



**The Secretary of Energy**  
Washington, DC 20585

September 14, 1990

The Honorable John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
600 E Street, N.W.  
Suite 675  
Washington, D.C. 20004

Dear Mr. Chairman:

In accordance with Section 315 of Public Law 100-456, enclosed is the Department of Energy's (DOE) supplemental response and implementation plan concerning standards for DOE defense nuclear facilities. This supplemental response and implementation plan is in accordance with Defense Nuclear Facilities Safety Board Recommendation 90-2, which I addressed in my letter to the Board dated June 8, 1990.

Our implementation plan is designed to provide the Board with the requisite information on a continuing basis. Initial reports for each major element of work will be followed by bi-monthly reports to indicate progress and to provide newly developed information as it becomes available.

Sincerely,

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

Enclosure

**CODES & STANDARDS  
IDENTIFICATION, ADEQUACY, AND IMPLEMENTATION  
SUPPLEMENTAL RESPONSE AND IMPLEMENTATION PLAN**

**1.0 INTRODUCTION**

**1.1 Supplemental Response to Recommendation 90-2**

In supplemental response to Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 90-2, the Department of Energy (DOE) will:

- (1) Identify the specific standards which the DOE considers apply to the design, construction, operation and decommissioning of defense nuclear facilities of DOE (including all applicable Departmental orders, regulations, and requirements) at the following defense nuclear facilities:
  - o Savannah River Site: K, L, and P Reactors;
  - o Rocky Flats Plant: Buildings 371, 374, 559, 707, 771, 774, 776, 777, and 779;
  - o Hanford Site: Plutonium Finishing Plant; PUREX Facility, together with associated waste processing and storage facilities; N Reactor (including decommissioning); and K Reactor Storage Basins; and
  - o Waste Isolation Pilot Plant (WIPP).
- (2) Provide DOE's views on the adequacy of the standards identified in the above process for protecting the public health and safety at the defense nuclear facilities referred to, and determine the extent to which the standards have been implemented at these facilities.

**1.2 Background**

In prior years, DOE conducted its defense related nuclear operations as an oversight organization with respect to its operating contractors. In keeping with this management approach, individual contractors at defense programs facilities were responsible for formulating, selecting, and administering standards controlling design, construction, and conduct of operations. Due to the dearth of nuclear industry standards when these facilities were constructed and first operated, these contractors had to knowledgeably apply non-nuclear industry standards and, in many cases, formulate appropriate detailed technical standards to address their unique applications. As a result of isolation from commercial nuclear power and other industries, modern practices and standards were often not assessed or adopted as they became available. These are some of the reasons a well-documented body of codes and standards has not been maintained for DOE's defense nuclear facilities.

Recently, DOE transitioned to a more assertive management organization. Consistent with this approach, facility operations have become the subject of DOE orders controlling their design, construction, operation, and decommissioning. In recognition of the excellent resources available, DOE is attempting

to utilize nationally available consensus codes and standards as aids in achieving its mission. These DOE orders have not achieved the level of completeness, organization, and cohesiveness commensurate with the safe operation of nuclear facilities. DOE is currently drafting a set of rules to correct this situation.

### 1.3 Purpose

A complete, cohesive, and organized body of standards is necessary for ensuring that the safety and health of the public are being adequately protected at DOE defense nuclear facilities. As a significant intermediate and practical step in creating this body of standards, DOE will prepare an organized tabulation of the codes and standards DOE considers to apply to the named facilities, determine the extent of current compliance at the facilities, and make a comprehensive review of adequacy for protection of public health and safety. The full range of activities necessary to finalize these tasks may not be completed prior to or during operation of some of the named facilities. However, there is substantial activity currently underway to ensure that the health and safety of the public is adequately protected during facility operation. Examples of these activities include the ongoing seismic and thermal-hydraulic analyses for K, L, and P Reactors; revised operator training programs at both Savannah River and Rocky Flats; and comprehensive readiness reviews planned or underway at K, L, and P Reactors, Rocky Flats, and WIPP.

### 2.0 PROGRAM DESCRIPTION

The above information will be provided to the Board in five major reports:

- 1) DOE Order Compliance Programs at Savannah River and Rocky Flats.
- 2) Standards that apply to Savannah River K, L, and P reactors.
- 3) Standards that apply to Rocky Flats Buildings 371, 374, 559, 707, 771, 774, 776, 777, and 779.
- 4) DOE orders and other standards that apply to WIPP.
- 5) DOE orders and other standards that apply to Hanford.

These reports will be in a stand-alone format specifically directed at meeting DOE and the Board's needs. The codes and standards identified and assessed in these reports will consist of the following, to the extent that they concern the health and safety of the public:

- (1) Codes and standards that were specifically invoked on the design, construction, and modification of the facility;

(2) Codes and standards that are currently explicitly invoked on the design, construction, modification, maintenance, operation, and, as applicable, decommissioning of the facility; and

(3) Other codes and standards that DOE considers apply, examples of which may include industry consensus standards, Federal, state, and local statutes, and Nuclear Regulatory Commission requirements.

## **2.1 Order Compliance Programs at the Savannah River and Rocky Flats Sites**

The first report will document the completion of the ongoing order compliance programs at the Savannah River and Rocky Flats sites. This order compliance report will provide a final listing of the DOE orders that the Department applies to ensure the health and safety of the public, the extent of compliance as determined by the compliance teams, and the disposition of identified areas of noncompliance. The order compliance report will also provide the Department's initial assessment of the adequacy of the body of requirements represented by the identified orders. This assessment will specifically consider the body of guidance represented by comparable commercial nuclear standards.

## **2.2 Standards That Apply to Savannah River K, L, and P Reactors**

The second report will identify and assess the standards that apply to the design, construction, operation, or decommissioning of K, L, and P reactors at Savannah River. Initially, this list will be generated from DOE orders, regulations, and requirements; site documentation including construction and equipment specifications; procedures; manuals; and plans. The identification will be presented in an organized and stand-alone format to facilitate the Board's review and evaluation of the content of the standards. DOE's views on the adequacy of this body of standards to ensure public health and safety and the extent to which these standards are implemented at the site will be comprehensively addressed in the second part of this report.

For the second part of this report for Savannah River, DOE will continue to assess the adequacy of the standards identified for protecting the public's safety and health. The assessment will cover all safety topics, including systems, structures, operations, etc. During this phase, DOE will also identify any plant features or aspects of operation that are inadequately controlled by currently invoked standards and areas where another standard may be preferred. The report to the Board will provide DOE's views on the adequacy of the codes and standards applied to the Savannah River reactors based on this detailed assessment and any corrective actions undertaken. The effort for this phase began with the development of the Safety Evaluation Report which has already been drafted.

### **2.3 Standards that Apply to Rocky Flats Plant**

The third report will cover nine buildings at the Rocky Flats Plant and will be similar in approach and content to the second report discussed above. Initial identification and assessment of standards will be based on existing site documentation and applicable DOE orders. DOE will provide the Board with periodic updates to keep the report current during this effort.

Concurrent with the identification of standards applicable to Rocky Flats, DOE will continue the development of its Systematic Evaluation Program (SEP), consistent with Board Recommendation 90-5. The acceptance criteria and evaluations developed in the SEP and subsequently reported to the Board will be utilized as a major input to the second phase of this effort.

### **2.4 Standards That Apply to WIPP**

The fourth DOE report will address codes and standards for the WIPP facility. As noted in the Department's June 8, 1990, response, the WIPP project is in the process of developing a data base to identify the specific standards that apply to WIPP. (Note: The use of the word "standards" in this implementation plan refers to DOE-Headquarters (HQ) orders, DOE-Albuquerque Operations Office (AL) (implementing) Orders, Management and Operating Contractor ((MOC)-Westinghouse) procedures and directives, and national codes and standards.) While the applicable DOE orders and many of the higher level standards are identified in the WIPP Final Safety Analysis Report (FSAR) and in the Final Supplemental Environmental Impact Statement, MOC directives and applicable industry codes are not identified and will require additional effort to identify. This effort includes researching on-site construction records (e.g., specifications) and organizing the data into a data base. Because of the amount of time needed to complete this additional effort, the Department must revise its proposed submission of the data base from October to December 1990.

The effort discussed above will culminate in the identification of the standards for the design and construction phases, the operations phase, and the decommissioning phase at WIPP. For the design and construction phases, the data base will identify the applicable standards for 19 systems within the facility. These 19 systems are discrete packages utilized during the design and construction phases at WIPP such as Effluent and Environmental Monitoring, Radiation Monitoring System, and security systems. For the operations and decommissioning phases the identified standards will be organized into functional areas. These areas include, for example, engineering, quality assurance, training, operations, and maintenance.

With respect to the adequacy of the standards applied to WIPP to protect public health and safety, we propose to utilize documentation that has been, and will be, generated during the reviews of the WIPP FSAR and the Operational Readiness Reviews (ORRs) to assist in the formulation of our response. The WIPP FSAR defines the envelope within which WIPP must operate to ensure the public's health and safety and is subject to ongoing reviews by numerous independent organizations both internal and external to the Department. These organizations include DOE-EH (HQ), DOE-Nuclear Safety (HQ), DOE-AL, the Advisory Committee for

Nuclear Facility Safety, and the Environmental Evaluation Group. Each of these reviews are expected to produce a review document that will delineate that organization's assessment of the FSAR with regard to completeness, accuracy, and compliance with the requirements of the DOE safety directives.

The second set of documents that will be utilized to assess the adequacy of the codes and standards are the ORR reports. Again, numerous organizations both within and external to the Department have, and will continue, to participate in ORRs to determine the facility's and operating staff's state of readiness to begin operations. ORRs for the disposal operations have been going on for some time; readiness reviews for those activities specific to the test phase are expected to begin later this year.

Together, the FSAR review documentation and the ORR documentation provide DOE management an assessment of the acceptability of the risk presented by the operation of WIPP and allow DOE management to make an informed decision on startup. The Department will utilize this documentation as a basis for the preparation of its report to the Board on adequacy of the standards applied to WIPP.

Finally, with regard to determining the extent to which the standards have been implemented at WIPP, the following approach is being taken. Since WIPP is not yet operational and ORRs are continuing, a formal DOE Order Compliance Review, as some of the other sites are conducting, does not seem warranted. Instead, the Department will utilize the results of the ORRs since a major element of the ORR is to assess whether the facility and its proposed operations comply with applicable DOE orders, codes, and standards. As stated previously, these ORRs are ongoing for disposal phase operations, but have not yet begun for test phase activities. Upon closure of the ongoing ORR items and upon completion of the upcoming test phase ORR, which must be completed prior to the initiation of the test phase (i.e., prior to waste receipt), the Department will prepare an implementation assessment report for the Board.

## 2.5 Standards that apply to Hanford

The fifth DOE report to the Board will provide the information for high priority facilities at the Hanford site. This will include certain facilities in active service or proceeding towards near-term operation, that is, the Plutonium Finishing Plant (PFP) and all active high-level waste tanks and associated Safety Class 1 systems. Due to the current mission status of several of the other facilities at Hanford, the Department suggests some alternatives to the Board's recommendation with regard to those facilities. DOE agrees that a standards review for these facilities should be conducted, and suggests it be based on currently established missions and priorities. The missions of the PUREX Plant and N Reactor are currently being reevaluated and these plants are presently in a long-term outage and dry layup, respectively. Similarly, the mission for the fuel stored in the K Reactor Storage Basins is being reevaluated. The Department believes that significant effort to identify and assess all applicable codes and standards would be of limited value at this time. DOE agrees to provide the Board with assessment of standards applicable to any future missions when those decisions are made.

A phased response is planned for the report. Phase 1 will identify the codes and standards applicable to the respective facilities. Phase 2 will provide the Department's view of the adequacy of the various codes and standards to ensure the public health and safety during facility operations. Phase 3 will provide an evaluation of the assembled data against the in situ facility and Safety Class 1 systems configurations. These results will be used as a basis to ensure accurate data, support FSAR reviews and recommended component upgrades, as appropriate.

Implementation of Phase 1 will be accomplished in several steps. First, DOE will conduct a review of the readily available FSAR's and other documentation which contain references to codes, standards, and orders. The scope will be limited to confinement barriers and associated Safety Class 1 systems. Second, archives will be searched to compile information not found in the preceding step, and a facility file will be assembled for future use during review activities.

Interim reports will be provided upon completion of each phase, showing the results of the activity and projected scope of work required for the following phase. In addition, the timing of the interim reports will be linked to facility status, in that reports for the newer facilities, or those with recently updated FSAR's, will be provided first. The reports for these facilities will not be delayed until the older facilities, which are expected to be more difficult to research, are completed. The reports will be provided to the Board in a stand-alone format specifically directed at meeting the Board's needs.

### **3.0 ADMINISTRATION OF PLAN**

#### **3.1 Schedule**

As noted above, our plan to comply with the Board's Recommendation 90-2 provides for the development of five reports. Each of these reports will be structured/maintained as a living document. Following the initial issuance of each of the five reports, bimonthly updates will be provided to the Board. Our schedule for providing these reports is as follows:

Initial report on Standards for Savannah River Reactors providing identification of codes and standards	10/30/90
Initial report on Order Compliance for Savannah River and Rocky Flats	11/15/90
Initial report on Rocky Flats Buildings	12/15/90
Initial Report on WIPP	12/90
Initial Report on Hanford Covering PFP	2/91
Addendum to Hanford Report Covering Double Shell Tanks	9/91
Addendum to Hanford Report Covering Single Shell Tanks	9/91

DOE staff will keep the Board apprised of the status of progress being made toward completion of the five reports. In the event that additional time is necessary to complete a given report, or in the event that changes or supplements are required for already issued reports, DOE will immediately inform the Board and indicate the reasons justifying the change in the schedule or report content.

### **3.2 Report Modification and Revision Prior to Completion of Implementation Plan**

Information obtained by DOE while completing the Implementation Plan may bear upon previously issued, or to be issued, reports scheduled in Section 3.1, above. Until all five reports are completed and issued, DOE may use any relevant information and data obtained to revise or supplement the reports in a manner that makes such reports more comprehensive and protective of public health and safety.

## **4.0 ADMINISTRATION OF THE PROGRAM**

### **4.1 Project Management Plan**

A Project Management Plan (PMP) will be developed for this Defense Nuclear Facilities Standards Review Program in accordance with the requirements of DOE 4700.1, "Project Management System." The PMP is to document the plans, schedules, and systems that those responsible for managing the project are to use.

### **4.2 Quality Assurance Plan**

A Quality Assurance Plan (QAP) will be developed for the Defense Nuclear Facilities Standards Review Program in accordance with the requirements of DOE 4700.1, "Project Management System," DOE 5700.6B, "Quality Assurance," and ANSI/ASME NQA-1. NQA-1 has been chosen as the basic document since it is endorsed by DOE 5700.6B as the preferred standard for nuclear facilities. The purpose of the QAP is to provide adequate confidence that the standards program objectives are accomplished and that activities are performed in a controlled manner to meet technical and documentation requirements.

Both of these plans will be provided to the Board.