board's specific recommendations 2a and 2b, the identification of the level of knowledge, skills, and abilities will include comparison with guidance on training contained in "Guide to Good Practice in Radiation Protection Training," Training Resources and Data Exchange Oak Ridge Associated Universities 88/4-99 and "Guidelines for Training and Qualification of Radiological Protection Technicians," Institute of Nuclear Power Operations 87-O88. The Department will base the identification of the level of knowledge, skills, abilities, and other qualifications on professional and industry standards. In defining the qualification requirements for radiation protection positions, consideration will be given to including association or interaction with professional health physics organizations, such as the Health Physics Society, the American Board of Health Physics certification, and the National Registry of Radiation Protection Technologists registration for appropriate professionals.
  3. Radiological control performance criteria will be included in performance standards for each key position to provide management with measurable milestones to monitor the performance of individuals in key positions. Standardized radiological control performance criteria will be developed by April 1994 and incorporated into individual performance evaluation plans and standards by June 1994.
  4. In response to the Board's specific recommendations 2c and Id, consistent

with Office of personnel Management regulations for Federal employees and the Department of Energy contracting practices for contractor employees, the Department or contractor, as applicable, will compare the level of knowledge, skills, and abilities of incumbents in key positions to the criteria identified in the previous commitment above. The comparison will include a list of training courses attended with dates, duration of course, and sponsor, as well as a list of any professional certifications and affiliations. The Department or contractor, as applicable, will also compare the existing training and/or training that is concurrently under development for radiation protection positions against the level of knowledge, skills, abilities, and other qualifications and identify upgrades to the existing training, and/or the need for the development of supplemental training necessary to ensure that radiation protection personnel meet the qualifications for their respective positions. The comparison will be completed by August 1994. Based upon this comparison, the Department will develop and/or upgrade standardized core training courses, as necessary. New courses will be developed, as needed, and ongoing upgrades of the standardized core courses will be conducted on an annual basis.

5. As a matter of management prerogative, two options are available for cases where an incumbent does not meet the level of knowledge, skills, and abilities required of their position. First, the employee can be reassigned to another position of equal grade, if available, or second, the incumbent may be offered supplemental training to ensure that they develop the level of knowledge, skills, and abilities necessary for their position. Where the supplemental training option is chosen by management, the Department or contractor and affected incumbent will mutually identify the supplemental training necessary to upgrade their level of knowledge, skills, and abilities by December 1994. The identified supplemental training requirements will be provided to the incumbent's direct supervisor for incorporation in each incumbent's individual development plan established for Federal employees and similar contractor programs. Supplemental training must be completed within two years of identification for incumbents to continue in their position. The need for interim measures will be identified and implemented by management. The incumbent's knowledge, skills and abilities will be evaluated through appropriate written, oral, or practical examination at the conclusion of each supplemental training course to ensure that the course content is valid and effective for increasing the level of knowledge, skills, and abilities identified in the previous Commitment 2. above. The impact of the training on performance will be evaluated during the ongoing performance management process.
6. The Department commits to having its oversight organizations specifically evaluate program performance to identify deficiencies in the knowledge,

skills and abilities of key personnel. These evaluations will be used to identify specific areas where improvements in performance and training are needed.

7. The criteria for adequate retention of knowledge, skills, and abilities will be developed as part of a retention testing program to help identify when individual performance or testing fails to meet expectations. One of the methods that will be utilized in developing and conducting the retention testing program will be the use of the radiological performance goals provided in article 131 of the Radiological Control Manual. Both independent and management radiological performance assessments will also be used to provide management with a series of indicators that can assist in the identification of adverse trends in performance. The retention criteria will be disseminated to contractors by May 1994. Sites will begin retention testing six months following scheduled implementation of the standardized core training material. For sites that have already implemented the standardized core training, retention testing will begin by December 1994. Corrective actions for deficiencies detected as a result of the retention testing will be incorporated into the individual's development plan and the site's training program on an appropriate schedule.

Task 3: Evaluate the adequacy of the Department infrastructure and resources dedicated to radiation protection at defense nuclear facilities. [Responds to Board specific recommendations 3 and 4]

Purpose: To ensure that sufficient numbers of qualified personnel are positioned within effective organizational structures to provide adequate protection of radiological health and safety at defense nuclear facilities. To evaluate the need to upgrade Department Headquarters, Operations, and contractor radiation protection infrastructure and human resources dedicated to radiation protection at defense nuclear facilities, and document the technical basis for the infrastructure established in the Radiological Control Manual.

Discussion: The development of the Radiological Control Manual relied on an expert review process which involved several levels of review of draft text. An editorial board, consisting of senior Department personnel and expert, independent consultants and contractor personnel, reviewed draft materials for technical applicability and continuity throughout the Manual. The Task Force, chaired by the former Assistant Secretary for Environment, Safety and Health, as mandated by former Secretary Watkins, performed a Department management review of the edited draft Manual. Finally, with a draft developed, Operations and Department of Energy contractors reviewed the draft Manuals, providing input that helped to set up a viable Department of Energy and contractor infrastructure.

Consistent with the Board's concern expressed in Recommendation 91-6, the

Department is focusing increased attention in its management and leadership in radiation protection programs. Towards this end, the Department will have a detailed evaluation of the radiation protection infrastructure conducted throughout the defense nuclear facilities complex, as described in the following specific commitments.

- Commitment: 1. The Department will establish an Evaluation Team to conduct an independent, external evaluation of the Department Headquarters, Operations, and contractor radiation protection infrastructure and resources dedicated to radiation protection at defense nuclear facilities. The Evaluation Team is anticipated to be composed of members from other Federal Agencies, private industry, and academia, with representation by the Department. The Team members will be appointed by September 1993. The Department will notify the Board of the Evaluation Team's membership.

Consistent with the Board's third specific recommendation, the Evaluation Team will be tasked with examining the existing infrastructure for radiation protection program development and implementation at the Department of Energy Headquarters to determine if resource, organizational, or managerial changes are needed to:

- a. emphasize the priority and importance of the radiation protection program to assuring public health and safety;
- b. communicate the importance of the radiation protection program from the highest level of management to all appropriate department personnel;
- c. expand the radiation protection program and increase program resources to facilitate the rapid development and implementation of radiological protection standards throughout the defense nuclear facility complex; and
- d. make other changes as warranted.

In response to the Board's fourth specific recommendation, the Evaluation Team will also be tasked with examining the corresponding radiation protection organization units at the Department's Operations Offices and contractor organizations to determine if those organizations' radiation protection programs' infrastructure and responsibilities can be strengthened to expedite implementation of radiological protection standards. A critical aspect of this review will be the assessment of management's involvement and effectiveness in implementing radiation protection programs and management's ability to communicate the steps to be taken to implement an effective radiation protection program to all levels within relevant Department and contractor units, particularly with line organizations.

2. The Evaluation Team will report directly to the Assistant Secretary for Environment, Safety and Health. The Evaluation Team will complete its evaluation by January 1994. As a result of their evaluation, the Team will prepare a report that summarizes their findings related to the organizations' radiation protection programs infrastructure, resources, and delegation of responsibilities. Any recommendations made by the Team should include options to implement the recommendations, including necessary changes to implementing directives and taking into account available resources and identifying the need for additional resources. This report will be provided to the Assistant Secretary by March 1994, who will then submit a copy of the report to the Board by April 1994.
  
3. The Assistant Secretary for Environment, Safety and Health will review the Evaluation Team's report and confer with the Radiological Control Coordinating Committee to obtain their views on the report. The Assistant Secretary will then identify those recommendations and options appropriate for the Office of Environment, Safety and Health to implement and those, recommendations and options necessary for the Secretary's consideration. This review will be completed by April 1994. For those recommendations and options accepted by the Office of Environment, Safety and Health, the Assistant Secretary will develop corrective actions and schedules for completion by June, 1994. Following consideration of the recommendations and options referred to the Secretary, corrective actions and schedules for those recommendations and options accepted will be developed by July 1994. For each corrective action accepted by either the Secretary or Assistant Secretary, aggressive schedules for identifying critical milestones to achieve successful implementation will be developed. To assure milestones in this implementation plan are achieved, the department will conduct annual oversight assessments of progress towards implementing corrective actions. These assessments will be provided to the Secretary annually with a copy provided to the Board.
  
4. The department will centralize current contractor Radiological Control Manual implementation plans for defense nuclear facilities of the Offices of Defense Programs and Environmental Restoration and Waste Management, and these plans will be provided to the Board by October 1993.
  
5. The department commits to providing the Board with the credentials and qualifications of individuals currently conducting the department of Energy internal oversight activities relating to radiation protection by October 1993.

Task 4: Analysis of reported occurrences and correction of radiation protection program deficiencies at defense nuclear facilities. [Responds to Board specific recommendation 5]

Purpose: To determine the extent to which the Occurrence Reporting and performance System is used for incorporating improvements in radiological performance at the

department of Energy defense nuclear facilities. In addition, to identify enhancements in Occurrence Reporting and performance System use to facilitate potential performance improvements in radiation protection programs.

Discussion: The Radiological Control Manual establishes a system for measuring radiological performance that uses performance indicators as tools to assist management in focusing their priorities and attention toward achieving performance improvements. Additionally lessons learned from incidents at other department of Energy defense nuclear facilities provide another method for identifying areas for improvement. The Radiological Control Manual provides for independent assessors to evaluate the effectiveness of the use of these program improvement aids. These assessments are expected to become increasingly more detailed as management becomes more familiar with the application of these performance indicators and lessons learned.

In developing the performance measurement system described in chapter 1 of the Radiological Control Manual, the Department reviewed the types of data available on the Occurrence Reporting and Performance System. This data was considered in developing those performance indicators identified in the Radiological Control Manual. Additional indicators were established for local management action. The Department will determine how defense nuclear facilities use the Occurrence Reporting and Performance System information, how useful the available information is, and will develop recommendations for enhancing the Occurrence Reporting and Performance System usage. The Department will undertake the following actions in order to evaluate current Occurrence Reporting and Performance System usage and determine necessary enhancements:

- Commitment:
1. By August 1993, meet with current Department of Energy Headquarters Occurrence Reporting and Performance System program manager to determine current Occurrence Reporting and Performance System capabilities.
  2. By October 1993, complete an evaluation of defense nuclear facilities use of the Occurrence Reporting and Performance System information, how useful is the information that is available, and solicit recommendations from users for improvement.
  3. By November 1993, convene a task force of Headquarters, Operations, and contractor personnel to evaluate the data regarding the current use and capabilities of the Occurrence Reporting and Performance System and make recommendations for improvement by February 1994. The Occurrence Reporting and Performance System management and the Radiological Control Coordinating Committee will evaluate these recommendations and develop a schedule with milestones for implementing corrective actions by June 1994. Goals of the task force evaluation and

areas for recommended improvements will include the following:

- Develop lessons learned with supporting information from throughout the Department of Energy defense nuclear facilities complex that includes input from top management to worker level. Improve worker performance through awareness of previous related occurrences. Management should identify adverse trends in performance to prevent occurrences.
- Include lessons learned by management during training (both initial and periodic refresher) by safety committees, at meetings, and from reading files. Incorporate lessons learned into future assessments to ensure assessments are properly focused.
- Operating experience feedback--similar to a formalized program used in the commercial nuclear power industry to identify generic problems, apprise the industry of these problems, and document measures at individual sites to prevent problems from occurring and reoccurring.

Other opportunities for communicating lessons learned and good practices across the Department of Energy complex will be pursued, encouraged, and implemented.

**Task 5:** Document technical basis for departmental radiation protection standards and remedial actions during standards implementation at defense nuclear facilities. [Responds to Board specific recommendations 6 and 7]

**Purpose:** To document the technical basis used in the development of the Department standards for occupational radiation protection. Identify compensatory and remedial action programs in place during full implementation of these standards.

**Discussion:** The Department of Energy Order 5480.11, the Department of Energy Radiological Control Manual, and Title 10 Code of Federal Regulations part 835 establish the standards for occupational radiation protection within the Department of Energy. Further, the Department recognizes that the key to achieving outstanding radiation protection requires full and expeditious implementation of all three of these documents and the standards and requirements they embody. All of these documents were developed using numerous references and technical standards. These documents included those references provided in the attachment to the Board's Recommendation 91-6 and a considerable number of additional scientific, industry, and Government recommendations and standards. The technical basis for Title 10 Code of Federal Regulations part 835 is discussed in detail in the preamble to the final rule, which will be published in the Federal Register. The Department of Energy Order 5480.11 is being revised to be consistent with the final rule. Therefore, the preamble technical basis discussion directly reflects the technical



basis for the revised Order. Tabulation of reference documents used in developing Articles of the Radiological Control Manual exists and has been provided in appendix C.

The Department recognizes that a gap exists between the performance of radiation protection programs that comply with the three Department of Energy standards just discussed and those actually being conducted at many defense nuclear facilities. Guidance documents to assist contractors by providing acceptable methods for implementing the final rule are being developed. Several of these guidance documents are planned for release for interim use and comment after publication of the final rule.

Gaps between the provisions in the Radiological Control Manual and the programs and the practices at the sites will be identified in the approved site-specific Radiological Control Manual implementation plans. Compensatory measures will also be provided in these implementation plans. In recognition of the need to expedite improvement in performance relative to radiation protection standards and practices at defense nuclear facilities, the following commitments are being made:

- Commitment:
1. The Department will further document the technical basis for developing the Radiological Control Manual that will include a description of how pertinent references and standards were used or why certain documents were not used, including, at a minimum, those references suggested by the Board in Recommendation 91-6 and its attachment. This technical basis document will be completed and provided to the Board by December 1993.
  2. In the event that the Department identifies any gaps in the standards used during the development of the Radiological Control Manual, the Department of Energy Order 5480.11, or Title 10 Code of Federal Regulations part 835, the affected document will be corrected. Future oversight assessments of the Department's radiation protection programs and practices at defense nuclear facilities will be conducted based upon these upgraded standards.
  3. The Department will develop target dates for full implementation of the Radiological Control Manual, the Department of Energy Order 5480.11, and Title 10 Code of Federal Regulations part 835 at defense nuclear facilities. For all defense nuclear facilities, except those listed in appendix D, the Department commits to full implementation of these three documents by October 1996 unless specific exceptions are approved by the proper authority and concurred in by the Assistant Secretary for Environment, Safety and Health. To ensure expeditious implementation, the Department will evaluate and report on progress towards full

implementation of these documents on an annual basis. These progress reports will be provided to the Secretary annually. The Department will provide a copy of these progress reports to the Board in the first quarterly status report (see Task 6, below) following the briefing of the Secretary.

4. The Radiological Control Coordinating Committee will become more involved in the evaluation of implementation plans for the Radiological Control Manual. Evaluations of the adequacy of interim actions being taken by contractors prior to full implementation are being performed by the Cognizant Secretarial Officers and supported by the Radiological Control Coordinating Committee based on the information provided in the implementation plans. The status of Radiological Control Manual implementation is provided by the Cognizant Secretarial Officers to the Secretary in an annual report that is expected to be issued at the end of each calendar year beginning in 1993. The Department will provide a copy of the next annual report to the Board at the first quarterly status report following the availability of the report.

Task 6: Status reports for the Defense Nuclear Facilities Safety Board.

Purpose: To assure the Board is apprised of the progress made by the Department in completing commitments made under this Implementation Plan.

Commitment: The Department will provide quarterly status reports to the Board on the progress of completing commitments made in this Implementation Plan.

## APPENDIX A

### Department of Energy

#### Radiological Health and Safety Policy

June 1993

#### DEPARTMENT OF ENERGY

#### Radiological Health and Safety Policy

It is the policy of the Department of Energy to conduct its radiological operations in a manner that ensures the health and safety of all its employees, contractors, and the general public. In achieving this objective, the Department shall ensure that radiation exposures to its workers and the public and releases of radioactivity to the environment are maintained below regulatory limits and deliberate efforts are taken to further reduce exposures and releases in accordance with a process that seeks to make any such exposures or releases as low as reasonably achievable. The Department is fully committed to implementing a radiological control program of the highest quality that consistently reflects this policy.

In meeting this policy, the Department shall:

1. Establish and maintain a system of regulatory policy and guidance reflective of national and international radiation protection standards and recommendations. The Assistant Secretary for Environment, Safety and Health (or the Director, Naval Reactors, for that program), has responsibility for promulgating and maintaining policies, standards, and guidance related to radiological protection. Departmental radiological protection requirements are, at a minimum, consistent with the Presidentially approved Radiation Protection Guidance to Federal Agencies developed by the Environmental Protection Agency in accordance with its mandated Federal guidance responsibilities. Departmental requirements often are more stringent and reflect, as appropriate, recommendations and guidance from various national and international standards-setting and scientific organizations, including the International Commission on Radiological Protection, the National Council on Radiation Protection and Measurements, the American National Standards Institute, and others. Departmental requirements related to radiological protection will be set forth, as appropriate, in rules and Department of Energy' Orders, and guidance documents will be issued on acceptable means to implement these requirements.
2. Ensure personnel responsible for performing radiological work activities are appropriately trained. Standards shall be established to ensure the technical competency of the Department's work force, as appropriate, through implementation of standardized and mandated radiological training and development programs.
3. Ensure the technical competence of personnel responsible for implementing and

overseeing the radiological control program. An appropriate level of technical competence gained through education, experience, and job-related technical and professional training is a critical component for achieving the goals of the Department's radiological control policy. Qualification requirements commensurate with this objective shall be established for technical and professional radiological control program positions and shall, at a minimum, be consistent with applicable industry standards and promote professional development and excellence in radiological performance.

4. Establish and Maintain, from the lowest to the highest levels, line management involvement and accountability for departmental radiological performance. The responsibility for compliance with departmental radiological protection requirements, and for minimizing personnel radiation exposure, starts at the worker level and broadens as it progresses upward through the line organization. The Department's line managers are fully responsible for radiological performance within their programs and the field activities and sites assigned to them, and shall take necessary actions to ensure requirements are implemented and performance is monitored and corrected as necessary.
5. Ensure radiological measurements, analyses, worker monitoring results and estimates of public exposures are accurate and appropriately ride. The capability to accurately measure and analyze radioactive materials and workplace conditions, and determine personnel radiation exposure, is fundamental to the safe conduct of radiological operations. Policy, guidance, and quality control programs shall be directed towards ensuring such measurements are appropriate, accurate, and based upon sound technical practices.
6. Conduct radiological operations in a manner that controls the spread of radioactive materials and reduces exposure to the work force and the general public and that utilizes a process that seeks exposure levels as low as reasonably achievable. Radiological operations and activities shall be preplanned to allow for the effective implementation of dose and contamination reduction and control measures. Operations and activities shall be performed in accordance with departmental conduct of operations requirements and shall include reasonable controls directed towards reducing exposure, preventing the spread of radiological contamination, and minimizing the generation of contaminated wastes and the release of effluents.
7. Incorporate dose reduction, contamination reduction, and waste minimization features into the design of new facilities and significant modifications to existing facilities in the earliest planning stages. Wherever possible, facility design features shall be directed towards controlling contamination at the source, eliminating airborne radioactivity, maintaining personnel exposure and effluent releases below regulatory limits and utilizing a process that seeks exposure levels and releases as low as reasonably achievable. Radiological design criteria shall reflect appropriate consensus recommendations of national and international standards setting groups.
8. Conduct oversight to ensure departmental requirements are being complied with and appropriate radiological work practices are being implemented.

All departmental elements shall conduct their radiological operations in a manner consistent with the above policies and objectives.

Hazel R. O'Leary  
Secretary

APPENDIX B

Department of Energy

Standardized Core Training Materials

November 1992

APPENDIX C

Department of Energy

Radiological Control Manual

Reference Documents

APPENDIX D

Department of Energy

Radiological Control Manual

Implementation Dates Beyond October 1996

Appendix D

Radiological Control Manual

Implementation Dates Beyond October 1996

Site	Date for Full Implementation
Albuquerque Operations Office	
Los Alamos National Laboratory	September 1997
Sandia National Laboratories	September 1998
Mound Facility	December 1996
Rocky Flats Office	
EG&G Rocky Flats	October 1997