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# **ANNUAL REPORT TO CONGRESS**

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**Department of Energy Activities  
Relating to the  
Defense Nuclear Facilities Safety Board**

**Calendar Year 1996**



**Washington, D.C. 20585**

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**February 1997**

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February 19, 1997

The Honorable Al Gore, Jr.  
President of the Senate  
Washington, D.C. 20510

Dear Mr. President:

Section 316(b) of the Atomic Energy Act of 1954 as amended (42 U.S.C. §2286e(b)) requires the Department of Energy (Department) to submit a written report to Congress concerning the Department's activities in response to formal recommendations and other interactions with the Defense Nuclear Facilities Safety Board (Board). We are pleased to enclose the Department's Annual Report for calendar year 1996.

The Department has made significant progress on health and safety issues during 1996. The Department reduced the number of open Board recommendations by 18 percent (from 17 to 14). Four Board recommendations were closed as a result of Department activities while only one new Board recommendation was received. The Department submitted two new implementation plans in 1996 in response to Board recommendations the Department accepted in 1996. The Department also established and implemented a number of broad-based initiatives to increase health and safety assurance. Key Department initiatives include establishing the integrated safety management system; improving technical capability of the Department's work force; transition to revised safety requirements; and stabilization of excess nuclear material for safe, stable storage. In addition, the Department continues to improve the quality of communication and interaction between the Department and the Board.

If you have any questions, please contact me or have your staff contact Mr. Mark B. Whitaker, Jr., Departmental Representative to the Defense Nuclear Facilities Safety Board, at (202) 586-3887.

Sincerely,

Charles B. Curtis  
Acting Secretary of Energy

Enclosure

**I EXECUTIVE SUMMARY**

This is the seventh Annual Report to the Congress describing Department activities in response to formal recommendations and other interactions with the Defense Nuclear Facilities Safety Board. The Board, an independent executive-branch agency established in 1988, provides advice and recommendations to the Secretary of Energy regarding public health and safety issues at the Department's defense nuclear facilities. The Board also reviews and evaluates the content and implementation of health and safety standards, as well as other requirements, relating to the design, construction, operation, and decommissioning of the Department's defense nuclear facilities. Figure 1 provides the locations of the major defense nuclear facilities.

The Department has made significant progress on health and safety issues during 1996. The Department has established and implemented a number of broad-based initiatives to increase health and safety assurance. Key Department initiatives include establishment of the integrated safety management system; improvement of the technical capability of the Department's work force; transition to revised safety requirements; and stabilization of excess nuclear material for safe, stable storage. The Department has also reduced the number of open Board recommendations by 18 percent (from 17 to 14). Four Board recommendations were closed as a result of Department activities, while only one new Board recommendation was received. In addition, the Department continues to improve the quality of communication and interaction between the Department and the Board.

**Closed Recommendations**

Table 1 provides a summary status on Board recommendations. Department activities culminating in 1996 led to closure of the following four Board recommendations:

- Recommendation 90-7, Hanford Waste Tanks - Ferrocyanide Safety
- Recommendation 91-6, Radiation Protection
- Recommendation 92-2, Facility Representatives
- Recommendation 93-4, Environmental Restoration Management Contracts.

**New Recommendations and Implementation Plans**

In 1996 the Department formally accepted two new recommendations received from the Board and developed implementation plans for these two recommendations:

- Recommendation 95-2, Safety Management
- Recommendation 96-1, In-Tank Precipitation System at Savannah River.

Implementation plans establish the Department's approach and schedule to resolve the associated safety issues. The Department also developed implementation plan revisions for three previously accepted Board recommendations in 1996. Table 2 provides key dates for active Board recommendations.

**Trend in the Number of Open Board Recommendations**

The following table provides a summary of the change in the number of open Board recommendations for each year since the Board was established and began issuing recommendations.

Year	Recommendations Issued	Recommendations Closed	Net Change in Open Recommendations	Open Recommendations at Year End
1990	7	0	+7	7
1991	6	0	+6	13
1992	7	8	-1	12
1993	6	1	+5	17
1994	5	1	+4	21
1995	2	6	-4	17
1996	1	4	-3	14

This table shows that over the past two years, the Department has made substantial progress in reducing the number of open Board recommendations. In December 1994, the number of open Board recommendations reached its peak at 21 open recommendations. Today, there are 14 open Board recommendations, a net decrease of seven open recommendations from the peak. Over the past two years, ten Board recommendations have been closed and three new recommendations have been received. While these numbers are indicative of a general trend, it must be remembered that recommendations are not equivalent in scope or significance.

The Department believes the following factors have contributed to strong performance and focus on closure of Board issues over the past two years:

- Increased attention by Department senior management to Board issues, resulting in a coordinated approach to identify and resolve safety issues;
- Improved communications and understanding between the Board and the Department, leading to resolution of issues before recommendations are needed; and
- Increased use by the Board of mechanisms other than formal recommendations, such as public meetings and correspondence, to identify safety issues for attention.

**Summary of the Department's Major Safety Accomplishments (1993-1996)**

Concrete accomplishments over the past four years that have contributed to improved safety at Department facilities include the following:

- Developing a Department-wide safety management system;
- Improving the technical capability of the Department's federal work force;
- Promulgating and implementing new safety orders and rules;
- Stabilizing nuclear materials at the most critical facilities;
- Establishing qualified Facility Representatives at key sites and facilities;
- Institutionalizing highly effective Operational Readiness Reviews;
- Instituting contract reform to clarify safety management expectations for Department contractors; and
- Archiving valuable expertise and experience on criticality, weapons operation, and testing.

**Department Focus for 1997**

In 1997, the Department intends to keep focus on assuring existing implementation plans remain valid and workable, managing plan actions to completion by the identified plan due dates, and pushing for closure of implementation plans when the underlying safety issues are resolved. The most significant challenges involve safety issues which are complex-wide in nature and involve culture changes: 1) systematically implementing a consistent safety management system which integrates safety into management and work practices at all levels so that work can be accomplished while protecting the public, the worker, and the environment, 2) clarifying and implementing the safety roles and responsibilities of Federal managers, 3) promulgating and implementing nuclear safety requirements in a manner supportive of the integrated safety management implementation, 4) continuing progress toward technical qualification and training of the Department's federal work force, and 5) continuing progress on stabilizing excess nuclear material to achieve safe, stable states for interim and long-term storage pending ultimate disposition. These are long-term issues which will take a dedicated, multi-year effort to successfully resolve. The Department is committed to these ongoing efforts and does not foresee major shifts or redirections in these core efforts, thus providing continuity of direction for Headquarters, field, and contractor organizations. The primary challenge in continuing the safety efforts begun over the past four years will be to effectively integrate them in a manner that assures a consistent level of protection.

**Report Preview**

The remaining portions of the annual report provide the contents described below:

- Section II, KEY DEPARTMENT SAFETY INITIATIVES, describes broad-based Department activities which affect health, safety, and the environment;
- Section III, IMPLEMENTATION OF BOARD RECOMMENDATIONS, describes Department activities completed in 1996 to implement Board recommendations accepted by the Secretary; and
- Section IV, BOARD INTERFACE INITIATIVES, describes Department activities to maintain communications and improve interaction between the Department and the Board.





**1996 Annual Report to Congress**

Table 1  
Summary Status of Board Recommendations

REC	SUBJECT	OPEN	CLOSED
90-1	Savannah River Operator Training		10/27/92
90-2	Codes and Standards		10/24/95
90-3	Hanford Waste Tanks		5/1/92
90-4	Rocky Flats Operational Readiness Reviews		2/16/95
90-5	Systematic Evaluation Plans		10/24/95
90-6	Rocky Flats, Plutonium in the Ventilation Ducts		10/24/95
90-7	Hanford Waste Tanks - Ferrocyanide Safety Issue		<b>9/4/96</b>
91-1	Safety Standards Program		10/27/92
91-2	Reactor Operations Management Plan at Savannah River		10/27/92
91-3	Waste Isolation Pilot Plant		10/27/92
91-4	Rocky Flats, Building 559 Operational Readiness Review		5/1/92
91-5	Savannah River K Reactor Power Limits		4/7/93
91-6	Radiation Protection		<b>11/8/96</b>
92-1	Operational Readiness of the HB-Line at Savannah River		10/27/92
92-2	Facility Representatives		<b>9/17/96</b>
92-3	HB-Line Operational Readiness Reviews at Savannah River		2/3/93
92-4	Multi-Function Waste Tank Facility at Hanford	●	
92-5	Discipline of Operations		10/24/95
92-6	Operational Readiness Reviews		10/24/95
92-7	Training and Qualification		11/4/93
93-1	Standards Utilization in Defense Nuclear Facilities	●	
93-2	Critical Experiments Capability	●	
93-3	Improving Technical Capability	●	
93-4	Environmental Restoration Management Contracts		<b>6/28/96</b>
93-5	Hanford Waste Tanks Characterization Studies	●	
93-6	Nuclear Weapons Expertise	●	
94-1	Improved Schedule for Remediation	●	
94-2	Safety Standards for Low Level Waste	●	
94-3	Rocky Flats Seismic and Systems Safety	●	
94-4	Deficiencies in Criticality Safety at Oak Ridge Y-12	●	
94-5	Rules, Orders, and Other Requirements	●	
95-1	Improved Safety of Cylinders Containing Depleted Uranium	●	
95-2	Safety Management	●	
96-1	In-Tank Precipitation System at Savannah River	●	

Table 2  
Key Dates For Active Board Recommendations

REC	SUBJECT	REC DATE	RESPONSE DATE	IMPL. PLAN DATE
92-4	Multi-Function Waste Tank Facility at Hanford	7/6/92	8/28/92	11/7/94 * (Rev. 1)
93-1	Standards Utilization in Defense Nuclear Facilities	1/21/93	4/22/93	7/19/93
93-2	Critical Experiments Capability	3/23/93	5/12/93	8/10/93
93-3	Improving Technical Capability	6/1/93	6/23/93	11/4/93
93-5	Hanford Waste Tanks Characterization Studies	7/19/93	8/31/93	<b>6/17/96 (Rev. 1)</b>
93-6	Nuclear Weapons Expertise	12/10/93	2/2/94	<b>2/13/96 (Rev. 1)</b>
94-1	Improved Schedule for Remediation	5/26/94	8/31/94	2/28/95
94-2	Safety Standards for Low Level Waste	9/8/94	10/28/94	<b>5/7/96 (Rev. 1)</b>
94-3	Rocky Flats Seismic and Systems Safety	9/26/94	11/18/94	6/30/95
94-4	Deficiencies in Criticality Safety at Oak Ridge Y-12	9/27/94	11/18/94	2/24/95
94-5	Rules, Orders, and Other Requirements	12/29/94	2/21/95	7/21/95
95-1	Improved Safety of Cylinders Containing Depleted Uranium (at Oak Ridge)	5/5/95	6/29/95	10/16/95
95-2	Safety Management	10/11/95	<b>1/18/96</b>	<b>4/18/96</b>
96-1	In-Tank Precipitation System at Savannah River	<b>8/14/96</b>	<b>9/16/96</b>	<b>11/12/96</b>

\* - Implementation plan currently under revision.

## **II KEY DEPARTMENT SAFETY INITIATIVES**

The central safety issues that the Department is resolving -- implementing a consistent integrated safety management framework Department-wide, clarifying and implementing the safety roles and responsibilities of Federal managers, promulgating and implementing nuclear safety requirements in a manner supportive of the integrated safety management implementation, and continuing progress toward increased technical capability of the Department's Federal work force -- are interrelated and must be solved together to achieve lasting improvement. Over the past four years, the Department has made a good beginning toward resolving these issues and has laid down a firm foundation for future efforts. The Department must continue to integrate these various solutions into a cohesive whole and confirm effective implementation. The primary challenge in continuing the safety efforts begun over the past four years will be to effectively integrate them in a manner that assures a consistent level of protection. This must be done with the knowledge that "one-size-fits-all" solutions will not work for the Department's diverse mix of facilities and hazards. During implementation of a comprehensive safety framework, the Department leaders are continuously evaluating ongoing initiatives and programs to ensure that they contribute to improvements in safety, efficiency and performance. The Department's key safety initiatives are described below.

### **A. Integrated Safety Management**

The Department's most significant safety accomplishment in 1996 was the establishment of a safety management system that can be implemented Department-wide. The system was developed in response to Board recommendation 95-2 on integrated safety management issued in October 1995. The objective of the integrated safety management effort is for the Department and contractors to systematically integrate safety requirements into management and work practices at all levels so that work can be accomplished while protecting the public, the worker, and the environment. Such an infrastructure needs to be in place to allow the sites to take these requirements and to translate them into codes and practices, in both planning and executing work. Stated simply, the objective of integrated safety management is to: **DO WORK SAFELY**. Guiding principles and core functions for safety management were defined in the Department's implementation plan in response to recommendation 95-2, and have now been formalized as Department policy for all Department facilities. The guiding principles and core functions will be used consistently to tailor safety management implementation throughout the Department complex. The Department's approach in developing and implementing safety management

is a prime example of the Department's use of cross-organizational teams to find flexible solutions and resolve the hard problems.

Safety management systems provide a formal, organized process whereby people plan, perform, assess, and improve the safe conduct of work. The safety management system is being institutionalized through Department directives and contracts to establish the Department-wide safety management objective, guiding principles, and functions. The system encompasses all levels of activities and documentation related to safety management throughout the Department complex, except that the Naval Nuclear Propulsion Programs maintains its own safety management program. As used by the Department's safety management system, the term safety is used synonymously with environment, safety and health to encompass protection of the public, the workers, and the environment.

The Department is committed to conducting work efficiently and in a manner that ensures protection of workers, the public and the environment. The Department's policy is that safety management systems shall be used to systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. Direct involvement of workers during the development and implementation of safety management systems is essential for their success.

The Department's safety management system establishes a hierarchy of components to facilitate the orderly development and implementation of safety management throughout the Department complex. The safety management system consists of six components: 1) the objective, 2) guiding principles, 3) core functions, 4) mechanisms, 5) responsibilities, and 6) implementation. The objective, guiding principles, and core functions of safety management identified below are to be used consistently in implementing safety management throughout the Department complex. The mechanisms, responsibilities, and implementation components are established for all work and will vary based on the nature and hazard of the work being performed.

#### Objective of Integrated Safety Management

The Department and contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of

safety functions and activities becomes an integral part of mission accomplishment.

Guiding Principles for Integrated Safety Management

The guiding principles are the fundamental policies that guide Department and contractor actions, from development of safety directives to performance of work.

- **Line Management Responsibility for Safety.** Line management is directly responsible for the protection of the public, the workers, and the environment. As a complement to line management, the Department's Office of Environment, Safety and Health provides safety policy, enforcement, and independent oversight functions.
- **Clear Roles and Responsibilities.** Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established and maintained at all organizational levels within the Department and its contractors.
- **Competence Commensurate with Responsibilities.** Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities.
- **Balanced Priorities.** Resources shall be effectively allocated to address safety, programmatic, and operational considerations. Protecting the public, the workers, and the environment shall be a priority whenever activities are planned and performed.
- **Identification of Safety Standards and Requirements.** Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, if properly implemented, will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.
- **Hazard Controls Tailored to Work Being Performed.** Administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work being performed and associated hazards.

- **Operations Authorization.** The conditions and requirements to be satisfied for operations to be initiated and conducted shall be clearly established and agreed-upon.

Core Functions for Integrated Safety Management

These five core safety management functions provide the necessary structure for any work activity that could potentially affect the public, the workers, and the environment. The functions are applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity and the hazards involved.

- **Define the Scope of Work.** Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.
- **Analyze the Hazards.** Hazards associated with the work are identified, analyzed and categorized.
- **Develop and Implement Hazard Controls.** Applicable standards and requirements are identified and agreed-upon, controls to prevent/mitigate hazards are identified, the safety envelope is established, and controls are implemented.
- **Perform Work within Controls.** Readiness is confirmed and work is performed safely.
- **Provide Feedback and Continuous Improvement.** Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur.

Integrated Safety Management - Mechanisms

Safety mechanisms define how the core safety management functions are performed. The mechanisms may vary from facility to facility and from activity to activity based on the hazards and the work being performed and may include:

- Departmental expectations expressed through directives (policy, rules, orders, notices, standards, and guidance) and contract clauses.

- Departmental directives on identifying and analyzing hazards and performing safety analyses.
- Departmental directives which establish processes to be used in setting safety standards.
- Contractor policies, procedures and documents (e.g., Health and Safety Plans, Safety Analysis Reports, Chemical Hygiene Plans, Process Hazard Analyses) established to implement safety management and fulfill commitments made to the Department.

#### Responsibilities for Integrated Safety Management

Responsibilities must be clearly defined in documents appropriate to the activity. Department responsibilities are defined in Department directives. Contractor responsibilities are detailed in contracts, regulations and contractor-specific procedures. For each management mechanism employed to satisfy a safety management principle or function, the associated approval authority needs to be established. The review and approval levels may vary commensurate with the type of work and the hazards involved.

#### Implementation of Integrated Safety Management

Implementation involves specific instances of work definition and planning, hazards identification and analysis, definition and implementation of hazard controls, performance of work, developing and implementing operating procedures, and monitoring and assessing performance for improvement.

The Department has accomplished much in 1996 toward establishing a consistent, core infrastructure for implementing integrated safety management at all Department sites and facilities. The Department has promulgated a Department Policy Statement which requires the establishment of an integrated safety management system for each facility and activity. The Department has completed development of new contract clauses to incorporate safety management requirements into future contracts. These clauses will be included in amendments to the Department of Energy Acquisition Regulations and are expected to be published in a final form in the next few months. The Department has developed an initial draft Safety Management System Guide, which includes guidance for tailoring safety requirements. The content of the guide will be validated against actual field experience at the priority sites. The Department has assembled and begun using a Core Technical Group, comprised of technical

experts from both Defense Programs and Environmental Management, as part of the effort to improve the technical competency and expertise of the Department. The Functions, Responsibilities, and Authorities Manual, which will clarify the safety roles and responsibilities of Federal managers, continues to be the most pressing issue to be resolved to complete the necessary safety management infrastructure. The issue's resolution, while simple in concept, is complicated by three factors inherent in the Department's organizational structures: 1) the use of flat organizational structures, 2) the use of matrix-organizational structures, and 3) the traditional separation of technical direction and contract oversight responsibilities. This issue is being worked jointly at both the corporate Headquarters level and at the field offices. In addition, the Department is developing a formal review and approval process for safety management system documents, specifically authorization agreements.

The Department's safety management approach is currently being implemented at ten priority facilities, under the leadership of a Safety Management Implementation Team reporting directly to the Under Secretary. Implementation will be expanded Department-wide in a timely manner based on experience from these first ten facilities. The Department has recognized that, for any piece of work performed by the Department or its contractors, adherence to the guiding principles and core functions must be accomplished to assure safety. Identification and implementation of safety requirements and hazard controls are essential for adherence to these principles and functions and are critically important to the establishment of an appropriate safety envelope. Ultimately, the appropriate hazard controls and safety requirements will provide a stable and predictable platform of Department expectations that can be effectively implemented through the improved safety management system. Department accomplishments on safety management implementation are described in more detail in Section III, Implementation of Board Recommendations.

Two ongoing Department initiatives affecting safety that are being implemented consistent with integrated safety management are Enhanced Work Planning and the Department Standards Program, both of which are described below.

#### Enhanced Work Planning

The Enhanced Work Planning initiative began in 1995 with the overall goal to achieve a lasting, fundamental change in the work planning process. The program is also focused on accomplishing a philosophical change to emphasize a preventive approach for protecting the health and safety of workers, particularly those workers who are performing activities with significant



hazards. Results from Enhanced Work Planning projects to date have demonstrated that measurable improvements in safety performance and significant cost savings and avoidances can result from improving the work planning and control processes.

The initiative is based on three fundamental concepts: 1) using a multidisciplinary team approach, 2) developing and implementing integrated programs using a risk-based approach, and 3) involving workers as members of the work planning team, with routine feedback. Historically, work has been planned using a sequential process in which an individual or group prepared a package describing how work was to be performed, and various groups with specialized technical expertise reviewed the package and provided comments back to the originating group. In contrast, the Enhanced Work Planning initiative brings together the personnel who need to provide input to the work planning process as an integrated, multidisciplinary team to develop, review, and approve the work package in one step. Workers participate as members of the team, ensuring timely input and the benefit of their "hands-on" experience.

Beginning in early 1995, initial projects were completed at the High Level Waste Tank Farms at the Hanford Site, at the Fernald Environmental Management Project, and at the Rocky Flats Environmental Technology Center. Based on the success of its first phase, additional projects were initiated in 1996 at Hanford's Plutonium Uranium Extraction facility, K-Basins, and B-Plant. During this second phase, new projects were also initiated at the Hanford East and West Tank Farms, the Mound Plant, Pantex Plant, Idaho National Engineering Laboratory, Oak Ridge Reservation, the Savannah River Site, and Los Alamos National Laboratory.

As an example, the Fernald Environmental Management Project has been a model for many of the Department's programmatic improvements and has experienced increased efficiency in 34 areas of the work planning process. Some of Fernald's most notable successes in this area include:

- An 86 percent reduction in the average time to complete a corrective maintenance work request, from 151 days to 21 days;
- A 42 percent drop in the site's backlog of maintenance work orders and preventive maintenance actions;
- A 20 percent reduction in delay time from executing work since last quarter; and

- A \$250,000 annual cost avoidance by having support groups, rather than planners, identify when permits are required, what the requirements should be, and how the requirements can be made more consistent for similar jobs.

#### Department Standards Program

In January 1996, following the recommendation of the Department Standards Committee, the Department approved line management application of the "Closure Process for Necessary and Sufficient Sets of Standards" (Department Manual 450.3-1). At that time, evaluation of the nine pilots conducted in 1995 had shown that improved safety at lower cost could be achieved through disciplined use of the process. The process, now called the "Work Smart" process, is a tool for identifying an appropriate set of safety requirements, an integral function of the Department's integrated safety management system. By December 1996, eighteen applications were in preparation or being conducted at eleven major work sites.

Some of the benefits achieved during the pilots include: projected savings of \$2.8 million for a remedial water treatment project at Savannah River Site; projected savings of \$20 million over 16 years for surveillance and maintenance at the Redox plant at Hanford, coupled with a reduction in worker risk; and an annual reduction from 30,000 pages to 3,000 pages of documentation required to satisfy National Environmental Policy Act reviews at Fermilab. Less tangible, but even more important, is the renewed ownership, and improved understanding of the work and hazards that has been reported by many of the teams that conducted the pilots. In recognition of its work on what is now called the "Work Smart" initiative, the Department Standards Committee was awarded the National Performance Review's Hammer Award for "building a government that works better and costs less."

#### **B. Improved Technical Capabilities**

To more effectively implement this safety management system, the Department has made significant strides this year toward ensuring the technical capability of the Department's Federal work force. In June 1996, a joint off-site conference was held between key Department and Board personnel to address Department technical capability issues related to the safety management program at defense nuclear facilities. The conference was led by the Under Secretary of Energy and Board Members DiNunno and Crawford. As a result of the

discussions, the Department agreed to move forward on a number of initiatives including identifying: 1) critical Federal safety manager and technical subject matter expert position staffing needs, and, 2) senior technical safety management positions. A total of ten action items were identified as a result of the joint off-site conference; five of these action items are now complete.

The Department has identified and prioritized critical unmet needs for safety managers and professionals and is using all powers available, including excepted service, to fill these needs. The Under Secretary established a prioritized list of 73 near-term critically needed technical safety positions. Thirty-three of the 73 near-term critical needs have been filled. Twenty of these critical staffing needs were filled through excepted service authority and five additional excepted service appointments are at various stages in the recruitment/staffing process.

The Department has identified approximately 250 senior technical safety management positions and is currently evaluating the technical qualifications of each of the incumbents in these positions. The process established to assess the technical qualification of incumbent senior technical managers will be complete in February 1997.

Training and qualification of Federal personnel for technical roles at defense nuclear facilities, which began in 1994, continues toward its completion target date of May 1998. At present, approximately 1750 Federal personnel have been identified across the Department as participants in the Technical Qualification Program in 23 functional areas. Of the identified personnel, approximately 13 percent have completed technical qualification requirements. Approximately 60 percent of the identified personnel are qualifying in the following five functional areas: senior technical safety manager, safeguards and security, facility representative, waste management, and project management. As of October 1996, the Department estimates the average Department-wide completion status at 52 percent, which is ahead of the target status of 44 percent complete by October 1996.

A Core Technical Group has been established to help ensure effective identification and utilization of the Department's technical expertise. A strong technical capability is absolutely essential to assuring safety and providing oversight of contractors.

The technical education status of the Department's existing Federal work force is strong and improving. The Department-wide technical education status for

Federal work force personnel involved in defense nuclear facilities is monitored and reported on a quarterly basis. For the approximately 3175 Federal personnel currently participating in the Technical Qualification Program, including those who are voluntarily participating, the current technical education status is as follows:

- Approximately 83 percent have at least a Bachelor of Science or equivalent degree in technical disciplines.
- Approximately 35 percent have at least a Master of Science or equivalent degree in technical disciplines.
- Approximately 6 percent have Doctor of Philosophy or equivalent degree in technical disciplines.
- Approximately 7 percent have non-technical degrees.
- Approximately 10 percent do not have a college degree or equivalent.

The Department remains committed to raising the technical capabilities of its Federal managers and staff to a standard of technical excellence. The Department is committed to using all of the available tools to fill the Department's critical unmet safety staffing needs and address gaps in the technical capabilities of the Department's incumbent senior technical managers.

**C. Safety Rules and Orders**

The Department has established its safety requirements in the form of appropriate Rules and Department directives, which include Orders, Notices, and Manuals. These directives, along with non-mandatory safety guides and non-mandatory technical standards, provide a solid foundation for implementing an effective safety management system Department-wide. These directives also facilitate clear communication of safety expectations to Department contractors and appropriate translation of these expectations into contract requirements.

An essential part of meeting the Department's safety responsibility is the establishment of a rigorous set of performance-based safety requirements for Department and contractor personnel. Traditionally, the Department Orders were developed as their need arose and were, as a result, largely unintegrated. They were also based, in large part, on a Department mission that was geared to a production and operating environment. The Orders expanded over the years

and were issued many times with supplemental guidance developed by program or field offices for their specific contractors and applications. Over the past five years, the Department has reviewed and revised its safety-related Orders in response to three separate initiatives, each of which is described below: 1) Action Plan to Strengthen Department Nuclear Safety Standards, 2) Department Order Reduction and Improvement, and 3) Promulgation of Nuclear Safety Rules.

#### Study to Strengthen Department Standards

In response to recurring criticisms about the appropriateness of the Department Orders for current Department missions and in response to Board recommendation 91-1, the Department strengthened and revised the Department standards program to more fully address safety hazards. Through implementation of its August 1992 Action Plan to Strengthen Department Nuclear Safety Standards, the Department overhauled its Order system and related Technical Standards Program to emphasize the importance of technical standards to ensure nuclear safety. The Action Plan led to the new Directives System Hierarchy and revised nuclear safety Orders and technical standards in 1992-93. Nuclear safety Orders developed during this period received technical review and comment by applicable Department elements and the Board.

#### Department Order Reduction and Improvement

In response to the recommendations of the President's National Performance Review and the mandates of Executive Order 12861, the Department in 1993 initiated actions to revise or eliminate conflicting, redundant, or unnecessary requirements in the Department's Orders (about 270 Orders covering a spectrum of requirements from environment, safety, and health to security, procurement, and personnel administrative matters). Coupled with the streamlining effort, the Department also decided to move from the traditional prescriptive requirements approach to a more performance-based and outcome-based requirements approach. Process Improvement Teams evaluated each Order, separated requirements from guidance consistent with the Department's Directives Hierarchy, and revised the Orders in accordance with the new content guidance.

Through this effort, the Department significantly streamlined the number of Department directives and requirements without sacrificing safety or effectiveness. Some directives were overly-prescriptive; some were process-oriented rather than performance-oriented; and some applied too broadly to all Department facilities. This finding was true for both safety-related directives as

well as for more administrative ones. However, special care was used in transitioning the safety directives to ensure that critical safety requirements were not lost. These directives were subject to careful technical reviews, conducted to consolidate the essential health and safety requirements and performance objectives, while also identifying and retaining necessary implementation approaches and methods into accompanying guides and technical standards. Of the initial 51 safety Orders (Orders of interest to the Board), five are canceled, 13 are still in effect (seven of these will be converted to rules), and 33 were converted to new Orders or issued as rules. The Department and Board staff have agreed on the resolution to the open technical issues with the Orders and proposed rules.

#### Promulgation of Nuclear Safety Rules

In parallel to the effort to revise and consolidate Departmental directives, the Department has also continued its work on promulgating generally applicable nuclear safety requirements for its contractors into rules. The Department initiated rulemaking for nuclear safety requirements after passage of the Price-Anderson Act Amendments of 1988. The Department intended to promulgate the proposed safety rules in phases based on safety significance over several years. The initial phase of proposed rules were issued for comment in 1991. However, the time and the resources needed for the two initiatives discussed above caused a delay in the rulemaking efforts. Three of the proposed rules were finalized in 1993-94 and are effective -- Procedural Rules (10 CFR Part 820, issued August 1993), Quality Assurance (10 CFR 830.120, issued April 1994) and Occupational Radiation Protection (10 CFR 835, issued December 1993). The final rule on Radiation Protection for the Public and the Environment (10 CFR 834) is scheduled to be issued to the Office of Management and Budget in early 1997 for their review prior to its promulgation. The remaining proposed rules were renoticed in August 1995 to invite further comment on the revised content of the rules and the compatibility of the rules with more recent Departmental initiatives related to the identification and implementation of integrated standards, including the use of commercial standards. The seven other rules in the first phase that are in process are: Safety Analysis Reports (10 CFR 830.110), Unreviewed Safety Questions (10 CFR 830.112), Conduct of Operations (10 CFR 830.310), Technical Safety Requirements (10 CFR 830.320), Training and Qualification (10 CFR 830.330), Maintenance Management (10 CFR 830.340), and Operational Occurrence Reporting (10 CFR 830.350).

Most technical issues have been resolved and the remaining technical issues are being addressed while the Department senior management works to reach consensus on rule implementation schedules and details. The Department remains committed to issuing the safety rules pending resolution of the open issues regarding rule implementation and their relationship with the ongoing Department efforts to implement integrated safety management. The promulgation of nuclear safety rules provides a more stable and predictable platform for safety management planning and accountability, allows for more vigorous enforcement, and provides opportunities for public participation.

A fundamental implementation issue still under consideration involves determining the best way to integrate the Department's nuclear safety rules with the broader safety management effort so that Department personnel and contractors are able to maintain a necessary focus on integrated safety management. The Department remains committed to promulgating the remaining rules but is also committed to assuring that their implementation will not adversely impact the planned implementation of integrated safety management. The issue is one of resource application to rule implementation plans at the expense of integrated safety management.

#### Transition to New Safety Requirements

Most safety Orders and rules require contractors to develop implementation plans. These plans establish how the requirements are "graded" or "tailored" through appropriate controls, programs, and processes to fit applicable hazards. The plans also establish the schedules and the resources needed to achieve full compliance. The Department expects that contractors will either commit to implement new requirements through acceptable methods in Department guidance documents or propose alternative methods for Department approval. In evaluating the alternative methods, the Department's prime consideration is the adequacy of the method to meet the Department's goals of providing adequate protection of the public, workers, and the environment. The Department has established appropriate approval processes for evaluating proposed exemptions or alternatives.

The transition to the new safety Orders and rules has presented many challenges and will take several years to complete at defense nuclear facilities. These directives initiatives have redefined the contractual and regulatory relationship of the Department with its contractors. In the normal course of contract renewal or revision, the new safety Orders are being incorporated as contract terms and conditions. Underlying controls, programs, and processes are reviewed and

adjusted by the contractors to meet the safety expectations in the new Orders. While the need for a less-prescriptive approach in Department requirements is broadly recognized, Departmental guidance on the new approach and the identification of Department roles and responsibilities for new safety management functions remain to be clarified.

**D. Stabilization of Excess Nuclear Materials**

In February 1995, the Department established a program and plan for expediting remediation and stabilization of excess nuclear materials into safe, stable states for interim and long-term storage pending ultimate disposition. The halt in materials production for nuclear weapons froze the manufacturing pipeline in an intermediate state that was not optimal for long-term storage. Specifically, certain liquids and solids containing fissile materials and other radioactive substances located in spent fuel storage pools, reactor basins, reprocessing canyons; and various other facilities once used for processing and weapons manufacture needed to be stabilized.

Stabilization efforts were grouped by material types to take advantage of synergies. Six major categories of excess nuclear materials were identified: plutonium solutions, plutonium metals and oxides, plutonium residues and oxides, special isotopes, certain uranium, and spent nuclear fuel. To date, the majority of high risk materials have in fact been stabilized; specifically:

- Repackaging of plutonium in direct contact with plastic has been completed with the exception of recently identified packages at Rocky Flats for which stabilization plans are currently being developed.
- The largest volumes of plutonium solutions have been stabilized.
- Significant progress has been made toward improved safety and stabilization of high risk spent fuel and spent fuel storage facilities.

As high risk material stabilization activities progress toward completion, the focus of activities will be on managing the stabilization of more difficult, diverse material groups such as plutonium residues.

The Nuclear Materials Stabilization Task Group, established in February 1995, integrates the Department's programs for stabilizing excess nuclear material to achieve safe, stable states for interim and long-term storage pending ultimate disposition. The Task Group has established an integrated complex-wide



program for managing nuclear materials stabilization activities. To date, stabilization activities have been addressed complex-wide in the following areas:

- Developing Integrated Department-wide approaches to stabilization issues;
- Evaluating facility stabilization capabilities;
- Preparing facilities to support spent fuel and nuclear material removal and consolidation for long term storage;
- Procuring standardized equipment to support plutonium oxide stabilization and packaging for long-term storage; and
- Focusing research and development efforts on the technical challenges facing stabilization, storage, and disposition of plutonium and other nuclear materials.

In addition, the following activities were accomplished during 1996 to improve the Department's ability to accomplish the requirements for the next major phase of stabilization activities:

#### Trade Studies

Trade studies are the systems engineering method of identifying, analyzing, and comparing alternative methods for stabilizing materials to forms suitable for interim storage or disposal. The following trade studies have been completed during the past year to determine the preferred method for dealing with certain residue materials located at Rocky Flats, Los Alamos National Laboratory, Hanford, Lawrence Livermore National Laboratory, and other sites:

- Disposition of Sand, Slag, and Crucible (Completed June 1996);
- Disposition of Ash (Completed October 1996); and
- Disposition of Combustibles (Completed October 1996).

The objective of each study is to evaluate alternatives for treating a category of residues to an end-state suitable for disposition. An acceptable end-state is either plutonium metal or oxide that meets criteria for either long term storage per

Department standards or disposal as waste. The studies evaluate worker risk, public risk, worker exposure, waste generation, discharge to the environment, cost, and timeliness as performance measures for comparison of options.

#### Research and Development

Research and development activities to support materials stabilization activities are well underway. Los Alamos National Laboratory, the lead Laboratory for plutonium research and development, manages 29 funded tasks with 180 milestones. At the end of Fiscal Year 1996, 156 milestones were completed as scheduled. Of the incomplete milestones, seven are in projects continued in Fiscal Year 1997. The technological successes for Fiscal Year 1996 are more significant than the milestone success ratio. The return on investment has resulted in a number of new technologies developed to address problems regarding plutonium stabilization and remediation. These include the development and testing of prototype equipment for cryogenic crushing and compaction, electrolytic decontamination of storage cans and gloveboxes, cold-testing and installation of a prototype hydrothermal processing reactor, and the technological data to support the long-term storage of pure plutonium oxide and metal.

Several of the technology development tasks specific to Rocky Flats were demonstrated in Fiscal Year 1996. The precipitation flow sheet development for Rocky Flats solution stabilization was developed, optimized, and delivered to Rocky Flats. This work is currently being applied at the site in order to meet several milestones. Salt oxidation technology has been demonstrated and processing optimization is nearly complete. In addition, a prototype salt distillation unit has been demonstrated at Los Alamos on actual salt residue and has produced low level salt waste and oxide suitable for long-term storage. This unit will provide sufficient data to support the design and procurement of a production unit. Finally, a number of technologies related to the stabilization of combustibles and ash were initiated to support Rocky Flats baseline activities.

#### Facility Restart and Operational Readiness Lessons Learned

One of the key elements of the Department's nuclear materials stabilization program has been the integration of programs and projects where practical to better utilize the Department's resources and knowledge base. In May 1996, the Savannah River Site conducted a workshop sharing their experiences with major facility restart and readiness preparations. The purpose of the workshop was to share the lessons learned Savannah River has gained over the past two years with the preparations required to restart major processing facilities. A number of

restart activities will be required at various sites in the near future to meet material stabilization commitments. Utilizing the wealth of information available from those organizations that have successfully completed facility restarts provides an opportunity for other sites to have more effective restart operations and potentially safer and more efficient operations. Topics discussed at the workshop included facility startup requirements, startup readiness preparations, required assessments, conduct of operations, and personnel training.

#### Transition to Nuclear Materials Stewardship

As materials stabilization progresses and the nuclear materials program moves towards long term storage and management of facilities and materials, a stewardship function will be required. In the broad sense, “stewardship” encompasses the responsible management of materials across their entire life cycles, through processes of production, use, recycle and recovery, storage, transportation, and disposition. The Department intends to fulfill its stewardship missions in a way that:

- ensures worker safety and public health,
- provides cost-effective management of facilities and materials,
- maintains the availability of resources for defense, medical, and industrial programs, and
- enhances public perception of DOE as a responsible custodian of materials missions.

To that end, the Department is establishing a Nuclear Materials Stabilization and Stewardship program to further these goals for the materials it controls. This program will draw upon expertise from Department Headquarters and the Operations Offices at Albuquerque and Savannah River to define, evaluate, and implement stabilization, consolidation, storage, and disposition tasks and to ensure close cooperation with other Department programs and stakeholders who share responsibilities or interests.

#### Integration with Environment, Safety and Health Vulnerability Plans

To further consolidate and more effectively manage nuclear materials issues and activities, Environmental Management is in the process of developing an integrated tracking program for environmental, safety and health vulnerabilities

(such as plutonium, spent fuel and highly enriched uranium). Since many of these vulnerabilities are already contained within the scope of the Department's material stabilization plan, it is advantageous for various sites to include a status of site specific vulnerabilities within their Site Integrated Stabilization Management Plans, so progress in managing the elimination of vulnerabilities can be measured and tracked concurrently with stabilization activities.

The Department will continue to fully support the implementation and execution of activities to stabilize excess nuclear materials as one of the Department's highest safety priorities. The activities and progress described above are representative of the Department's commitment to reducing the risks and hazards associated with excess nuclear materials stabilization, storage, and disposition. Further accomplishments on this program for 1996 are described in Section III, Implementation of Board Recommendations.

**E. Department Working Group on External Regulation**

The Department of Energy Working Group on External Regulation, established by the Secretary of Energy in January 1996, provided its evaluation and conclusions in a December 1996 report. The Working Group considered a wide combination of possibilities for external regulation including options with the Board being the sole regulator, the Nuclear Regulatory Commission being the sole regulator, and other variations where the Board and the Commission share the responsibility. The diversity of the Department's nuclear programs, the variety of types of facilities within those programs, and the practicality of the time frame for transitioning to external regulation were considered.

Based on the Working Group's recommendation, the Secretary decided on the following option: "All Department of Energy nuclear facilities would transition into full regulation by the Nuclear Regulatory Commission in a little over 10 years. In years 1-5, all Nuclear Energy and Energy Research nuclear facilities and selected Defense Programs and Environmental Management nuclear facilities would become regulated by the Nuclear Regulatory Commission. This transition would begin immediately after enabling legislation is passed. Except for the selected facilities regulated by the Commission, Defense Programs and Environmental Management nuclear facilities would continue to be regulated by the Department with oversight by the Defense Nuclear Facilities Safety Board in this first phase. In years 6-10, all Environmental Management nuclear facilities would become regulated by the Commission and the Board would maintain oversight only of Defense Programs facilities. After 10 years, all Department of

Energy nuclear facilities would be regulated by the Commission. Remaining Board staff would merge into the Nuclear Regulatory Commission."

The Working Group believed that having a single external regulator for Department nuclear facility safety will significantly improve safety and health at Department facilities and at the same time improve public confidence and trust in the Department. Improving protection of public safety and health and the environment and building public trust are, and will continue to be, critical success factors in meeting the Department's strategic plan. The Working Group emphasized that, during and after transition to external regulation, the Department will need to maintain a strong internal safety management system.

To implement the proposed external regulation of Department nuclear facilities, new legislation will be required to change Department authorities and to give external regulators the needed authorities and funding. This will involve efforts by the Department, the external regulatory agencies, and Congress to develop and enact the necessary legislation. Statutes potentially requiring changes to effect the proposed external regulation include the Atomic Energy Act, the Energy Reorganization Act of 1974, the Omnibus Budget Reconciliation Act, and the Independent Offices Appropriations Act of 1952. The next step is development of proposed legislative changes and a coordinated legislative strategy. The Department's implementation schedule anticipates that the legislation phase (the development, coordination, holding of Congressional hearings, and final enactment of legislative changes) will take about two years.

### **III IMPLEMENTATION OF BOARD RECOMMENDATIONS**

#### **A. Recommendation Closures**

The entire process of opening, acknowledging, addressing, resolving, and closing Board recommendations provides a model for safety oversight processes used in various organizations and at various levels throughout the Department's nuclear complex. The manner in which the Department management acknowledges, addresses, and resolves Board safety issues provides an example throughout the Department. Similarly, the manner in which the Board opens safety issues, evaluates resolution approaches, monitors implementation, and ultimately closes safety issues also sets a tone for Department and contractor safety oversight organizations. To be effective, these processes must be understandable and predictable.

When a safety issue is identified by an oversight organization for special attention, there is a tendency to reduce line management control over the resolution of the issue by providing additional management direction and organizational support and advice. For example, additional Department Headquarters personnel typically get involved and provide direction to the field for implementation. This can conflict with the guiding safety principle that safety is best served through strong line management ownership which integrates safety into normal work processes at the working level. The more quickly that ownership of safety issues is fully integrated into normal line management functions at the working level, the better for safety.

Safety oversight processes which open safety issues and then routinely close them upon substantial resolution serve safety by supporting line management's responsibility for and ownership of safety issues. A routine and orderly process for opening, resolving, and closing safety issues serves safety by reinforcing the concepts of openness to improvement opportunities, addressing safety issues when identified, and strong line management ownership of safety. Similarly, closure of Board recommendations is beneficial to safety when the fundamental safety issues are acknowledged and addressed, the resolution approach is appropriate, the resolution is substantially on target and achieving results, and the organizations and systems are sufficiently mature to integrate continued implementation into ongoing activities. A predictable process for opening, resolving, and closing Board recommendations is also consistent with the original Congressional intent for completion of implementation plans within a relatively short period of time, such as one year. Continued oversight and monitoring is expected on closed Board recommendations to ensure that safety programs and

resolutions continue to be implemented as needed. If implementation were to degrade, the safety issue would demand renewed management attention.

Department activities culminating in 1996 led to Board closure of the following four Board recommendations:

- Recommendation 90-7, Hanford Waste Tanks
- Recommendation 91-6, Radiation Protection
- Recommendation 92-2, Facility Representatives
- Recommendation 93-4, Environmental Restoration Management Contracts.

**Recommendation 90-7, Hanford Waste Tanks Ferrocyanide Safety**

This recommendation concerns ferrocyanide-bearing wastes stored in various underground single-shell tanks at Hanford and was one of the earliest actions taken by the Board. The recommendation called for the following: enhancements to the temperature monitoring systems for the ferrocyanide tanks, to include additional instrumentation as well as continuous monitoring; installation of instrumentation to monitor the composition of the cover gas within the tanks; acceleration of the program to characterize the tank contents; studies of the chemical reactions within the tanks; and development of emergency response planning.

By the end of 1995, the Department had concluded that additional samples from the waste tanks would not be required to resolve the ferrocyanide safety issues. The work remaining in 1996 was completion of analyses of samples from the ferrocyanide waste tanks and completion of the technical studies required to conclusively demonstrate that the safety issue involving ferrocyanide had been resolved. While this work continued in 1996, the Department revised its implementation plan for Board recommendation 93-5 and, in September 1996, the Board agreed with the Department's strategy to incorporate the final remaining 90-7 actions into the revised 93-5 implementation plan. Accordingly, the Board considered recommendation 90-7 to be closed.

In September 1996, the Department completed its final study on ferrocyanide. This study demonstrates that the ferrocyanide in the tanks has degraded to lower energy and less reactive compounds, that insufficient ferrocyanide remains in the

tanks to support a propagating reaction, and that action is no longer required to control ferrocyanide in the Hanford tank farms. In December 1996, the Board concurred with the Department's conclusions that remaining ferrocyanide in the Hanford tanks is not a threat to the health and safety of the public and the Board closed the ferrocyanide safety issue. The Board recognized the ferrocyanide work to be a model to be followed in investigating and resolving safety issues.

**Recommendation 91-6, Radiation Protection**

This Board recommendation concerns radiation protection policy and practices throughout the Department's defense nuclear facilities complex. The Department concluded in October 1996 that the programmatic aspects identified in the Department's 91-6 implementation plan have been successfully completed. The Board concurred and closed the recommendation in November 1996. The Department has achieved, and the Board has acknowledged, significant improvement in radiological protection quality throughout the defense nuclear complex. However, resolution of specific radiological issues dealing primarily with infrastructure, management, and training continues within the framework of the Department's integrated safety management system.

Since December 1991, the Department has undertaken a number of new measures to improve occupational radiation protection as highlighted below.

- The Department issued a radiological control policy in June 1993. This policy has been incorporated into the Department's Directives System. The Department has published, and to a large extent implemented, measures to improve radiological performance as delineated in the Department's Radiological Control Manual. This Manual formed the basis for site-specific radiological control manuals at the Department's sites.
- The Occurrence Reporting and Processing System that provides important data related to radiological protection has been improved, and successful ongoing programs use this data for trending as well as promulgating "lessons learned." The Department's Occurrence Reporting and Processing System Task Force, consisting of Headquarters, operations, and contractor personnel, issued its final report in August 1995.
- The Department has developed and implemented standardized core training for radiological workers and radiological control technicians.



This is supplemented by additional job-specific and site-specific training. Full implementation of Standardized Core Training Courses was completed in December 1995, with a few exceptions. Defense nuclear facilities have implemented, or have committed to implement in the near future, a Post Training Evaluation and Retention Testing Program.

- The Department's Infrastructure Evaluation Team has conducted an independent, external evaluation of Headquarters, operations, and contractor radiation protection infrastructure and resources at defense nuclear facilities. The Department's Program Plan in response to the Infrastructure Evaluation Team's report was developed and issued in September 1996.
- The Department has updated and codified its basic radiation protection standards in 10 CFR 835, "Occupational Radiation Protection." The provisions in this rule incorporate recent recommendations from authoritative scientific bodies and are consistent with the standards promulgated by other Federal agencies and current industry practices.
- The Department has approved its contractors' documented radiation protection programs that establish the plans and measures to ensure compliance with 10 CFR 835. The Department also has established an oversight structure for providing independent monitoring of compliance with 10 CFR 835.

10 CFR 835 establishes adequate basic protection standards and includes as-low-as-reasonably-achievable provisions. It encompasses the principles established in the Radiological Control Manual. This regulatory approach, with penalties for violations, ensures adequate worker radiological protection and is compatible with the Department's evolving necessary and sufficient requirements identification process. As a result, the Radiological Control Manual has been redesignated as a nonmandatory, guidance document.

**Recommendation 92-2, Facility Representatives**

Recommendation 92-2 expresses the Board's concerns about the Department's selection, training, and assignment of its Facility Representatives. The Facility Representatives play a key role in establishing the Department's presence and setting high performance expectations for the management and operating contractor. They also play a key role by involving the Department's senior management at Headquarters and the operations offices in aggressively pursuing

resolution of conduct of operations issues. The Facility Representatives spend the majority of their time observing operations and assessing operating conditions in their assigned facilities.

The Department completed its final quarterly report for this recommendation in January 1996. The January 1996 report provided the status of implementation of the Department's Standard on Facility Representatives and the evaluation that no further training course development was needed to satisfy site-specific qualification standards. The final implementation plan action involved a task force made up of Headquarters and field personnel performing a review of program implementation complex-wide. The Department submitted the final implementation plan deliverable, the task force's report, and proposed closure in an April 15, 1996 letter to the Board.

On July 22, 1996, the Board described its concerns that needed to be resolved prior to recommendation closure and requested a meeting with Associate Deputy Secretary for Field Management, Donald W. Pearman, Jr, on the Department's approach to resolving these concerns. The Board's concerns were: 1) the program's governing standard had not yet been revised to incorporate lessons learned, 2) qualification requirements for acting and interim Facility Representatives needed to be clarified, 3) career planning for Facility Representatives needed to be clarified, and 4) optimal recruitment of Facility Representatives needed to be addressed. In response, the Department accelerated its planned update of the program's governing standard to incorporate lessons learned and address several of the Board's concerns. The Board closed this recommendation in a meeting with Mr. Pearman on September 17, 1996, with the formal closure letter following on October 1, 1996.

Implementation of this Department-wide program is a significant improvement to safety across the Department. At present, over 210 Facility Representatives are performing in this important safety role at nine sites across the Department complex.

#### **Recommendation 93-4, Environmental Restoration Management Contracts**

Recommendation 93-4 concerns health and safety factors associated with the Department's management and direction of environmental restoration management contracts. Specific recommendations also included review of recent Uranyl Nitrate Hexahydrate accidents at Fernald, development of an operational readiness plan to resume Uranyl Nitrate Hexahydrate activities, and improvement of the Facility Representatives program at Fernald.

The Department's implementation plan formalized and strengthened its technical management of environmental restoration management contracts through development of detailed project and technical management plans; allocation of qualified technical personnel to manage the contracts at both Headquarters and field levels; and application of lessons-learned from the Department's experience at Fernald to future contracting activities. Based on completion of the Department's implementation plan deliverables in 1995, the Department proposed closure on March 12, 1996 and the Board closed this recommendation on June 28, 1996.

While the plan was completed and the program institutionalized in 1995, related accomplishments continued during 1996:

- The Richland Technical Management Plan was approved and issued in February 1996.
- Revision 2 of the Fernald Technical Management Plan was issued in December, which incorporated the new Department orders, after an appropriate crosswalk of the requirements to the site Standards/Requirements Identification Documents. Successful implementation of the Technical Management Plan was one of the major factors in the positive results noted in the Environment, Safety and Health Assessment Report issued in June 1996.
- Improvements in the Fernald Facility Representative Program continued with the achievement of full qualification for five of the six Facility Representatives at the site.
- Approval in December 1996 of the first revision of the Fernald site Standards/Requirements Identification Documents for incorporation into the contract as envisioned under the recommendation 93-4 actions.

**B. New Recommendations and Implementation Plans**

In 1996 the Department accepted two new recommendations received from the Board:

- Recommendation 96-1, In-Tank Precipitation System
- Recommendation 95-2, Safety Management.

The Department also developed implementation plans for these two recommendations in 1996. These plans define the Department's approach and schedule to resolve the associated safety issues.

**Recommendation 96-1, In-Tank Precipitation System at Savannah River**

The Board issued recommendation 96-1 on August 14, 1996 to address concerns at the In-Tank Precipitation facility related to potential generation and release of flammable benzene in the primary process tank. This recommendation identified the need for improved understanding of the mechanisms leading to the generation, retention, and release of benzene, and based on this understanding, evaluation of the adequacy of existing safety measures and development of additional safety measures as necessary.

In-Tank Precipitation is the process step in the vitrification of unstable hazardous radioactive and chemical liquid wastes that precipitates the highly radioactive fraction of liquid high-level waste to allow for vitrification of the wastes by the Defense Waste Processing Facility into inert glass logs that can be stored safely. The In-Tank Precipitation facility began operations in September 1995, treating the first batch of high-level waste with sodium tetratphenylborate and sodium titanate to precipitate cesium and strontium. Following several startup tests, slurry pumps were being operated on December 1, 1995, prior to sampling the tank, when benzene in quantities greater than expected was first observed. Since December 1995, the Department has been performing analysis and testing to better understand the observed benzene phenomenon.

The Secretary accepted this recommendation on September 16, 1996. In conjunction with ongoing activities to understand the benzene phenomenon, the Department moved quickly to develop an implementation plan which outlines a comprehensive strategy to resolve the benzene issue at the In-Tank Precipitation facility. This plan was completed and forwarded to the Board on November 12, 1996, significantly ahead of the Congressionally-mandated schedule. The Department's response to this recommendation reflects the Department's commitment to resolve underlying safety issues and move ahead with operations at the In-Tank Precipitation facility for pretreatment of high-level waste prior to vitrification at the Defense Waste Processing Facility.

The Department's implementation plan identifies research and testing activities culminating in a final report which defines bounding benzene generation, retention, and release rates. This final report is the last deliverable in the Plan and is scheduled for completion in December 1997. The implementation plan requires

more than one year to implement due to the magnitude of the Department's actions and the deliberate approach being employed to thoroughly understand the benzene phenomenon at the In-Tank Precipitation facility.

Process Verification Testing, an in-plant test described in the implementation plan, began in November 1996 to demonstrate the capability to re-precipitate cesium and determine the affect of oxalic addition on benzene generation. Oxalic acid is used to clean the process filters at the In-Tank Precipitation facility. This test was the first in-plant process activity since the benzene issues were discovered in December 1995.

Safety upgrades including the addition of nitrogen inerting to process tanks are proceeding in parallel with testing and analysis. Results of the research and testing activities to better understand benzene generation, retention, and release will be used to affirm current upgrades and/or define additional engineered systems and controls. Activities described in the Department's implementation plan are proceeding on or ahead of schedule, with completion projected for December 1997.

**Recommendation 95-2, Safety Management**

Recommendation 95-2 calls for: 1) an institutionalized process for ensuring environment, safety and health requirements are met, 2) graded safety management plans for conduct of operations, 3) a prioritized list of facilities based on hazards and importance, 4) direction and guidance for the safety management process, and 5) measures to ensure availability of technical expertise to effectively implement the streamlined process.

The Department's January 1996 response accepted this recommendation with a few exceptions regarding specific methods that would be used to accomplish the accepted objectives. The Department submitted its plan for implementing integrated safety management in April 1996. The Board's May 7, 1996 letter regarding the Department's implementation plan indicated that the Board treated the Department's response and implementation plan as a full acceptance of the original recommendation.

The key accomplishments on safety management during 1996 are summarized below:

- The Department established the Safety Management Implementation Team in accordance with the Department's implementation plan. The

Team is led by a senior safety manager reporting directly to the Under Secretary.

- The Department conducted awareness briefings on the Department's implementation plan for the priority sites and Headquarters organizations. The basic concept of Integrated Safety Management has been widely accepted and supported by the leadership of the Department and its operating contractors. There continues to be active dialogue and participation between the various standards-based activities, such as the Department Standards Committee and the Laboratory Research and Development Safety Working Group, with the Integrated Safety Management effort. This is generating a convergence point for these activities prior to reaching the field.
- The Secretary approved the Department's safety management system policy (Policy Notice P 450.4) in October 1996. This policy requires the establishment of an integrated Safety Management System for each facility and activity. The Department is taking those steps necessary to implement the policy.
- The draft Safety Management System Guide, which includes guidance for tailoring safety requirements, was completed and distributed for formal review and comments in December 1996. The Department projects issuance of this Guide by April 1997.
- The Department completed its initial briefings to the 95-2 priority nuclear facilities and provided initial schedules showing major safety management implementation milestones at those sites. Current schedules will be updated in conjunction with the quarterly updates. Progress continues to be made at the 10 priority sites in implementing integrated safety management.
- The Department conducted a limited reopening of the public comment period on proposed revisions to Department of Energy Acquisition Regulations to include proposed safety management contractual clauses. The Department's acquisition reform efforts were already well underway before recommendation 95-2 was received. The limited reopening for public comments was announced in the Federal Register on October 10, 1996. Comments received have been considered and addressed as appropriate. The revised Department of Energy Acquisition Regulations were transmitted to the Office of Management and Budget in January

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1997, and the Department expects to issue them in final form in the next few months.

- The Department has assembled a Core Technical Group, comprised of technical experts from both Defense Programs and Environmental Management, as part of the effort to improve the technical competency and expertise of the Department. The expertise of this group has already been used on several occasions to facilitate solutions to some of the Department's pressing technical challenges.
- Two hundred and fifteen safety professionals and line managers attended the Department's Safety Management Lessons Learned Workshop in Denver November 19-21, 1996. The Workshop featured presentations on successes at several nuclear and non-nuclear sites, presentations on ongoing efforts and programs to implement safety management, and working sessions to move forward on a number of initiatives, such as authorization agreements, reconciliation of safety directives and initiatives, and the safety management guide. Participation of senior Department managers, including the Under Secretary, and the Board shows the priority being placed on this effort.
- The Department has developed and fully coordinated a Department policy on safety roles and responsibilities. This new Department Policy Statement P 411.1, "Department Safety Management Functions, Responsibilities, and Authorities," is scheduled to be issued in February 1997. The Department also prepared and distributed drafts of the Functions and Responsibilities Manual throughout 1996. Completion of the initial set of Functions, Responsibilities, and Authorities Manuals applicable to the 10 priority facilities is projected for May 1997.
- The Under Secretary issued memoranda to each of the Cognizant Secretarial Offices recognizing that integrated safety management is to be a Department-wide effort and asking that: 1) points of contact be established for activities under their cognizance, 2) activities be fully identified, prioritized, and documented, and, 3) for defense nuclear facilities, schedules be developed in the third quarter FY97. Department milestones related to identifying and implementing applicable safety requirements at sites and facilities, which were originally established under the Department's 90-2 implementation plan, are being subsumed under this 95-2 implementation effort. As schedules are formulated for

other defense nuclear facilities, that information will be provided to the Board at the Department's quarterly updates.

The Functions, Responsibilities, and Authorities Manual continues to be the most pressing, unresolved issue. The objective of this effort is to develop a system of documents that clearly establishes the Department of Energy's functions, responsibilities, and authorities relative to a safety management system, and clearly establishes that line management is responsible for safety. The Department issued the Functions and Responsibilities Manual, the predecessor to the current effort, in October 1994. The Manual is being reworked to include a clear wiring diagram and define landlord functions and responsibilities for safety at sites. Key issues being addressed include: 1) the role of lead Secretarial Officers for sites with multiple Secretarial Officer programs, 2) the relationship of the Functions, Responsibilities, and Authorities Manual to roles and responsibilities established in Department Directives, and 3) the relationship of the level 1 Functions, Responsibilities, and Authorities Manual (corporate-level, Department-wide document) with the level 2 Manuals (Headquarters programmatic- and field office-specific documents). The corporate-level document will not be approved and distributed until the overall framework and deployment strategies are agreed upon and guidance for developing the level 2 documents is issued. This approach should ensure proper integration of the system of documents.

The Department's 95-2 implementation plan will require more than one year to implement due to the magnitude of the fundamental changes involved in the Department's approach to safety management. The final deliverable of this implementation plan, an updated Functions, Responsibilities, and Authorities Manual, is scheduled for completion in May 1997. Although the implementation plan will be complete and the framework for safety management largely established, full implementation and transition to the new safety management system will be an extensive effort extending beyond 1997.

**C. Other Active Implementation Plans**

**Recommendation 95-1, Improved Safety of Cylinders Containing Depleted Uranium**

Recommendation 95-1 identifies the Board's concerns about the storage conditions and ultimate disposal of depleted uranium hexafluoride in long-term storage at Portsmouth, Ohio; Paducah, Kentucky; and Oak Ridge, Tennessee. The Department is storing approximately 560,000 metric tons of depleted uranium hexafluoride in solid form in approximately 46,500 steel cylinders at the



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three gaseous diffusion plants. The recommendation calls for 1) repainting or recoating the cylinders, 2) implementing protective measures to prevent future damage or corrosion, and 3) conducting a study on long-term storage of the depleted uranium.

The Department had initiated a program in 1992 to ensure the safety of the long-term storage of depleted uranium hexafluoride. The Department's response to the Board's recommendation is to improve the cylinder maintenance program through a systems engineering approach to risk management. These improvements are being developed and instituted concurrently with program activities that are underway. The steps in this systems engineering approach to risk management continued in 1996 with all implementation plan deliverables completed on schedule. The significant accomplishments in 1996 include:

- A revised Systems Requirement Document, in response to comments on the November 30, 1995 version, was delivered to the Board in April 1996. This document defines the technical and managerial specifications that will ensure continued safe storage of the cylinders.
- A Systems Engineering Management Plan was delivered in March 1996. The plan presents the organizational structure and divisions of responsibilities for managing the cylinder program.
- The Engineering Development Plan was delivered to the Board in June 1996 identifying and describing the engineering development tasks that must be done to field new technologies and procedures to ensure the cylinders' continued safe storage.
- A revised Depleted UF<sub>6</sub> Cylinder Program Management Plan was delivered in July 1996. The Program Management Plan is the control document for managing and implementing the cylinder program, as it identifies and describes the tasks that comprise the program, and the schedule for their accomplishment.
- Draft safety analysis reports for the cylinder yards were delivered to the Board in September 1996. When finalized, the safety analysis reports will establish the revised safety basis for the Depleted Uranium Hexafluoride Cylinder Program Management Plan.

In addition, several other actions occurred that are contributing to improving the storage conditions of the cylinders. The completion of "E" Yard at Portsmouth

has allowed cylinders to be restacked allowing for more thorough inspection. Also, wood saddles are being replaced with concrete saddles. Reconstruction of "G" Yard at the Paducah Site has improved the inspectability and storage condition of cylinders. A new yard, "S" Yard at Paducah, was completed and provides for additional space in which to relocate cylinders into inspectable configuration. Also, a pilot cylinder painting program is proceeding at Paducah, resulting in approximately 750 cylinders being painted. Cylinder skirt ends were cleaned and painted at all three sites.

Maintaining the cylinders and improving their storage condition is a multi-year activity. The systems engineering documents delivered to the Board require the construction of additional new cylinder yards, the reconstruction of additional existing cylinder yards, the restacking of cylinders to facilitate inspection and reduce exposure to moisture, and the recoating of cylinders to reduce the rate of external corrosion. Major elements of these tasks will not be completed until after the year 2000. Some elements, such as inspection, surveillance, yard maintenance, and spot-painting, will continue as long as the Department stores cylinders containing the depleted UF<sub>6</sub>.

The Department's 95-1 implementation plan has required more than one year to implement due to the magnitude of the Department's actions and the deliberate, systems engineering approach being employed to establish and implement handling and storage solutions. The final deliverable of this implementation plan, approved safety analysis reports on the technical adequacy of depleted uranium hexafluoride storage, is scheduled for completion in March 1997.

**Recommendation 94-5, Integration of Department of Energy Safety Rules, Orders, and Other Requirements**

This recommendation suggests that further Department actions were needed to ensure there is no relaxation of plans made to achieve compliance with requirements of Department safety orders while new, streamlined orders were issued and proposed safety rules were under development. In particular, the Board expressed concern that activities underway to develop and comply with Standards/Requirements Identification Documents be continued during this transition to new orders and rules. This recommendation also calls for several actions related to safety management policy and process, the subject of subsequent Board recommendation 95-2.

The focus on instituting the Department's safety management process has shifted to recommendation 95-2, accepted by the Department in January 1996. For

example, the revision to the Department's Functions, Responsibilities, and Authorities Manual was originally included in the 94-5 implementation plan, and was subsequently included as a component of the 95-2 implementation plan, issued in April 1996. As described previously, the effort to update the Department's Functions, Responsibilities, and Authorities Manual is being led by the Safety Management Implementation Team, under the direction of an executive team established by the Under Secretary. The updated Functions, Responsibilities, and Authorities Manual is currently scheduled for completion in May 1997 for the initial set of sites developing integrated safety management systems in accordance with Board recommendation 95-2.

The Board has concluded, consistent with the Board staff's evaluation, that the requirements from the 51 Orders of Interest to the Board have been successfully mapped to new Department orders and proposed nuclear safety rules. The Board and Board staff presented their conclusions at a September 17, 1996 meeting between the Under Secretary and the Board to discuss the status of crosswalks and unresolved technical issues with the new orders and proposed rules. The Department and Board staff have agreed on the resolution to the open technical issues with the orders and proposed rules.

Subsequently, the Board held two public hearings on rules and orders in 1996. The first was on November 7, 1996 and consisted primarily of the Board staff providing their assessments of the Department's progress on establishing new safety orders, rules, and guidance. The second was on December 12, 1996, and consisted primarily of the Department staff providing their perspective on the Department's efforts to simplify existing safety orders and promulgate new rules. The two public hearings highlighted remaining actions to complete issuance of revised orders and rules, resolve agreed-upon technical issues, issue guidance documents, and incorporate lessons learned into future revisions. The Departmental Representative's Office developed and promulgated an action list from these two public meetings and will manage these actions to completion.

Some of the key accomplishments related to recommendation 94-5 during 1996 are:

- The Department completed and distributed crosswalks of requirements from the old safety orders to the new safety orders in September 1996.
- The Department held two video workshops, in August and October 1996, to discuss issues with implementation of the new safety orders, issues related to the requirement crosswalks, and identify areas where further

implementation guidance is needed. Periodic workshops on implementation issues will continue in 1997.

- The Department developed and issued Policy Statements P 450.2, "Implementation and Compliance with Environment, Safety, and Health Requirements," and P 410.1, "Promulgating Nuclear Safety Requirements," in May 1996.
- The Department has developed and fully coordinated a Department policy on safety roles and responsibilities. This new Department Policy Statement P 411.1, "Department Safety Management Functions, Responsibilities, and Authorities," is scheduled to be issued in February 1997. The Department also prepared and distributed increasingly mature drafts of the Functions and Responsibilities Manual throughout 1996. As described, this effort is now being led by the Safety Management Implementation Team, under the purview of the Department's 95-2 implementation plan.
- In October 1996, the Under Secretary issued direction to the field offices with defense nuclear facilities to develop schedules for implementing the Department's safety management system. Identification and implementation of safety requirements and standards, an integral function of the Department's safety management system, is to be accomplished in accordance with the implementation schedules developed by the field offices, under the purview of the Department's 95-2 implementation plan.

By letter of August 19, 1996, the Department notified Congress that this implementation plan would require more than one year to complete. As of December 1996, the actions described in the Department's 94-5 implementation plan are either completed or covered by the 95-2 implementation plan. The primary vehicle for follow-up and closure of directives related issues is now the Department's Action List on Rules and Orders Transition, issued following the December 12, 1996 public meeting. The Department's 95-2 implementation plan is the primary framework and driver for all aspects of programmatic safety management, including identification and implementation of safety standards and requirements, refinement of Federal roles and responsibilities for safety, and verifying effective safety management implementation.

Recommendation 94-5 has accomplished its primary objectives. The Department has acknowledged and has addressed the issues raised in this recommendation. The few actions that remain to be completed are being tracked and accomplished

under the Department's 95-2 implementation plan. Maintaining Board recommendation 94-5 open will add no further value and emphasis for safety improvement on these issues. The Department believes this recommendation is ready for closure.

**Recommendation 94-4, Deficiencies in Criticality Safety at Oak Ridge Y-12 Plant**

Recommendation 94-4 summarizes the Board's concern with criticality safety and conduct of operations at the Y-12 Facility at Oak Ridge. The recommendation acknowledges that the Department and its contractor have taken steps to correct deficiencies, and encourages more aggressive and comprehensive management actions.

The 94-4 implementation plan presented an aggressive schedule of near-term actions to support the Y-12 resumption effort. The plan also presented a path of programmatic improvements to assure the achievement of an adequate level of safety at Y-12 over the long-term. The implementation plan includes assessments of the level of conduct of operations at Y-12, reviews of personnel training, and compliance evaluations on Operational Safety Requirements, Criticality Safety Analyses, and operating procedure controls. The Department is using Operational Readiness Reviews and Readiness Assessments, conducted by senior technical managers augmented as necessary by independent experts, to ensure that needed program improvements and culture changes are institutionalized.

Two of the five primary mission areas at the Y-12 facility: Receipt, Storage, and Shipping; and Depleted Uranium Operations resumed operations in September 1995, following successful completion of individual Readiness Assessments. Necessary work in other primary mission areas, such as Quality Evaluation, are being carried out under special operating procedures pending completion of Operational Readiness Reviews or Readiness Assessments.

The most significant accomplishment for 1996 was the April resumption of the Disassembly and Assembly mission area. Resumption efforts were continuing on the remaining mission areas: Quality Evaluation (scheduled for resumption in early 1997) and Enriched Uranium Operations. Other significant accomplishments in 1996 include the following:

- Corrective action plans for the Criticality Safety Approvals/Operational Safety Requirements and Conduct of Operations assessments were completed in February 1996.

- A Training Assistance Team assessment was completed for key contractor personnel at Y-12 in May 1996. The corrective action plan was completed in July 1996.
- An independent assessment of the Y-12 Criticality Safety Program was completed in October 1996 with the final report submitted in early November 1996. A corrective action plan for this assessment was being finalized in early 1997.
- Final plans were put into place for the phased resumption of the Enriched Uranium Operations mission area in support of national priority work to be accomplished at the site in the coming years. Implementation of this plan began on October 1, 1996.
- The Y-12 Plant has been successful in supporting mission essential work in the resumed areas while improving the overall formality of operations in the facilities. The Y-12 Plant was successful in the early delivery of the first B61-11 kits in December 1996.

The 94-4 implementation plan requires more than one year to implement due to the magnitude of the Department's actions involved and the required changes to the safety culture. Resumption of the final mission area at Y-12 – Enriched Uranium Operations – will be conducted in phases with the final phase expected during 1998. Enriched Uranium Operations is the most complex of the five missions areas and involves upgrade of the most requirements, criticality safety analyses, and operating procedures.

**Recommendation 94-3, Rocky Flats Seismic and Systems Safety**

Recommendation 94-3 identifies the Board's concerns with the review of an older facility, Building 371, using current safety standards to assure safe operations. The review of the facility is necessary due to the changing role of Building 371 as the mission of Rocky Flats has changed. Building 371 is now being considered for a unique role as the storehouse for the largest single accumulation of plutonium in the Department complex. The Department acknowledges the need to formulate and implement an integrated plan to identify potential hazards from natural phenomena at Building 371 and to enhance protection of the building and its contents.

During 1996, the Department completed its 94-3 implementation plan, which the Board accepted in October 1995. Completion of plan deliverables and the

associated analyses resulted in the determination that Building 371, with some upgrades, has sufficient seismic capability for its proposed interim storage mission. An alternative solution for interim storage, the construction of a new passive storage vault, also emerged as a viable option. In March 1996, the Department decided to proceed with the advanced conceptual design of a new passive storage vault while completing near-term upgrades to Building 371. The final implementation plan deliverable, an Integrated Program Plan reflecting this decision, was completed in July 1996.

The Integrated Program Plan describes Department actions to complete resolution of the identified safety issues, and defines upgrades for Building 371 in support of its temporary processing and storage of plutonium materials. The Department completed an initial set of upgrades in September 1996 and work is continuing on updates to the authorization basis documentation for Building 371. Final decisions on whether to use Building 371 with longer term upgrades or a new storage vault will be made after a review under the National Environmental Policy Act has been completed. The Integrated Program Plan actions to implement the final decisions are not expected to complete until the year 2002.

**Recommendation 94-2, Conformance with Safety Standards at Low-Level Nuclear Waste and Disposal Sites**

Recommendation 94-2 expressed the Board's concern with the programs for the burial of low-level radioactive waste at defense nuclear facilities. The recommendation calls for a comprehensive, complex-wide review of low-level waste management, similar to that conducted by the Department on spent fuel. The Board also emphasized the need to improve upon requirements for low-level waste storage, improve modeling of radionuclide migration, and evaluate current storage methods and compliance with relevant Department directives.

The Department completed and submitted to the Board a revised implementation plan in 1996. The revised implementation plan better addresses a number of key safety issues, reflects improved logic and structure, and focuses on key technical issues involved in performing low-level waste performance assessments. These issues include: 1) use of the Comprehensive Environmental Response, Compensation and Liability Act methodologies for pre-1988 wastes, and 2) guidance and criteria on analyzing source term interactions. The Department has closely managed the large workload and has completed all of the deliverables due to date under the revised implementation plan.

Significant accomplishments on the Department's implementation plan during 1996 include:

- In May 1996, the Department issued the final reports for its complex-wide review of low-level waste vulnerabilities. Subsequently, complex-wide and site-specific corrective action plans were prepared, and are currently being implemented.
- Five of six remaining deliverables under the Low-Level Waste Systems Engineering Task Initiative, including the Low-Level Waste Requirements and System Description Documents, were completed on time. The remaining deliverable, the Low-Level Waste Program Management Plan is due in March 1997.
- Four of seven remaining deliverables under the Regulatory Structure Task Initiative were completed on time, including Policies clarifying compliance of environmental restoration activities with Department Order 5820, "Radioactive Waste Management," and reviews of commercial and international standards and requirements. The remaining three deliverables, all of which are related to the revision of Department Order 5820 are due in February 1997.
- Three of four remaining deliverables under the Low-Level Waste Projections Task Initiative were completed on time, including guidance for the Low-Level Waste projections program, a strategy for the minimization of Low-Level Waste generation, and the initial Low-Level Waste capacity report. The remaining deliverable, revision of the Low-Level Waste capacity report, is due in September 1997.
- Under the Radiological Assessments Task Initiative, nine deliverables were completed, including policy and guidance for the review and approval of composite analyses and performance assessments for Low-Level Waste disposal facilities. Four performance assessments, seven composite analyses, and ten disposal authorization statements are scheduled to be approved between January 1996 and January 2000.
- The three remaining deliverables under the Research and Development Task Initiative are all due in 1997.

The Department's implementation plan requires more than one year to implement due to the magnitude and complex-wide nature of the actions required.



Department policy and precedents for low-level waste management, established through implementation of this plan, should have long-term impact. The Department anticipates that completion and approval of low-level waste assessments at affected sites and locations throughout the complex may extend through the year 2000.

**Recommendation 94-1, Improved Schedule for Remediation in the Defense Nuclear Facilities Complex**

Recommendation 94-1 addresses the need within the Department to address the hazards and risks involving the storage of nuclear materials within the defense nuclear facilities complex. The recommendation calls for an accelerated schedule for stabilizing and repackaging high risk, unstable special nuclear materials, spent fuel, unstable solid plutonium residues, and highly radioactive liquids that pose potential safety concerns for the public, workers, and the environment. The Department continues to face increased requirements, competing needs, and additional challenges in remediation and storage of materials from disassembled nuclear weapons and materials, materials production processes, and reclamation of former production sites, equipment, and stored products and wastes. Resolving the safety issues encompassed by this recommendation continues to be of the utmost importance.

The Department made significant progress in 1996 toward completing plan deliverables and meeting plan schedules. Significant accomplishments for 1996 include the following:

- Completed 77 of 165 (over 46 percent) total plan milestones through 1996.
- Completed stabilization of 320,000 liters of plutonium solutions at the Savannah River F-Canyon.
- Bottled and removed 2,700 liters of Highly Enriched Uranium solutions from Rocky Flats.
- Completed removal of 6.84 metric tons of spent fuel from facility CPP-603 at Idaho to improved storage conditions.
- Repackaged 1,602 plutonium metal items in proximity to plastic at Rocky Flats.

- Completed upgrades to the K & L-Reactor basins at Savannah River to improve spent fuel storage capability.
- Completed key spent nuclear fuel Environmental Impact Statement Records of Decision including: “Management of Spent Nuclear Fuel in the Hanford K-Basins Environmental Impact Statement Records of Decision” and “Foreign Research Reactor Spent Nuclear Fuels Environmental Impact Statement Records of Decision.”
- Conducted research and development activities which resulted in a number of new technologies developed to address problems regarding plutonium stabilization and remediation. For example, selected processes, such as salt distillation, have been developed and are being applied at Rocky Flats to support meeting program milestones.
- Issued more stringent criteria for preparing and packaging plutonium metals and oxides for long term storage.
- Awarded a \$54 million contract to provide the Department with plutonium stabilization and packaging equipment to several sites. The first unit is to be installed at Rocky Flats in 1997.
- Completed three key trade studies identifying, analyzing, and comparing alternative methods for stabilizing of the following materials to forms suitable for interim storage or disposal: Plutonium Sand, Slag, and Crucible; Plutonium Bearing Ash; and Plutonium Bearing Combustibles.

The Department’s 94-1 implementation plan requires more than one year to complete due to the technical complexity and diversity of materials requiring stabilization at affected defense nuclear sites. The final implementation plan deliverables are scheduled for completion by May 2002.

**Recommendation 93-6, Maintaining Access to Nuclear Weapons Expertise in the Defense Nuclear Facilities Complex**

This recommendation expresses the Board's concern that the unique talents and experience of personnel have been and are being lost from the Department and its weapons complex as a result of changes in the Department's mission and emphasis, and its subsequent downsizing. The recommendation emphasized the need to retain access to, and capture the unique knowledge of, those individuals

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who have been engaged in weapons assembly, disassembly, and testing activities in order to avoid future safety problems in these areas. Retention of this information contributes to the Department's present and future capability to safely manage and maintain the weapons stockpile and disassemble existing weapons.

Building upon programs that were developed or under development in the field, the Department revised its 93-6 implementation plan in February 1996. The Department completed the implementation plan deliverables by October 1996 and proposed closure of this recommendation in December 1996. Specific accomplishments in 1996 include:

- Institutionalization of practices for reviewing the personnel losses at the nuclear weapons laboratories, and ascertaining the knowledge and expertise of departing personnel in technical competencies of the safety criteria for dismantlement and modification procedures of nuclear weapons.
- Completion of two Weapon Safety Specifications under the Seamless Safety-21 program, which includes stockpile evaluation and information archiving.
- Issuance of updated and revised procedure EP401110/B, "Integrated Safety Processes for Assembly and Disassembly of Nuclear Weapons," to include requirements for stockpile evaluation and information archiving.
- Completion of the following archiving interviews on weapons operations and testing: 20 group interview sessions, 60 contractor personnel interviews, 22 laboratory personnel interviews, and three Federal staff interviews.
- Conduct of four Department-wide video conferences to share lessons learned and success stories on archiving activities.

As previously reported, this implementation plan has required more than one year to implement due to the multi-site nature of the planned actions. The Department actions on this plan are now complete. The Department met with the Board in January 1997 to discuss completed actions and the path to closure.

### **Recommendation 93-5, Hanford Waste Tanks Characterization Studies**

This recommendation noted that technical information on tank wastes was not sufficient to ensure that Hanford site wastes could be safely stored, that associated operations could be conducted safely, and that future data requirements to support waste disposal could be met. The Board recommended that the Department upgrade and expedite the characterization effort for the high-level waste tanks at the Hanford site. This recommendation also calls for revision of sampling protocols and expansion of the laboratory capacity. Lastly, this recommendation seeks integration of these characterization efforts with other systems engineering tasks.

The original implementation plan encompassed activities for developing a technical basis for characterization and for improving the sampling equipment. This was to be done in parallel with sampling and analyzing the "Watch List" tanks by October 1995. The Department encountered difficulty in developing an adequate understanding of the root cause of the tank safety issues and continues to encounter significant difficulty in developing and implementing practices to obtain adequate tank waste samples and data. These difficulties resulted in delay to a number of implementation plan milestones; however, while executing the original implementation plan, a revised characterization and safety strategy evolved. The Department realized that tank safety issues could not be resolved solely by accelerating sampling and analysis. During 1996, this realization led to a major revision of the Department's implementation plan. The revision, completed in June 1996, is focused on obtaining a better understanding of the safety-related phenomena that can lead to safety concerns with the high-level waste tanks. Some of the principal accomplishments for 1996 on the revised implementation plan are as follows:

- The remaining ferrocyanide work was incorporated into the revised 93-5 implementation plan, facilitating closure of Board recommendation 90-7. The ferrocyanide topical report was completed in 1996 and the Department has closed the ferrocyanide safety issue.
- The Department completed a topical report to resolve the criticality safety issue in December 1996. The topical report concludes that fissile material in the high-level waste tanks is distributed at subcritical concentrations and that no physical or chemical phenomena or mechanism has been identified that could concentrate fissile material to critical conditions.
- On other high-level waste tank safety issues, topical reports describing the current understanding of the safety issue and future work for

resolution were completed on schedule for the organic solvent and flammable gas safety issues. Additionally, a topical report on the organic complexant safety issue has been drafted and is being revised to incorporate comments.

- In December 1996, the approval of the Basis for Interim Operation and the associated Interim Operations Safety Requirements constitutes a significant improvement to the current authorization basis for the high-level waste tanks. Implementation of the Basis of Interim Operation in early 1997 will provide a strong link between the hazards identified and the controls established to manage the hazards at acceptable levels. The Basis of Interim Operation is a key transitional step from the present Interim Safety Basis to the Final Safety Analysis Report, scheduled for approval in 1997.
- Schedule performance related to completion of implementation plan milestones has improved significantly with issuance of the new resolution approach. In 1996, the Department completed 19 of the planned 23 milestones, with the overdue items on track for near-term completion.

As previously reported, this implementation plan requires more than one year to implement due to the technical complexities of characterizing and analyzing the high-level waste tanks. Because of these complexities, if sampling and analysis of all of the high-level waste tanks is required to resolve this safety issue, the revised implementation plan projects a 2002 completion. The strategy of the revised plan is based on the premise that characterization activities focused on the understanding the underlying phenomena is more effective because it allows issues to be resolved for groups of tanks rather than treating each tank separately. The revised approach is intended to increase the understanding of issues applying to all tanks, not just to those sampled. Twenty-eight high priority tanks are identified as potentially providing sufficient information for resolving the high-level waste tank safety issues. The strategy of focusing on the high priority tanks achieves the intent of the recommendation to expedite characterization for resolving safety issues and could lead to earlier completion of the original implementation plan.

**Recommendation 93-3, Improving Technical Capability in Defense Nuclear Programs**

The recommendation concerns the technical capability of the Department's personnel who are associated with defense nuclear facilities. The Board's concerns included the Department's difficulty in attracting, developing, and retaining personnel who are adequately qualified by technical education and experience to provide the level and quality of management, direction, and guidance that are essential to the Department's safe operation of its defense nuclear facilities.

Implemented in 1995, the Technical Qualification Program establishes qualification requirements to improve the technical capabilities of the Department's managers and staff. Program requirements are contained in a series of Qualification Standards which include: a Department-wide General Technical Base Qualification Standard, twenty-three Department-wide Functional Area Qualification Standards, and additional Office/Facility-Specific Qualification Standards. The Technical Qualification Program was institutionalized in 1995 when Order 360.1, "Training," was approved. The Department's progress towards full qualification of the approximately 1750 Technical Qualification Program participants, targeted by May 1998, is reported on a quarterly basis in the Technical Personnel Performance Indicator Report. Some specific accomplishments are identified below:

- A joint Department of Energy and Defense Nuclear Facilities Safety Board Off-Site Conference was conducted June 13-14, 1996. At the Conference, ten initiatives were agreed upon and incorporated into an Action Plan for improving technical capability within the Department.
- Based on the Action Plan resulting from the Joint Off-Site Conference, the following activities were accomplished:
  - The Department identified and prioritized critical unmet personnel staffing needs for safety managers and technical professionals and is currently filling these requirements.
  - The Department identified approximately 250 senior technical safety management positions and is currently evaluating the technical qualifications of each of the incumbents in these positions.
  - Technical Manager and Project Management Qualification Standards were reevaluated and changes made for the implementation of these Standards. The Technical Manager

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Qualification Standard was deleted and a requirement to include the use of “secondary” Standards for the qualification of project managers was established.

- A Senior Technical Safety Manager Qualification Standard was developed and implemented for Senior Executive Service and General Service/General Management-15 Technical Qualification Program participants.
- The Department continued implementation of a program to use lead sites in the development of training materials to support the Technical Qualification Program. During 1996, training material was developed for fifteen of twenty-four topical areas.
- The Clearinghouse for Training, Education and Development world-wide-web site was established on the Internet. The Universal Course Catalog, training materials, Standards, and links to other Department and government training sites are available to support the Technical Qualification Program.
- The Department achieved an estimated 52 per cent completion status for Technical Qualification Program participants, which is ahead of the target status of 44 per cent complete by October 1996.

As previously reported, completion of this implementation plan requires more than one year since the actions itemized in the implementation plan apply across all technical elements of the Department and involve significant programmatic and cultural changes. Completion of the milestones defined in the Department's implementation plan will continue in accordance with the program established. Once the plan milestones are completed, the program will be successfully institutionalized and line management will follow through with and continuously improve the program as a normal line function. The completion of the defined plan actions is currently projected by December 1997, with completion of technical qualification for identified personnel by June 1998.

### **Recommendation 93-2, Critical Experiment Capability**

Recommendation 93-2 recommended the Department retain its program of general purpose criticality experiments and direct the program toward the objectives of improving the information base underlying prediction of criticality and serving the educational needs of the community of criticality engineers. The

Board emphasized the importance of maintaining a base of information in criticality control covering the physical situations that would be encountered in handling and storing fissionable material in the future. This recommendation also emphasized the need to maintain a community of individuals who are experienced and competent in practicing criticality control.

Established in December 1993, the Nuclear Criticality Experiments Steering Committee develops priorities, scope and funding requirements for criticality experiments, analytical codes, nuclear criticality data base development and maintenance, experimental benchmarking of the codes, and criticality training. The Committee process established by the Department's implementation plan has not only succeeded in addressing key issues relative to this important capability, but has taken the first steps toward securing a stable, long term program commitment within the Department to maintain this capability. Some specific 1996 accomplishments are identified below:

- The Nuclear Criticality Experiments Steering Committee published its recommendation for completing implementation of recommendation 93-2 in a report entitled, "The Department of Energy Nuclear Criticality Predictability Program," dated January 17, 1996.
- Fiscal Year 1997 funding necessary to meet requirements outlined in the Committee's report was obtained through financial commitments from the Offices of Defense Programs, Environmental Management, Energy Research, and Environment, Safety and Health.
- The Committee developed a five-year Nuclear Criticality Predictability Program Plan to sustain the necessary infrastructure to address the Department's nuclear criticality predictability needs and serve as basis for a stable long term program commitment within the Department.
- Six hands-on nuclear criticality safety courses were conducted at the Los Alamos Critical Experiments Facility during 1996.

The Department recognizes that the final implementation step is to institutionalize a viable nuclear criticality predictability capability and is taking steps to do so. As previously reported, this implementation plan has required more than one year to implement due to the challenge of defining and institutionalizing a nuclear criticality predictability program. The Department anticipates completion of the planned activities by September 1997.





**Recommendation 93-1, Standards Utilization in Defense Nuclear Facilities**

Recommendation 93-1 focuses on ensuring that the level of safety assurance at those facilities that assemble, disassemble, and test nuclear weapons is at least as rigorous as that required at other defense nuclear facilities and commercial nuclear material processing facilities. The Department's implementation plan calls for identification and modifications of the Department's orders and directives that should be strengthened in relation to facilities that assemble, disassemble, and test nuclear explosives. In addition, the implementation plan also includes the Nuclear Explosive Safety Study Corrective Action Plan, prepared by the Department in response to independent Board questions of December 8, 1993. On April 29, 1996, the following Departmental orders, implementation guide, and technical standards were published for simultaneous implementation and formal coordination:

- Order 452.1, "Nuclear Explosive and Weapon Surety Program"
- Order 452.2, "Safety of Nuclear Explosive Operations"
- Guide 452.2-1, "Implementation Guide for use with DOE Order 452.2 Safety of Nuclear Explosive Operations"
- Standard DOE-STD-3015-96, "Nuclear Explosive Safety Study Process"
- Standard DOE-STD-XXXX-95, "Preparation Guide for the US Department of Energy Hazard Analysis Reports for Nuclear Explosive Operations"
- DOE-STD-ZZZZ-95, "Personnel Assurance Program."

The review and comment process for standard DOE-STD-ZZZZ-95 resulted in the development and approval of an interim rule on the operations and administration of the Personnel Assurance Program covering nuclear explosive workers. The Interim Personnel Assurance Program rule was approved on October 2, 1996, and completion of formal rulemaking is anticipated in early 1997.

The Departmental review has been completed and the directives were approved and issued in January 1997. The final remaining open action relates to implementation of safety requirements at the Nevada Test Site. In October 1996, the Under Secretary issued memoranda to each of the Cognizant Secretarial

Offices recognizing that integrated safety management is to be a Department-wide effort and asking that: 1) points of contact be established for activities under their cognizance, 2) activities be fully identified, prioritized, and documented, and 3) for defense nuclear facilities, schedules be developed in the third quarter FY97. Through this effort to implement safety management Department-wide, the milestones related to identifying and implementing applicable safety requirements at Nevada Test Site, which were originally established under the Department's 93-1 implementation plan, are being subsumed under this 95-2 implementation effort. As schedules are formulated, that information will be provided to the Board at the Department's quarterly updates.

As previously reported, this implementation plan has required more than one year to implement due to the multi-site nature of the planned actions. The Department anticipates completion or disposition of planned activities by May 1997.

**Recommendation 92-4, Multi-Function Waste Tank Facility at the Hanford Site**

The primary focus of Board recommendation 92-4 is the Tank Waste Remediation System (TWRS) Multi-Function Waste Tank Facility (MWTF) project at the Hanford Site. The recommendation identifies three areas of concern: 1) project management structure, 2) design bases (systems engineering) for MWTF, and 3) technical and managerial competence. Subsequent to developing the implementation plan to address the issues raised by this recommendation, the Department has re-evaluated the need for the MWTF project and canceled the project. With cancellation of the MWTF project, the related implementation plan actions are no longer being pursued. Nevertheless, the Department has continued to implement certain elements of the implementation plan which expand on the Board's original concerns and focuses on the use of an integrated systems approach in defining, controlling, and executing the overall Hanford mission. During 1996, the Department completed twelve implementation plan deliverables; principal accomplishments for 1996 are as follows:

- Systems engineering was institutionalized at the Hanford Site. In February 1996, an implementing directive was issued at Hanford which now provides a foundation for site planning. In July 1996, the Final Site Systems Engineering Management Plan and associated implementing procedures were put in place, thus completing the action to utilize a site-wide systems engineering approach to define and achieve the overall objectives of the Hanford site.

- Significant progress was made on the implementation of systems engineering within TWRS. In September 1996, the TWRS Systems Engineering Management Plan and implementing procedures were put in place, thus implementing within TWRS the basic principles and requirements of systems engineering. In addition, in September 1996, the Department completed an action plan and implementation plan to define the path to achieve a verified and validated functions and requirements technical baseline for TWRS.
- In the area of specific TWRS projects, the Department formally recommended deletion of the MWTF and the Aging Waste Transfer Line projects in February 1996. In addition, the Cross-Site Transfer Line Baseline Comparison Report was completed in September 1996 and concluded that a change to the existing project baseline was not warranted.

Of the 63 deliverables in the current implementation plan, eight items remain open. The open design bases deliverables are intended to demonstrate to the Board implementation of systems engineering within TWRS. The open technical and managerial competence deliverables address completion of staffing analysis and training for the Department and contractor personnel associated with TWRS. Fundamental changes (e.g., cancellation of MWTF; changes to contractual arrangements, including the awarding of privatization contracts; and the Ten Year Plan) during the four years since recommendation 92-4 was issued have outdated the elements of the 92-4 implementation plan. As a result, the Department is in the process of revising the 92-4 implementation plan to propose an alternate approach to address the remaining Board concerns.

As previously reported, this implementation plan requires more than one year to implement due to the magnitude of applying systems engineering principles at the Hanford site. Based on the most recent draft of the revision to the implementation plan, the Department anticipates completion of remaining activities related to resolve this recommendation by May 1999.

**D. Report on Implementation Plans Requiring More Than One Year**

When the Congress established the Board, they envisioned that the Department would typically be able to resolve Board recommendations within a relatively short period of time, such as within one year after the Department submits its implementation plan. To monitor the Department's performance in completing

implementation plans, the Congress included a provision in the Board's enabling legislation which requires notification from the Department to Congress whenever the Department takes more than one year to complete an implementation plan in response to a Board recommendation. The enabling legislation also requires the reasons for requiring more than one year and the expected completion date.

The Department has required more than one year to complete a number of implementation plans for Board recommendations. This has occurred for a variety of reasons including the size and scope of issues being addressed and challenges in accomplishing complex-wide changes. The Department routinely accomplishes the required Congressional notification in conjunction with the Department's Annual Report to Congress on Board activities (i.e., this report), which is also required by the Board's enabling legislation. In accordance with 42 U.S.C. § 2286d (f)(1), the following active implementation plans are expected to require a total of more than one year to complete.

- 92-4, Multi-Function Waste Tank Facility at Hanford\*
- 93-1, Standards Utilization in Defense Nuclear Facilities\*
- 93-2, The Need for Critical Experiments Capability\*
- 93-3, Improving Technical Capability in Defense Nuclear Programs\*
- 93-5, Hanford Waste Tanks Characterization Studies\*
- 94-1, Improved Schedule for Remediation\*
- 94-2, Safety Standards for Low Level Waste\*
- 94-4, Deficiencies in Criticality Safety at Oak Ridge, Y-12\*
- 95-1, Improved Safety of Cylinders Containing Depleted Uranium\*
- 95-2, Safety Management
- 96-1, In-Tank Precipitation System

\* - Previously reported to require more than one year to implement.

The associated reasons and expected completion schedules for each implementation plan were provided with the previous discussion of Department activities for each Board recommendation.

#### **E. Categorization of Board Recommendations**

There are a number of ways to group and categorize Board recommendations. These groupings provide insights into the types of safety issues the Department is addressing and the schedules for issue resolution. Three different methods of categorizing recommendations are discussed below.



**Scope of Organizations Involved**

Recommendations vary in the scope of organizations involved. Three categories can be defined: 1) Complex-wide, 2) Multiple-sites/Multiple-organizations, and 3) Single-site/Single-organization. In general, the more organizations involved, the more complex and time-consuming is the resolution. Complex-wide recommendations are most likely to involve complex management and coordination efforts. Complex-wide recommendations are also more likely to involve culture changes which require more time and attention to assimilate. Single-site recommendations are often of a more technical nature, while complex-wide recommendations often involve management issues. The following table shows the scope of organizations involved for open Board recommendations and also those closed over the past two years.

**COMPLEX-WIDE RECOMMENDATIONS**

<b>Open Recommendations</b>	<b>Closed Recommendations (1995-1996)</b>
95-2, Safety Management	92-6, Operational Readiness Reviews
94-5, Rules, Orders, and Other Requirements	92-5, Discipline of Operations
94-2, Safety Standards for Low Level Waste	92-2, Facility Representatives
94-1, Improved Schedule for Remediation	91-6, Radiation Protection
93-3, Improved Technical Capability	90-2, Codes and Standards

**MULTIPLE-SITE/MULTIPLE-ORGANIZATION RECOMMENDATIONS**

<b>Open Recommendations</b>	<b>Closed Recommendations (1995-1996)</b>
93-6, Nuclear Weapons Expertise	93-4, Environmental Restoration Management Contracts
93-2, Critical Experiments Capability	
93-1, Standards Utilization at Defense Nuclear Programs	

**SINGLE-SITE/SINGLE-ORGANIZATION RECOMMENDATIONS**

<b>Open Recommendations</b>	<b>Closed Recommendations (1995-1996)</b>
96-1, In-Tank Precipitation Facility (Savannah River)	90-7, Hanford Waste Tanks Ferrocyanide Safety
95-1, Improved Safety of Cylinders Containing Depleted Uranium (Oak Ridge)	90-6, Rocky Flats Plutonium in the Ventilation Ducts
94-4, Deficiencies in Criticality Safety at Oak Ridge Y-12	90-5, Systematic Evaluation Plans (Rocky Flats)
94-3, Rocky Flats Seismic and Systems Safety	90-4, Rocky Flats Operational Readiness Reviews
93-5, Hanford Waste Tanks Characterization	
92-4, Multi-Function Waste Tank Facility at Hanford	

**Lead Implementing Organization**

Most Department implementation plans are managed from Department Headquarters organizations. Four recommendations, which each involve a single site, are managed from the associated field or operations office. The subjects of the four recommendations managed at the site level are all related to environmental management and clean-up.

**LEAD ORGANIZATION: ENVIRONMENTAL MANAGEMENT**

<b>Open Recommendations</b>
94-2, Safety Standards for Low Level Waste
94-1, Improved Schedule for Remediation

**LEAD ORGANIZATION: DEFENSE PROGRAMS**

<b>Open Recommendations</b>
94-4, Deficiencies in Criticality Safety at Oak Ridge Y-12
93-6, Nuclear Weapons Expertise
93-2, Critical Experiments Capability



93-1, Standards Utilization at Defense Nuclear Programs
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**LEAD ORGANIZATION: OTHER HEADQUARTERS ORGANIZATIONS**

<b>Open Recommendations</b>
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95-2, Safety Management (Under Secretary)
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95-1, Improved Safety of Cylinders Containing Depleted Uranium (Nuclear Energy)
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94-5, Rules, Orders, and Other Requirements (Environment, Safety, and Health)
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93-3, Improved Technical Capability (Human Resources and Administration)
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**LEAD ORGANIZATION: FIELD AND OPERATIONS OFFICES**

<b>Open Recommendations</b>
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96-1, In-Tank Precipitation Facility (Savannah River Operations Office)
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94-3, Rocky Flats Seismic and Systems Safety (Rocky Flats Field Office)
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93-5, Hanford Waste Tank Characterization (Richland Operations Office)
--

92-4, Multi-Function Waste Tank Facility at Hanford (Richland Operations Office)
--

**Progress Toward Completion of Implementation Plan**

Implementation plans with long-term completion dates involve more uncertainty than those with shorter completion schedules. The projected deliverables and schedules are less certain the further out are the projected plan due dates. The long-term plans often involve research, development and application of new techniques. Due to the nature of these activities, the schedules are less certain and the basic direction of the plan may even need to be substantially changed based on the outcome of intermediate activities. For plans to be effective and useful, it must be understood that plan deliverables and milestones can not be known with certainty ten years in advance and should not be held rigid in light of new information and new priorities. Flexibility is required in adjusting plan deliverables and milestones as the plan is being executed, particularly for plans that extend more than the one year that the Congress envisioned for typical implementation plan completion.

**IMPLEMENTATION PLANS COMPLETE**

<b>Open Recommendations</b>
94-5, Rules, Orders, and Other Requirements
94-3, Rocky Flats Seismic and Systems Safety
93-6, Nuclear Weapons Expertise

**IMPLEMENTATION PLANS PROJECTED TO BE COMPLETE IN 1997**

<b>Open Recommendations (Projected Completion)</b>
96-1, In-Tank Precipitation Facility at Savannah River (December 1997)
95-2, Safety Management (May 1997)
95-1, Improved Safety of Cylinders Containing Depleted Uranium (March 1997)
93-3, Improved Technical Capability (December 1997)
93-2, Critical Experiments Capability (September 1997)
93-1, Standards Utilization at Defense Nuclear Programs (May 1997)

**IMPLEMENTATION PLANS PROJECTED TO BE COMPLETE AFTER 1997**

<b>Open Recommendations (Projected Completion)</b>
94-4, Deficiencies in Criticality Safety at Oak Ridge Y-12 (1998)
94-2, Safety Standards for Low Level Waste (2000)
94-1, Improved Schedule for Remediation (2002)
93-5, Hanford Waste Tank Characterization (2002)
92-4, Multi-Function Waste Tank Facility at Hanford (1999)

#### **IV. BOARD INTERFACE INITIATIVES**

The Department shares with the Board the common goal of ensuring adequate protection at its defense nuclear facilities of the health and safety of the public. To accomplish this goal, the Department's policy has been to:

- Fully cooperate with the Board;
- Provide access to information necessary for the Board to accomplish its responsibilities;
- Thoroughly consider the recommendations and other safety information provided by the Board;
- Consistently meet commitments to the Board; and
- Conduct interactions with the Board in accordance with the highest professional standards.

The Secretary has assigned responsibility to the Under Secretary of Energy for ensuring that Board issues are properly addressed within the Department. The Office of the Departmental Representative to the Defense Nuclear Facilities Safety Board, reporting to the Under Secretary, manages the Department's overall interface with the Board and provides advice and direction for resolving identified safety issues.

The Board and its staff have made a positive impact on Department safety across a wide variety of issues during 1996, particularly the development and implementation of integrated safety management, improvement and transition of the safety directives, and development of nuclear safety rules. The dialogue between the Board and senior Department officials has been frank and open regarding improvements that were needed. As a result of interaction with the Board and its staff, the Department now has a more complete and effective set of safety requirements and expectations, and a fuller understanding of how each of the previous safety requirements were dispositioned during the transition. The Board has also been instrumental in the development of Department guidance for incorporating new safety requirements into contracts and accomplishing contractor implementation.

**Meetings, Site Visits, and other Defense Nuclear Facilities Safety Board Interactions**

The Department has continued to interact extensively with the Board and its staff, and feels it has become more effective and thorough in these interfaces. Department personnel supported over 150 site meetings and site visits by the Board or its staff in 1996. This has included provision of logistical and technical support and interface, as appropriate, to facilitate unrestricted access by the Board and its staff to the Department's facilities. Appendix A provides a summary of site visits supported by the Department during 1996.

In 1996, the Department and the Board exchanged over 275 items of correspondence (not including transmittal of requested information and routine distribution of assessments and evaluations). A large portion of the written communications between the Board and the Department involves the Board's recommendations and the associated deliverables, schedules, and reporting requirements contained in the Department's implementation plans. In addition, the Department receives and responds to trip reports detailing visits by the Board or its staff to the Department's facilities, as well as specific requests from the Board or its staff for particular information or action by the Department. Appendix B provides a summary of key correspondence for 1996.

**Secretary of Energy Quarterly Discussions with the Board**

The Secretary initiated scheduled quarterly discussions in 1994 between the Board members and senior Department management. These discussions continued during 1996. The Department typically is represented in these quarterly discussions by the Secretary, Under Secretary, Assistant Secretaries, and the Departmental Representative. This forum facilitates senior level discussions of key safety and management issues, and agreement on relative priorities and directions.

**Principal Deputy Assistant Secretary Meetings**

Individual Board-related matters or topics typically may affect more than one of the Department's sites, programs, or Offices. The Principal Deputy Assistant Secretaries are designated as the central point of contact for Board-related matters within Defense Programs, Environmental Management, Environment, Safety and Health, Field Management, Human Resources, and Nuclear Energy with further coordination provided by the Office of the Departmental Representative. Scheduled meetings involve the appropriate Deputy Assistant Secretaries, the Office of the Departmental Representative, and other Department personnel, as appropriate. These cross-

organizational meetings are focused to achieve a consistent understanding and response to individual topics, priorities, and schedules and to address and respond to potential problems that may arise within each Principal Deputy Assistant Secretary's area of responsibility.

These meetings are designed to provide an avenue for flow of information up and down the Department's organization in response to Board-related matters. They provide an additional link between the Secretary's quarterly discussions with the Board and the remainder of the Department.

### **Manual for the Department's Interface with the Board**

In June 1994, the Under Secretary promulgated guidelines for the Department's interface with the Board to provide professional, predictable, and effective interactions with the Board. The guidelines provide direction across site and organizational boundaries of the Department on the Department's processes, functions, and responsibilities for interacting with the Board and its staff. Use of the guidelines allows the Department to gain a more productive focus on resolving technical and management issues affecting safety. Revision 3 of the guidelines, which incorporated changes to address user comments, organizational changes, and recent experience, was issued in October 1996.

With the update and reissuance of the interface guidelines, the Under Secretary directed the incorporation of the guidelines into the Department's Directives System. Department-wide review and comment was accomplished in accordance with the Department's Order 251.1, "Directives System." Department interface requirements and guidance were approved as Department Manual 140.1-1, "Manual for Department of Energy Interface with the Defense Nuclear Facilities Safety Board," in December 1996.

### **Department Interface Workshop**

The Office of the Departmental Representative to the Defense Nuclear Facilities Safety Board hosted an Interface Workshop in June 1996. The workshop was attended by approximately 100 Department and management and operating contractor personnel. The objectives of the workshop included exchanging information and sharing experiences for more effectively interfacing with the Board.

Sixteen Operations Offices, Field Offices, Area Offices, and laboratories were represented in the workshop. Each of the Department's major Headquarters program offices that is involved in Board activities also was represented. Two workshop

sessions involved interaction with the Board and its staff members. These sessions aid in understanding the Board's perspective on important safety issues and jointly improving interfacing protocols.

**Safety Issues Management System**

The Department established a Department-wide commitment management tool - the Safety Issues Management System - in August 1995. Through use of this tool, the Department has reduced the number of outstanding commitments related to Board recommendations from 694 in August 1995 to 369 in December 1996. The total number of overdue commitments related to Board recommendations has also declined significantly, from 245 in August 1995 to 27 in December 1996.

The Office of the Departmental Representative reviews the Department's implementation plans and other outgoing correspondence to the Board to identify and capture Department commitments. Commitment information identified from these documents is entered into the Safety Issues Management System database. Distribution of monthly reports on the status of commitment implementation or completion includes responsible Department managers, points of contact, and Secretarial Officers. Monthly report information is sorted by recommendation, site, organization, and overdue and near-term status. In addition, remote users have the on-line capability to view and sort the database of Board recommendations, Department responses, and implementation plan commitments and actions.

**Information Database of Board-Related Documents**

The Departmental Representative maintains a Department/Board Information Data Base (INFOBASE) of documents and letters to, from, by, or relevant to the Department/Board interaction. In 1996, the INFOBASE was formatted for viewing on the Internet using most Internet browsers. Users may also download (i.e., save to a file) many documents within the INFOBASE. The following types of documents are included in the INFOBASE: Board recommendations; Department responses and implementation plans; Secretarial letters to the Board; Board letters to the Secretary; selected key letters concerning the status of recommendations; policy statements from the Secretary and the Board; Annual Reports to Congress from the Secretary and the Board concerning Board-related matters; Operations/Area Office questions and answers about the Board; resumes of the Board and its staff; Department Manual for Interface with the Board; and trip reports provided to the Department by the Board.

**Appendix A**  
**Site Visits Supported by the Department in 1996**

**Albuquerque**

- o R&D Safety Meeting, January 16-18, 1996.
- o R&D Working Group Meeting and Recommendation 93-6, August 13-16, 1996.
- o W79 Rocket Motor Safety Review, August 29, 1996.
- o AT-400A Work Planning Meeting, September 17, 1996.
- o Self-Assessment/Improvement Program, December 10, 1996.

**Fernald**

- o CERCLA Equivalency and Recommendation 94-2 , February 28-29, 1996.
- o Work Planning and Recommendation 95-2, May 22, 1996.

**Hanford**

- o Board visit for discussions, February 20-23, 1996.
- o Deactivation of PUREX and Vadose Zone Radiation Contamination, March 4-8, 1996.
- o Tank Focus Area Mid-Year Review, March 18-21, 1996.
- o Environmental Restoration and Tank Waste Remediation System, April 1-3, 1996.
- o Spent Fuel Storage, April 15-17, 1996.
- o Waste Encapsulation and Storage Facility, May 20-23, 1996.
- o PUREX and UO<sub>3</sub> Facility Decontamination and Decommissioning, Spent Nuclear Fuel, and Canister Storage Building Structural Issues, May 29-31, 1996.

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- o Recommendation 92-4, Tank Waste Remediation System, and Plutonium Finishing Plant, June 25-27, 1996.
- o Redox, PUREX, Building 233, B-Plant and U-Plant, June 24, 1996.
- o Recommendation 94-1 and Plutonium Residue Status, July 16-18, 1996.
- o Plutonium Storage Standard Meeting, July 29-August 1, 1996.
- o Board visit for discussions, August 6, 1996.
- o Tank Waste Remediation System Safety and Authorization Basis, August 5-7, 1996.
- o Deactivation Activities, August 5-8, 1996.
- o Lab Practices/Procedures, September 11-13, 1996.
- o Board visit for discussions, October 22, 1996.
- o Spent Nuclear Fuel Project Year End Review, November 20-21, 1996.
- o Tank Organic and Flammable Gas Issues, Waste Processing, and Chemical Reactions Sub-Tank Advisory Panel Meeting, December 3-5, 1996.

### **Idaho National Engineering Laboratory**

- o Evaporator Operational Readiness Review, April 1-4, 1996.
- o Spent Fuel Repacking and Pit 9, April 8-9, 1996.
- o Spent Fuel Repacking and Pit 9, April 23, 1996.
- o High Level Liquid Waste Evaporator Operational Readiness Review, April 29-May 2, 1996.
- o High Level Liquid Waste Evaporator/New Waste Calcining Facility Safety Review and Waste Experimental Reduction Facility/Advanced Test Reactor Tour, June 17-20, 1996.



- o Recommendation 94-1, August 19-22, 1996.
- o Radiological Controls and Uranium-233 Issues, November 12-14, 1996.

**Lawrence Livermore National Laboratory**

- o Criticality Safety Review, April 22-26, 1996.
- o Criticality Safety Review, Recommendation 94-1, and Pit Aging, August 12-15, 1996.
- o Board visit for discussions, October 8, 1996.
- o Oakland Office Environment, Safety, and Health Assessment, November 12-14, 1996.
- o R&D for Plutonium Residue Treatment and Enhanced Surveillance Activities, December 10-12, 1996.

**Los Alamos National Laboratory**

- o Safety Review of TA-55 and Nevada Test Site REBOUND Experiment, February 26-March 1, 1996.
- o Hazards Assessment and Risk Reduction at TA-55, March 18-21, 1996.
- o Tank Focus Area Mid-Year Review, March 18-21, 1996.
- o Recommendation 94-1 R&D Review, April 1-3, 1996.
- o Laboratory Support Issues for Hanford Tank Farm Safety and Characterization, April 15-17, 1996.
- o Safety Management, April 18, 1996.
- o Board visit for discussions, June 20, 1996.
- o Safety Issues, June 19-21, 1996.

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- o Design Review of the Nuclear Materials Storage Facility, July 30-August 1, 1996.
- o Electrical and Fire Protection Systems Review, August 13-15, 1996.
- o Enhanced Surveillance Review, September 17-19, 1996.
- o TA-55 Facility and the Chemistry and Metallurgy Research Facility, September 24-26, 1996.
- o Accelerator Tritium Production Review, October 8-11, 1996.
- o Discussions on Classified Topics, October 29-30, 1996.
- o External Hazards, November 13, 1996.
- o Board Vice-Chairman visit for discussions, November 13, 1996.
- o Work Planning, December 10-12, 1996.

### **Mound Site**

- o Inventory Issues, Special Unload Process, and Ignition Test Procedure, October 22-23, 1996.

### **Nevada Test Site**

- o REBOUND Experiment, February 12-14, 1996.
- o Containment Review for REBOUND Experiment, February 26-28, 1996.
- o Subcritical Experiments, July 23-25, 1996.
- o Subcritical Experiments Containment, August 13-14, 1996.
- o CODES Nuclear Explosive Safety Study Meeting, August 13-15, 1996.
- o Waste Management Hazards Analysis Workshop, October 29-30, 1996.
- o Nuclear Explosive Safety Study Meeting, November 5-8, 1996.

- o Nuclear Explosive Safety Study Meeting, November 13-15, 1996.
- o Subcritical Experiments Nuclear Explosive Safety Study Meeting, November 18-20, 1996.
- o Nuclear Explosive Safety Study Meeting, December 3-6, 1996.

**Oak Ridge**

- o Disassembly and Assembly Mission Area, January 8-10, 1996.
- o Readiness Assessment for Disassembly & Assembly Resumption, February 26-March 1, 1996.
- o Criticality Safety Issues at Building 9212, March 14-19, 1996.
- o Highly Enriched Uranium Processing Operations Restart, May 13-16, 1996.
- o Highly Enriched Uranium Vulnerability Assessment, June 18-21, 1996.
- o Y-12 Surveillance Program, July 23-25, 1996.
- o Board visit for discussions, July 30, 1996.
- o Incinerators, July 30-August 1, 1996.
- o Criticality Safety Program Assessment under the Recommendation 94-4 Implementation Plan, October 1-4, 1996.
- o Criticality Safety Program Assessment under the Recommendation 94-4 Implementation Plan, October 8-11, 1996.
- o Radiochemical Development Facility and Molten Salt Reactor Experiment Facility, October 10, 1996.
- o Enriched Uranium Operations Restart Basis for Interim Operations, November 19-20, 1996.
- o Readiness Assessment of Quality Evaluation Mission Area at Beta-4, December 3-5, 1996.

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- o EM-50 Tanks Focus Area Meeting, December 10-11, 1996.
- o Radiological work planning and implementation at Y-12, December 16-18, 1996.

### **Paducah Plant**

- o Recommendation 95-1 Progress Review, February 20-21, 1996.

### **Pantex Plant**

- o Building 12-116 Design, Weapons Surveillance Process, and Nuclear Explosive Safety Study Revalidation, January 29-February 2, 1996.
- o B61 Revalidation, March 12-15, 1996.
- o Site Representative Program, April 10-11, 1996.
- o Work/Direction Flow and Recommendation 95-2 Issues, April 16-17, 1996.
- o Unreviewed Safety Question Review, April 30-May 2, 1996.
- o W78 Nuclear Explosive Safety Study Revalidation, May 7-9, 1996.
- o Formality of Operations, June 11-13, 1996.
- o Lightning Protection, Electrical Bonding Operations for Nuclear Explosives, and Dismantlement Operations, June 25-28, 1996.
- o Board visit for discussions, July 23, 1996.
- o W70 Nuclear Explosive Safety Study, August 27-29, 1996.
- o B-83 Nuclear Explosive Safety Study Revalidation, September 9-12, 1996.
- o Building 12-116 Startup Status Meeting and Pit Integrity, October 30-31, 1996.
- o On-site Movement of Hazardous Materials, November 12-15, 1996.
- o Electrical Testers and AAU/TSR Observation, December 5-6, 1996.

**Portsmouth Plant**

- o Formality of Operations and Recommendation 95-2, May 23-24, 1996.

**Rocky Flats**

- o Conduct of Operations, January 9-10, 1996.
- o Decontamination and Decommissioning, Recommendation 94-1 Residue Meeting, and Conduct of Operations, January 24-26, 1996.
- o Building 371, March 4-7, 1996.
- o Fire Protection, March 15, 1996.
- o Decontamination and Decommissioning, April 2-5, 1996.
- o Emergency Management Program, April 16-18, 1996.
- o Respirator Requalification, April 22, 1996.
- o Recommendation 94-3 Integrated Priority Plan, April 22-23, 1996.
- o Buildings 771, 776, and 777 Structural Issues, April 24-26, 1996.
- o Building 771 Solution Stabilization Preparations, April 29-May 1, 1996.
- o Decommissioning Plans, May 6-9, 1996.
- o Building 771 Authorization Basis, May 23-24, 1996.
- o Electrical Distribution Systems, June 11-14, 1996.
- o Electrical Distribution Systems, June 17-21, 1996.
- o Board visit for discussions, June 18, 1996.
- o Electrical Distribution Systems, June 24-28, 1996.

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- o Radiation Protection, Conduct of Operations, and Training, July 8-11, 1996.
- o Recommendation 94-1 Combustibles Trade Study, July 10-12, 1996.
- o Caustic Waste Treatment System, July 15-18, 1996.
- o Building 771 Hydroxide Precipitation Preparations, August 5-8, 1996.
- o Building 771 Hydroxide Precipitation Readiness Assessment, September 17-19, 1996.
- o Buildings 771 and 779 Decontamination and Decommissioning Plans, September 18-19, 1996.
- o Board visit for discussions, September 25, 1996.
- o Residue Processing Systems Design, October 7-9, 1996.
- o Criticality Safety, October 8-10, 1996.
- o Hydroxide Precipitation, October 15-17, 1996.
- o Building 371 Caustic Waste Treatment System Start-up Operational Readiness Review, October 28-November 1, 1996.
- o Draft Decommissioning Program Plan, November 18, 1996.
- o Criticality Issues, December 9-12, 1996.

### **Sandia National Laboratory**

- o Pantex Staging Facility, February 29, 1996.
- o Self-Assessment/Improvement Program, December 11-12, 1996.

### **Savannah River Site**

- o F-Canyon Phase II Operational Readiness Review, In-Tank Precipitation, Benzene, and F-Canyon Evaporator, January 8-12, 1996.

- o In-Tank Precipitation and F-Canyon, January 22-23, 1996.
- o Authorization Basis, February 12, 1996.
- o F-Canyon Phase II Restart, February 12-16, 1996.
- o In-Tank Precipitation Justification for Continued Operation, February 19-21, 1996.
- o Defense Waste Processing Facility Operational Readiness Review Status, February 26-29, 1996.
- o Startup of In-Tank Precipitation and Defense Waste Processing Facility, March 4-8, 1996.
- o Startup of Defense Waste Processing Facility, March 11-12, 1996.
- o Board Public Meeting on Defense Waste Processing Facility Startup, March 11, 1996.
- o Defense Waste Processing Facility Startup and Americium/Curium Vitrification Program, March 11-12, 1996.
- o Sludge-only Operations, March 13-15, 1996.
- o Defense Waste Processing Facility Watchstanding, March 18-22, 1996.
- o Board Vice-Chairman visit for discussions, April 16-17, 1996.
- o In-Tank Precipitation Testing Program and Defense Waste Processing Facility Hazards Review, April 16, 1996.
- o Defense Waste Processing Facility Watchstanding, April 25-26, 1996.
- o Defense Waste Processing Facility Radioactive Operations, April 29-May 1, 1996.
- o In-Tank Precipitation Safety Review, May 9-10, 1996.
- o Spent Fuel Activities, May 15-16, 1996.

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- o EM Facility Restart Meeting, F-Canyon/FB-Line, and Recommendation 94-1, May 20-22, 1996.
- o Overview of Tritium and Separations, May 21-23, 1996.
- o In-Tank Precipitation Processing, May 28-29, 1996.
- o Chemical Incinerator Facility, June 10-12, 1996.
- o Plutonium Metal and Oxide Packaging and Residue, June 12-14, 1996.
- o Chemistry and Mechanisms Panel Meeting, July 18, 1996.
- o Board visit for discussions, July 25, 1996.
- o Tritium Facility, July 29-August 2, 1996.
- o Spent Fuel Processing and Handling, August 4-7, 1996.
- o Lab Practices/Procedures, September 9-10, 1996.
- o Chemistry Panel Meeting, September 12, 1996.
- o Plutonium Storage Vault Review, September 25-27, 1996.
- o Recommendation 96-1 Implementation Plan, October 1-2, 1996.
- o Americium/Curium Stabilization, November 12-14, 1996.
- o Defense Waste Processing Facility Instrumentation, December 10-12, 1996.
- o H-Canyon Basis for Interim Operations and safety envelope, December 16-18, 1996.

### **West Valley**

- o Cesium Removal Methods, June 10-11, 1996.



**Appendix B**  
**Key Department/Board Correspondence in 1996**

**From the Board to the Department:**

- o On January 22, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management discussing radiolytically generated hydrogen in tanks and pipes in facilities at Rocky Flats.
- o On January 22, 1996, the Board forwarded a letter to the Under Secretary discussing a November 30, 1995, Recommendation 95-1 Implementation Plan submittal, the System Requirements Document for the Uranium Hexafluoride Cylinder Program.
- o On January 23, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management discussing the status of the Savannah River H-Canyon as applied to Recommendation 94-1.
- o On January 26, 1996, the Board forwarded a letter to the Secretary responding to the January 17, 1996, Department letter concerning the partial acceptance and partial rejection of Recommendation 95-2. The Board considered that commitments made by the Department with respect to Recommendations 90-2 and 9s-5 were still in effect because the Department had not fully accepted Recommendation 95-2.
- o On January 30, 1996, the Board forwarded a letter to the Secretary concerning the management measures being taken by the Department to issue the Manual of Functions, Assignments, and Responsibilities for Nuclear Safety (FAR Manual).
- o On January 31, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning Recommendation 94-1 commitments to remediate without delay many plutonium-bearing materials, including some residues at Rocky Flats.
- o On January 31, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning startup and recent events at the In-Tank Precipitation Facility at Savannah River.
- o On February 1, 1996, the Board forwarded a letter to the General Counsel expressing the Board's concerns regarding the Department's revisions to Policy Statement 410.1.

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- o On February 7, 1996, the Board forwarded a letter to the Secretary addressing the priority given to the stabilization of in-process highly enriched uranium materials at Building 9212 at the Oak Ridge Y-12 Plant.
- o On February 9, 1996, the Board forwarded a letter to the Acting Under Secretary responding to a January 31, 1996, Department letter and indicating that they would provide comments on "Improving Regulation of Safety at DOE Nuclear Facilities" by February 22, 1996.
- o On February 13, 1996, the Board forwarded a letter to the General Counsel expressing the Board's concerns regarding the Department's revisions to Policy Statement 450.2 and recommending postponing issuance of Policy Statement 450.2.
- o On February 26, 1996, the Board forwarded a letter to the Secretary announcing the assignment of the Board's second site representative at the Hanford Site.
- o On February 28, 1996, the Board forwarded a letter to the Secretary concerning the development of new DOE Orders. The Board noted that six proposed orders were consistent or an improvement over current orders but that six other proposed orders had deficiencies.
- o On March 13, 1996, the Board forwarded a letter to the Acting Under Secretary addressing additional concerns about Recommendation 94-3. The Board believed that it was important to promptly begin upgrades of Building 371 for interim storage of special nuclear material at Rocky Flats.
- o On March 14, 1996, the Board forwarded a letter to the Secretary accepting the revised Implementation Plan for Recommendation 93-6 .
- o On March 21, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs responding to a January 16, 1996, Department letter and advising Defense Programs that the closure of Recommendation 90-2 was conditioned on the acceptance of Recommendation 95-2 and that Quarterly Reports for the Recommendation are still required.
- o On March 25, 1996, the Board issued their calendar year 1995 Sixth Annual Report to Congress.
- o On March 26, 1996, the Board forwarded a letter to the Principal Deputy Assistant Secretary for Military Application for Defense Programs concerning

the Military Research Associate Program. The Board concurred with the effort to revitalize technical personnel interchange between the Department of Defense and the Department's national weapons laboratories.

- o On March 26, 1996, the Board forwarded a letter to the Assistant Manager for Operations, Nevada Operations Office, commending the Assistant Manager on the occasion of his retirement.
- o On March 26, 1996, the Board forwarded a letter to the Operations Management Division Director, Albuquerque Operations Office, commending the Director on the occasion of his retirement.
- o On April 1, 1996, a Board member forwarded a letter to the Secretary enclosing "An Assessment Concerning Safety at Defense Nuclear Facilities, The DOE Technical Personnel Problem, DNFSB/TECH-10."
- o On April 9, 1996, the Board forwarded a letter to the Assistant Secretary for Human Resources and Administration questioning the receipt of the Recommendation 93-3 Implementation Plan Quarterly Progress Report six weeks after the date the cover letter was signed.
- o On April 9, 1996, the Board forwarded a letter to the Acting Under Secretary responding to the March 28, 1996, Department letter regarding seismic analyses supporting the existing Authorization Bases for the Savannah River F- and H-Canyons. The Board reaffirmed their belief that Recommendation 94-1 milestones should be met without delay.
- o On April 30, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs concerning the Nuclear Explosive Safety Study process and Recommendation 93-1. The Board considered the process and revised requirements and guidance documents associated with Order 5610.10A and 5610.11A to be significant improvements over the current approach.
- o On May 7, 1996, the Board forwarded a letter to the Secretary reporting the Board's acceptance of the Recommendation 95-2 Implementation Plan.
- o On May 9, 1996, the Board forwarded a letter to the Under Secretary concerning a technical review of the Hanford B-Plant exhaust ventilation system high efficiency particulate air filter units.

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- o On May 9, 1996, the Board's General Counsel forwarded a letter to the General Counsel concerning revised Policy Statements. The Board's General Counsel noted no additional comments regarding Policy 410.1 and only one comment on Policy 450.2.
- o On May 15, 1996, the Board forwarded a letter to the Under Secretary concerning highly enriched uranium processing at Oak Ridge's Y-12 Plant. This was the third letter in a series of correspondence which included a February 7, 1996, Board letter and an April 9, 1996, Department response.
- o On June 6, 1996, the Board forwarded a letter to the Under Secretary addressing issues with the crosswalk of old orders to new orders. The Board forwarded a summary of the Board staff analysis and status of the crosswalk effort to date.
- o On June 13, 1996, the Board forwarded a letter to the Secretary referencing a May 14, 1996, Department letter addressing the completion of crosswalks that track former safety requirements to proposed new requirements. The Board enclosed a copy of their June 6, 1996, letter on the same subject.
- o On June 28, 1996, the Board forwarded a letter to the Secretary closing Recommendation 93-4 and noting that one issue concerning the Technical Management Plan remained to be resolved.
- o On July 2, 1996, the Board's General Counsel forwarded a letter to the General Counsel concerning revisions to 10 C.F.R. Part 820. The Board's General Counsel addressed issues with the elevation of the necessary and sufficient process to a regulatory concept which supported issuance of an exemption.
- o On July 22, 1996, the Board forwarded a letter to the Secretary determining that Recommendation 92-2 should not be closed. This letter responded to an April 15, 1996, Department letter suggesting the Board close the Recommendation.
- o On July 22, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs providing a list of Board Staff members requiring routine access to information pertaining to atomic weapons.
- o On August 1, 1996, the Board forwarded a letter to the Secretary enclosing two documents issued by the Board for consideration: Board Policy Statement Number 3, "Policy Statement on Board Oversight of Department of Energy Decommissioning Activities at Defense Nuclear Facilities," and a Board technical

report, DNFSB/TECH-12, "Regulation and Oversight of Decommissioning Activities at Department of Energy Defense Nuclear Facilities."

- o On August 14, 1996, the Board forwarded a letter to the Secretary enclosing Recommendation 96-1. The Recommendation addressed improving the understanding of the mechanisms of formation of benzene generated during the in-tank precipitation process at Savannah River and affirming the adequacy of precautionary safety measures.
- o On August 20, 1996, the Board forwarded a letter to the Secretary conditionally accepting the revised Implementation Plan for Recommendation 94-2. Acceptance was conditional upon expanding the Department's performance assessment peer review panel and expediting completion of the performance assessment approval guidance criteria.
- o On September 4, 1996, the Board forwarded a letter to the Secretary accepting the revised Recommendation 93-5 Implementation Plan and closing Recommendation 90-7 as proposed in the June 17, 1996, Department letter. The revised Implementation Plan was accepted with some Board qualifications and comments for the Department's consideration in implementing the revised Plan.
- o On September 20, 1996, the Board forwarded a letter to the Under Secretary accepting the Integrated Program Plan for Recommendation 94-3 subject to four clarifications and comments on the Plan.
- o On October 1, 1996, the Board forwarded a letter to the Secretary referencing an April 15, 1996, Department letter and a July 22, 1996, Board letter and closing Recommendation 92-2. The Board indicated that they would continue to monitor the effectiveness of the Facility Representative Program.
- o On October 2, 1996, the Board forwarded a letter to the Under Secretary providing their comments on effective and useful practices discussed by the presenters during the June-July, 1996, integrated safety management briefings for the ten priority facilities identified in the Recommendation 95-2 Implementation Plan.
- o On October 3, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management regarding the March 15, 1996, Department Plutonium Ventilation System Study and the July 16, 1996, Department Corrective Actions Status Report. The Board indicated that they would

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- continue to monitor the closure of actions in the ventilation study and the related development of a design guide for Order 420.1.
- o On October 25, 1996, the Board forwarded a letter to the Secretary providing a determination pursuant to Public Law 102-190 that the Department's actions taken at Rocky Flats were adequate to protect public health and safety with respect to resumption of the hydroxide precipitation process in Building 771.
  - o On October 25, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management responding to the September 30, 1996, Department letter dealing with high efficiency particulate air filters at the Hanford B-Plant. The Board was pleased with the actions taken by the Department and stated their interest in reviewing additional Department documents.
  - o On November 1, 1996, the Board forwarded a letter to the Secretary providing additional information in regard to Recommendation 96-1 since the PVT-1 experiment at Savannah River would be run using a limit of 300 gallons of tetraphenylborate vice 200 gallons.
  - o On November 8, 1996, the Board forwarded a letter to the Secretary closing Recommendation 91-6 and indicating that they would continue to monitor the effectiveness of the radiation protection program as an integral part of the Department's safety management program.
  - o On November 19, 1996, the Board's General Counsel forwarded a letter to the Recommendation 95-2 Safety Management Implementation Team Leader providing feedback on the October 2, 1996, safety management briefing to the Board. The feedback included detailed comments on a draft white paper on the "Reconciliation and Integration of Safety Directives and Initiatives."
  - o On November 20, 1996, the Board's General Counsel forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board responding to the November 5, 1996, Department letter providing the final draft of the Directives System Order 251.1 and its associated Manual. The General Counsel indicated that significant issues remain open based on the Board Staff's preliminary review of the Order and Manual.
  - o On November 22, 1996, the Board's Deputy General Counsel forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board following up on the November 20, 1996, Board General Counsel letter

and providing the Board Staff comments on the final draft of the Directives System Order 251.1A and its associated Manual.

- o On November 26, 1996, the Board forwarded a letter to the Secretary providing a determination pursuant to Public Law 102-190 that the Department's actions taken at Rocky Flats were adequate to protect public health and safety with respect to startup of the caustic waste treatment system in Building 371.
- o On November 26, 1996, the Board forwarded a letter to the Under Secretary noting the significant actions taken by the Department under the Recommendation 95-1 Implementation Plan and providing some comments on the deliverables made to date.
- o On December 6, 1996, the Board's Technical Director forwarded a letter to the Manager, Savannah River Operations Office, requesting that the Westinghouse Savannah River Company provide refresher radiation worker training at the Board's Washington D.C. office.
- o On December 17, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs noting that the most recent drafts of the Department's orders on nuclear explosive operations and weapon surety program met the objectives of Recommendation 93-1 and the Board's December 8, 1993 letter. The Board provided some comments that may deserve further attention before final Department approval of the orders.
- o On December 17, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concurring with the Department's closure of the ferrocyanide safety issue on the storage tanks at the Hanford site. The Board closed the Recommendation 93-5 Implementation Plan commitment on the ferrocyanide report.

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### **Trip Reports from the Board to the Department:**

- o On January 22, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management discussing the approval process for Hanford's Tank Waste Remediation System Interim Safety Basis. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
11/29/95	Hanford	High-Level Waste Tank Accelerated Safety Analysis and Flammable Gas Safety Issues (11/6-8/95)

- o On February 8, 1996, the Board's Technical Director forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board. The letter included the following trip reports:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
7/25/95	Hanford	Tank Farms Operations and Implementation of Recommendation 92-4 (5/22-24/95 and 6/27-29/95)
8/15/95 (7/18-19/95)	WIPP	National Transuranic Waste Program
9/7/95	Rocky Flats	Solutions Stabilization (8/22-24/95)
9/28/95	INEL	Spent Nuclear Fuel Activities (9/12-14/95)
10/2/95	Hanford	Plutonium Finishing Plant Vertical Calciner (9/18-20/95)
11/20/95	SRS	Defense Waste Processing Facility (10/24-27/95)
11/27/95	SRS	In-Tank Precipitation Review of Cycle 1 Testing (11/8/95)
1/11/96	SRS	Defense Waste Processing Facility Electrical Systems, Distributed Control System, and Alarm Handling/Management Systems (11/13-14/95)

- o On February 22, 1996, the Board's Technical Director forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board. The letter included the following trip report and staff memorandum:



<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
10/16/95	INEL	Emergency Response Exercise Varmint (9/13/95)
11/17/95	Pantex	Shipping Weapons from Pantex to Department of Defense Facilities to Remove Reservoirs (n/a)

- o On March 1, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning Hanford tank safety issues and the tank farms authorization basis. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
1/12/96	Hanford	Tank Farms Authorization Basis and Tank Waste Processing (12/5-7/95)

- o On March 6, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs discussing the Nuclear Explosive Safety Study process at the Nevada Operations Office. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
2/16/96	NTS	Coded Optical Device Enabling System (12/12-15/95)

- o On March 18, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs discussing Project Sapphire, the removal of 600 kilograms of fissile material from the former Soviet Union, at the Oak Ridge Y-12 Plant. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
12/21/95	Oak Ridge	Project Sapphire (11/16-18/94, 11/22- 23/94, 11/28-12/2/94, 12/14-15/94, 1/31- 2/3/95, 6/26-29/95, 7/25-27/95, and 10/27- 29/95)

- o On March 21, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs commenting on the Department's lack of involvement in the review and authorization of operations that are significantly outside the approved

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Lawrence Livermore National Laboratory authorization basis. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
1/29/96	LLNL	Integrated Safety Management (11/14-16/95)

- o On April 19, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs concerning the first two applications of the revalidation of the Nuclear Explosive Safety Study process for Pantex operations. The letter included the following trip reports:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
3/5/96	Pantex	Revalidation for the Nuclear Explosive Safety Studies of W76 Operations (1/30-2/1/96)
3/27/96	Pantex	Revalidation for the Nuclear Explosive Safety Studies of B61-3/4/10 Operations (3/12-15/96)

- o On May 10, 1996, the Board forwarded a letter to the Under Secretary concerning an Operational Readiness Review for startup of the High-Level Liquid Waste Evaporator at the Idaho Chemical Process Plant. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
4/19/96	INEL	Operational Readiness Review of High-Level Liquid Waste Evaporator (4/1-4/96)

- o On May 10, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs concerning safety-related issues at the Pantex Plant. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
2/26/96	Pantex	Special Nuclear Material Component Staging Facility (1/30-2/2/96)

- o On May 10, 1996, the Board's Technical Director forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board. The letter included the following trip reports:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
11/1/94	Oak Ridge	Facility Representatives Program (9/19-23/94)
10/20/95	SRS	Structural Review of the Defense Waste Processing Facility (9/27-29/95)
12/13/95	Hanford	Safety Issues Associated with the Proposed Retrieval of High Level Waste from Tank 241-C-106 (11/14-16/95)

- o On May 28, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs noting the progress in the Disassembly and Assembly operations at the Oak Ridge Y-12 Plant. The Board also noted that the criticality safety requirements in highly enriched uranium operations still had deficiencies. The letter included the following trip reports:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
4/3/96	Oak Ridge	Y-12's Criticality Safety Approvals in Highly Enriched Uranium Processing (3/14-15/96)
4/19/96	Oak Ridge	Y-12 Plant - Resumption of the Disassembly and Assembly Mission Area (3/7/96, 3/15/96, and 3/22/96)

- o On June 4, 1996, the Board's Technical Director forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board. The letter included the following trip reports:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
5/5/94	Oak Ridge	Y-12 Plant Structural, Seismic, and Ground Motion Review (3/28-30/94)
9/12/95	NTS	Test Activities and Readiness (2/13-3/1/95 and 7/31-8/10/95)

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1/29/96      Pantex      Unreviewed Safety Question to Increase Nuclear Weapon Staging in Zone 12 (12/19/95)

- o On June 11, 1996, the Board forwarded a letter to the Under Secretary addressing issues with the design and construction activities for Hanford's Canister Storage Building. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
6/7/96	Hanford	Structural Review of the Canister Storage Building (5/28/96)

- o On June 17, 1996, the Board forwarded a letter to the Under Secretary addressing safety issues, including lightning protection, involving Hanford's high-level waste tanks and several inactive tank farm facilities. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
3/28/96	Hanford	Tank Safety Issues (2/21-22/96)

- o On June 28, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs concerning the first scheduled subcritical experiment, REBOUND, to be conducted at the Nevada Test Site. The letter included the following trip reports:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
2/21/96	NTS	LANL Briefing Concerning the REBOUND Subcritical Experiment (2/13-14/96)
3/4/96	NTS	Containment Review Panel Review for LANL Subcritical Experiment, REBOUND-1, (2/27-28/96)
3/11/96	NTS	Hazards Analysis for the REBOUND Subcritical Experiment (2/27-29/96)

- o On July 5, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning Phase II of the Operational Readiness Review for the startup of the High-Level Liquid Waste Evaporator at the Idaho

Chemical Process Plant. This letter complemented the Phase I review forwarded to the Department on May 10, 1996. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
5/22/96	INEL	Phase II of the High-Level Liquid Waste Evaporator Operational Readiness Review (4/29-5/2/96)

- o On July 5, 1996, the Board's Technical Director forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board. The letter included the following trip reports:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
12/22/94	Sandia	Order Compliance Self-Assessment (10/25-27/94)
10/5/95	LLNL	Plutonium Facility Readiness Assessment (8/28-9/1/95)
2/21/96	Rocky Flats	Conduct of Operations Implementation (1/23-26/96)

- o On July 15, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning the Authorization Basis for Building 771 at Rocky Flats and the priority given to the venting of transuranic waste drums. The letter included the following trip reports:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
5/15/96	Rocky Flats	Safety and Authorization Basis Issues (4/22-26/96)
5/30/96	Rocky Flats	Safety and Authorization Basis (5/23/96)

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- o On July 15, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning safety assessments performed by the Los Alamos National Laboratory in support of operations in Hanford's flammable gas watch list tanks. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
5/17/96	LANL	Review of LANL Activities in Support of the Hanford Tank Waste Remediation System (4/15-17/96)

- o On July 24, 1996, the Board's Technical Director forwarded a letter to the Departmental Representative to the Defense Nuclear Facilities Safety Board. The letter included the following trip reports:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
5/8/96	Rocky Flats	Annual Emergency Preparedness Exercise, READY-96 (5/17/96)
5/29/96	Pantex	Unreviewed Safety Question Program (4/30-5/2/96)

- o On August 12, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management reviewing the packaging and storage of high assay plutonium metal and plutonium oxide at the Savannah River Site. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
6/28/96	SRS	Packaging and Storage of Plutonium Metal and Oxide (6/12-14/96)

- o On September 4, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs reviewing the Nuclear Materials Storage Facility design upgrade at the Los Alamos National Laboratory. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
8/13/96	LANL	Renovations for the Nuclear Materials Storage Facility (7/30-8/1/96)

- o On September 23, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs regarding the Nuclear Explosive Safety Study for the Coded Optical Device Enabling System at Nevada. This was a follow-up to the correspondence between the Department and the Board in March, 1996, on this same topic. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
9/3/96	NTS	Reconvening of the Nuclear Explosive Safety Study for the Coded Optical Device Enabling System (8/13-15/96)

- o On October 16, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning a review at the Savannah River Site of the readiness to conduct stabilization of plutonium-242. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
9/5/96	SRS	Operational Readiness for Plutonium-242 Operations at HB-Line (8/20-22/96)

- o On October 25, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs responding to the July 23, 1996, Department letter dealing with corrections to deficiencies in the nuclear criticality safety program at Lawrence Livermore National Laboratory. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
10/25/96	LLNL	Criticality Safety (8/12-14/96)

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- o On November 6, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management dealing with plans for the transfer of spent nuclear fuel from both the Savannah River Site and Idaho National Engineering Laboratory. The letter included the following trip reports:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
8/15/96	SRS	Handling of Spent Nuclear Fuel (8/5-7/96)
8/28/96	INEL	Handling of Spent Nuclear Fuel (8/19-23/96)

- o On December 5, 1996, the Board forwarded a letter to the Assistant Secretary for Defense Programs noting that the electrical safety program at Los Alamos National Laboratory needed upgrading. The Board noted that they expected that the Integrated Safety Management Systems being developed in response to Recommendation 95-2 would address the issues. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
10/11/96	LANL	TA-55 Facility Electrical and Ventilation Systems (8/13-15/96)

- o On December 11, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management noting that the tritium expertise at the Mound Site in both the engineering and operations groups is apparently eroding. The Board noted that aggressive actions to retain or attract the needed expertise will be required. The letter included the following trip report:

<b><u>Date of Report</u></b>	<b><u>Site</u></b>	<b><u>Subject (Date of Visit)</u></b>
10/29/96	Mound	Tritium Activities (10/22-24/96)



- o On December 16, 1996, the Board forwarded a letter to the Assistant Secretary for Environmental Management concerning deactivation and decommissioning of Buildings 771 and 779 at Rocky Flats. The letter included the following trip report:

<u>Date of Report</u>	<u>Site</u>	<u>Subject (Date of Visit)</u>
10/8/96	Rocky Flats	Deactivation and Decommissioning Plans for Buildings 771 and 779 (9/17-19/96)

**From the Department to the Board:**

- o On January 2, 1996, the Deputy Assistant Secretary for Oversight for Environment, Safety and Health (ES&H) forwarded a letter to the Board's Technical Director providing a Recommendation 94-4 Implementation Plan commitment, a corrective action plan for assessing the ES&H role in the oversight of criticality safety issues at the Oak Ridge Y-12 Plant.
- o On January 3, 1996, the Principal Deputy Assistant Secretary for Defense Programs forwarded a letter to the Board reporting the status of the Recommendation 91-6 Implementation Plan commitment to implement post-training evaluations and retention testing programs within Defense Programs.
- o On January 3, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board reporting the status of the Recommendation 91-6 Implementation Plan commitment to implement post-training evaluations and retention testing programs within Environmental Management.
- o On January 3, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board reporting the status of the Recommendation 91-6 Implementation Plan commitment to implement core training within Environmental Management.
- o On January 3, 1996, the Principal Deputy Assistant Secretary for Defense Programs forwarded a letter to the Board reporting the status of the Recommendation 91-6 Implementation Plan commitment to implement core training within Defense Programs.
- o On January 4, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board providing a Recommendation 94-4 Implementation Plan commitment, the Department's response to the Training Assistance Team evaluation of key Federal personnel at the Y-12 Plant.
- o On January 11, 1996, the Secretary forwarded a letter to the Board providing notification of delay in two Recommendation 93-5 Implementation Plan commitments, to complete sampling and analysis of all watch list tanks and all remaining tanks.

- o On January 16, 1996, the Principal Deputy Assistant Secretary for Defense Programs forwarded a letter to the Board transmitting the Recommendation 90-2 Implementation Plan Quarterly Status Report.
- o On January 16, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board transmitting the Recommendation 92-4 Implementation Plan Quarterly Status Report.
- o On January 17, 1996, the Secretary forwarded a letter to the Board responding to Recommendation 95-2.
- o On January 17, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board requesting an extension to respond to the October 4, 1995, Board letter concerning revising the Recommendation 93-4 Implementation Plan.
- o On January 18, 1996, the Associate Deputy Secretary for Field Management forwarded a letter to the Board transmitting the Recommendation 92-2 Implementation Plan Quarterly Status Report.
- o On January 19, 1996, the Secretary sent a letter to the Board responding to the November 15, 1995, Board letter regarding stabilization of the Mark 16 and 22 fuel and the future of the F-Canyon and H-Canyon facilities at Savannah River.
- o On January 24, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-1 Implementation Plan Quarterly Report.
- o On January 26, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board responding to the December 20, 1995, Board letter concerning conduct of operations at the Oak Ridge Y-12 Plant.
- o On January 26, 1996, the Assistant Secretary for Environment, Safety and Health forwarded a letter to the Board responding to the December 22, 1995, Board letter offering the assistance of the Board to further discuss the necessary and sufficient closure process.
- o On January 29, 1996, the Assistant Secretary for Environment, Safety and Health forwarded a letter to the Board providing documents related to the necessary and sufficient process.

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- o On January 31, 1996, the Acting Under Secretary forwarded a letter to the Board requesting the Board views and comments on the final report of the Advisory Committee on External Regulation of the Department.
- o On February 2, 1996, the Principal Deputy Assistant Secretary for Defense Programs forwarded a letter to the Board providing the following four Recommendation 93-6 Implementation Plan commitments: institutionalize the review of personnel losses at Weapons Laboratories, issue the Knowledge Preservation Program document for Oak Ridge, revise the Nevada underground nuclear testing document, and develop an archiving program capturing experience and knowledge.
- o On February 5, 1996, the Deputy Assistant Secretary for Oversight for Environment, Safety and Health forwarded a letter to the Board providing two Recommendation 94-4 Implementation Plan supplemental response corrective action plan commitments, "Surveillance Reporting" and "Surveillance of the Y-12 Unreviewed Safety Question Determination Process."
- o On February 9, 1996, the Principal Deputy Assistant Secretary for Environment, Safety and Health forwarded a letter to the Board providing status on the implementation of the Radiological Control Manual at the Department's sites.
- o On February 9, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs sent a letter to the Board providing the following January, 1996, Recommendation 94-4 Implementation Plan deliverables: the Quarterly Report; the Oak Ridge Y-12 contractor corrective action plans for the Operational Safety Requirements, Criticality Safety Approval, and Criticality Safety Program assessments; and the integrated Department/contractor corrective action plan for the Y-12 Conduct of Operations assessments. In addition, change 4 to the Implementation Plan was included.
- o On February 13, 1996, the Secretary sent a letter to the Board acknowledging the Board's willingness to participate in the Department's task force related to external regulation.
- o On February 13, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting the Recommendation 90-7 Implementation Plan Quarterly Status Report.

- o On February 14, 1996, the Principal Deputy Assistant Secretary for Defense Programs sent a letter to the Board transmitting the Recommendation 93-2 Implementation Plan Quarterly Status Report.
- o On February 14, 1996, the Manager, Richland Operations, sent a letter to the Board transmitting the "Tank Characterization Report for Single-Shell Tank 241-BY-108."
- o On February 16, 1996, the Acting Under Secretary sent a letter to the Board responding to the January 22, 1996, Board letter commenting on the "UF<sub>6</sub> Cylinder Program System Requirements Document."
- o On February 21, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board responding to the January 22, 1996, Board letter concerning risks associated with radiolytically generated hydrogen in tanks and piping at Rocky Flats.
- o On February 26, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board reporting the status of the counterfeit parts program at Savannah River and, specifically, the Defense Waste Processing Facility.
- o On February 28, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting the Recommendation 93-5 Implementation Plan Quarterly Report.
- o On February 28, 1996, the Secretary sent a letter to the Board concerning the need to revise the Recommendation 94-2 Implementation Plan.
- o On March 1, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board responding to the January 31, 1996, Board letter regarding the potential delay in meeting certain Recommendation 94-1 Implementation Plan milestones for stabilization of solid residues at Rocky Flats.
- o On March 1, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board following up on a January 11, 1996, Department letter and committing to provide a revised Implementation Plan for Recommendation 93-5.

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- o On March 1, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board responding to the January 31, 1996, Board letter concerning startup and recent events at the In-Tank Precipitation Facility at Savannah River.
- o On March 4, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board providing two Recommendation 94-2 Implementation Plan commitments, the listing of personnel and the schedule for the Working Group Assessment Teams.
- o On March 8, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board responding to the December 18, 1995, Board letter concerning the proximity of the Central Training Facility at the Defense Waste Processing Facility .
- o On March 11, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board addressing Nuclear Explosive Safety Study revalidation process concerns raised by the Board in a February 28, 1996, Department briefing.
- o On March 12, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board responding to an October 4, 1995, Board letter, transmitting the Recommendation 93-4 Implementation Plan Quarterly Progress Report, and proposing closure of the Recommendation.
- o On March 13, 1996, the Principal Deputy Assistant Secretary for Environmental Management sent a letter to the Board reporting the completion of activities to resolve Recommendation 90-7 safety issues.
- o On March 15, 1996, the Secretary sent a letter to the Board responding to June 15 and July 21, 1995, Board letters and forwarding the "Plutonium Ventilation System Study Report" to the Board.
- o On March 21, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board responding to the March 6, 1996, Board letter concerning the Coded Optical Device Enabling System study performed by the Nevada Operations Office.
- o On March 26, 1996, the Acting Under Secretary forwarded a letter to the Board expressing appreciation for the March 15, 1996, Board presentation to the Department's External Regulation Task Force.

- o On March 28, 1996, the Acting Under Secretary forwarded a letter to the Board addressing Savannah River's H- and F-Canyon design and the current stabilization program.
- o On March 29, 1996, the Deputy Director for the Office of Nuclear Energy, Science and Technology forwarded a letter to the Board enclosing a Recommendation 95-1 Implementation Plan deliverable, the "UF<sub>6</sub> Cylinder Program Systems Engineering Management Plan."
- o On April 2, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board addressing the impact on the Recommendation 94-1 Implementation Plan milestones from the current schedule for stabilizing the plutonium solutions at Rocky Flats.
- o On April 2, 1996, the Acting Under Secretary forwarded a letter to the Board responding to a March 13, 1996, Board letter and reporting the Department's decision to upgrade Building 371 at Rocky Flats.
- o On April 3, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-2 Implementation Plan Quarterly Progress Report.
- o On April 4, 1996, the General Counsel forwarded a letter to the Board responding to February 1 and 13, 1996, Board letters and providing revised versions of Policy Statements 410.1 and 450.2 for review.
- o On April 4, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board providing the Recommendation 94-4 Implementation Plan deliverables associated with the Disassembly and Assembly mission area.
- o On April 5, 1996, the Assistant Secretary for Environment, Safety and Health forwarded a letter to the Board transmitting the Recommendation 91-6 Implementation Plan Quarterly Status Report.
- o On April 9, 1996, the Acting Under Secretary forwarded a letter to the Board responding to the February 7, 1996, Board letter regarding the startup of Building 9212 at the Y-12 Plant.
- o On April 12, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board providing the Department's

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Preliminary Report, "Complex-Wide Review of DOE Low-Level Waste Management ES&H Vulnerabilities," a commitment from a March 31, 1995, Department letter.

- o On April 15, 1996, the Associate Deputy Secretary for Field Management forwarded a letter to the Board proposing closure of Recommendation 92-2.
- o On April 16, 1996, the Assistant Secretary for Environment, Safety and Health forwarded a letter to the Board concerning the proposed nuclear safety management rule, 10 CFR 830, and indicating discontinuance of the current DOE Order 5480.18B accreditation program.
- o On April 16, 1996, the Assistant Secretary for Human Resources and Administration forwarded a letter to the Board responding to an April 9, 1996, Board letter and explaining the delay in the Board's receipt of the February 1, 1996, Department letter.
- o On April 18, 1996, the Secretary sent a letter to the Board forwarding the Recommendation 95-2 Implementation Plan.
- o On April 18, 1996, the Deputy Assistant Secretary for Oversight for Environment, Safety and Health forwarded a letter to the Board Technical Director providing the Senior Radiological Protection Officer's review of the draft "U.S. Department of Energy Management Action Plan in Response to Infrastructure Evaluation Team Recommendations."
- o On April 23, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-1 Implementation Plan Annual Report.
- o On April 23, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board providing an update of the Department's plan for completion of the Integrated Program Plan as the final Recommendation 94-3 Implementation Plan deliverable. The letter also addressed the Department's preferred interim storage alternative.
- o On April 26, 1996, the Secretary forwarded a letter to the Board identifying a change in assigned responsibilities within the Department for Recommendation 94-1 Implementation Plan actions.



- o On April 26, 1996, the Acting Under Secretary forwarded a letter to the Board concerning the establishment of the Safety Management Implementation Team to fulfill a Recommendation 95-2 Implementation Plan commitment.
- o On April 28, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable , the "Low-Level Waste Program Requirements Document."
- o On April 29, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board responding to a March 21, 1996, Board letter and reporting that the intent of a January 3, 1996, Department letter was to advise the Board on the status of the Recommendation 91-6 Implementation Plan milestones and to suggest that these milestones were complete.
- o On April 30, 1996, the Deputy Director for the Office of Nuclear Energy, Science and Technology forwarded a letter to the Board enclosing a Recommendation 95-1 Implementation Plan deliverable , the revised version of the "UF<sub>6</sub> Cylinder Program System Requirements Document."
- o On April 30, 1996, the Deputy Assistant Secretary for Waste Management and the Deputy Assistant Secretary for Environmental Restoration for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Guidance for a Composite Analysis of the Impact of Interacting Source Terms on the Radiological Protection of the Public from Department of Energy (DOE) Low-level Waste Disposal Facilities."
- o On May 2, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board transmitting the Recommendation 94-2 Implementation Plan Six-Month Status Report.
- o On May 6, 1996, the Principal Deputy Assistant Secretary for Safety and Quality for Defense Programs forwarded a letter to the Board addressing the issues raise in an August 11, 1995, Board letter concerning the Los Alamos Critical Experiments Facility operations and safety analysis documentation.
- o On May 7, 1996, the Principal Deputy Assistant Secretary for Safety and Quality for Defense Programs forwarded a letter to the Board transmitting the Recommendation 93-2 Implementation Plan Quarterly Status Report.

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- o On May 7, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board superseding a December 8, 1995, Department letter and addressing risk acceptance criteria for the Tank Waste Remediation System.
- o On May 7, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board concerning an April 2, 1996, Department letter and reporting a delay in providing changes to the Recommendation 94-1 Implementation Plan.
- o On May 7, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board providing the Department's evaluation and assessment report of the Oakland Operations Office.
- o On May 9, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board transmitting the Recommendation 94-4 Implementation Plan Quarterly Report.
- o On May 14, 1996, the Secretary forwarded a letter to the Board concerning the Department's accelerated directives reduction effort, proposed rules related to nuclear safety, and the availability of the final crosswalk for Order 440.1.
- o On May 16, 1996, the Deputy Assistant Secretary for Worker Health and Safety for Environment, Safety and Health forwarded a letter to the Board's Technical Director concerning Recommendation 91-6 and providing a program plan for Board review to resolve issues raised in the Infrastructure Evaluation Team report.
- o On May 17, 1996, the Principal Deputy Assistant Secretary for Quality for Defense Programs forwarded a letter to the Board providing an interim reply to the September 11, 1995, Board letter concerning findings associated with the surveillance of Operational Safety Requirements at Los Alamos.
- o On May 17, 1996, the Principal Deputy Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Complex-Wide Review of DOE's Low-Level Waste Management ES&H Vulnerabilities."
- o On May 20, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-2 Implementation Plan Quarterly Progress Report.

- o On May 21, 1996, the Assistant Secretary for Environment, Safety and Health forwarded a letter to the Board concerning the status of the crosswalks of the old orders to the new orders.
- o On May 23, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board responding to an April 19, 1996, Board letter expressing concerns over the Nuclear Explosive Safety Study revalidation process.
- o On May 23, 1996, the Under Secretary forwarded a letter to the Board responding to the May 9, 1996, Board letter concerning a Board staff report on the Hanford B-Plant exhaust ventilation system.
- o On May 24, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board responding to the December 15, 1995, Board letter concerning the design criteria for the Canister Storage Building at Hanford.
- o On May 28, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter responding to the April 30, 1996, Board letter expressing concern about DOE Order 5610 Series implementation.
- o On May 29, 1996, the Deputy Assistant Secretary for Oversight for Environment, Safety and Health forwarded a letter to the Board's Technical Director providing the Senior Radiological Protection Officer's Task Team Report.
- o On May 30, 1996, the Deputy Assistant Secretary for Oversight for Environment, Safety and Health forwarded a letter to the Board updating the status of Recommendation 94-4 Implementation Plan milestones.
- o On May 31, 1996, the Deputy Director for the Office of Nuclear Energy, Science and Technology forwarded a letter to the Board enclosing a Recommendation 95-1 Implementation Plan commitment, the "UF<sub>6</sub> Cylinder Program Engineering Development Plan."
- o On May 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Policy for Demonstrating Compliance with DOE Order 5820.2A for Onsite Management and Disposal of Environmental Restoration Low-Level Wastes under the CERCLA."

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- o On May 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board providing notification of delay in a Recommendation 94-1 Implementation Plan commitment, the shipment of Highly Enriched Uranium solutions off-site for stabilization.
- o On June 3, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a copy of the "Richland Operations Office Consolidated Strategy to Improve Radiological Control Performance."
- o On June 6, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board transmitting a Recommendation 94-4 Implementation Plan deliverable, the Training Assistance Team Report on contractor personnel at the Oak Ridge Y-12 Plant.
- o On June 11, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Comparison of Low-Level Waste Disposal Programs of DOE and Selected International Countries."
- o On June 11, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board transmitting the Recommendation 90-7 Implementation Plan Quarterly Report.
- o On June 13, 1996, the Under Secretary forwarded a letter to the Board providing notification of additional steps being taken within the Department to respond to Recommendation 95-2.
- o On June 17, 1996, the Secretary forwarded a letter to the Board enclosing the revised Recommendation 93-5 Implementation Plan and proposing closure of Recommendation 90-7.
- o On June 18, 1996, the Assistant Secretary for Environment, Safety and Health forwarded a letter to the Board responding to the January 30, 1996, Board letter addressing issues with the development of a revision to the Functions, Assignments and Responsibilities Manual (FAR).
- o On June 25, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board responding to the May 28, 1996, Board letter acknowledging progress in the

Disassembly and Assembly operations at the Y-12 Plant at Oak Ridge. The Department letter discussed a formal, disciplined system to review startup activities.

- o On June 25, 1996, the Under Secretary forwarded a letter to the Board responding to the May 28, 1996, Board letter concerning the design and construction for the Canister Storage Building at the Hanford Site.
- o On June 26, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board responding to a June 17, 1996, Board letter concerning a review of Hanford tank safety issues and inactive facilities.
- o On June 27, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan commitment, Revision 1 to the Project Management Plan.
- o On June 27, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the memorandum of acceptance and a compliance evaluation of the Hanford "Performance Assessment for the Disposal of Low-Level Waste in the 200 West Area Burial Grounds."
- o On June 30, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board enclosing a Recommendation 93-5 Implementation Plan deliverable, the Tank Waste Remediation System radiological source term document.
- o On June 30, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board enclosing a Recommendation 93-5 Implementation Plan deliverable, the analyses performed to determine if additional tanks have the potential to exceed 25 percent of the lower flammability limit.
- o On July 1, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board responding to the January 23, 1996, Board letter concerning a facility utilization strategy for the Savannah River Site chemical separation facilities.
- o On July 2, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-1 Implementation Plan Quarterly Report.

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- o On July 11, 1996, the Under Secretary forwarded a letter to the Board providing the final Recommendation 94-3 Implementation Plan deliverable, the Integrated Program Plan.
- o On July 11, 1996, the Principal Deputy Assistant Secretary for Safety and Quality for Defense Programs forwarded a letter to the Board transmitting two Recommendation 90-2 Implementation Plan Quarterly Status Reports.
- o On July 15, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board responding to Hanford Canister Storage Building issues raised in the June 11, 1996, Board letter.
- o On July 15, 1996, the Assistant Secretary for Defense Programs forwarded a letter to the Board responding to the May 10, 1996, Board letter concerning the new Special Nuclear Material Component Staging Facility at Pantex, generic pit analyses, and the Department's position on pit cladding .
- o On July 15, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board enclosing two Recommendation 92-4 Implementation Plan deliverables, the Hanford Site System Engineering Implementation Plan and the Site System Engineering Management Plan.
- o On July 16, 1996, the Under Secretary forwarded a letter to the Board providing status on the corrective actions from the Department's "Plutonium Ventilation System Study Report" and satisfying the commitment made in the March 15, 1996, Department letter.
- o On July 19, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board transmitting the Recommendation 93-5 Implementation Plan Quarterly Report.
- o On July 23, 1996, the Principal Deputy Assistant Secretary for Safety and Quality for Defense Programs forwarded a letter to the Board responding to a March 21, 1996, Board letter and addressing plans to correct weaknesses in the Lawrence Livermore National Laboratory nuclear criticality safety program.
- o On July 29, 1996, the Deputy Assistant Secretary for Waste Management for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-2 Implementation Plan Quarterly Progress Report.

- o On July 31, 1996, the Deputy Director for the Office of Nuclear Energy, Science and Technology forwarded a letter to the Board enclosing a Recommendation 95-1 Implementation Plan commitment, the "UF<sub>6</sub> Cylinder Program Management Plan."
- o On July 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Revised Interim Policy on Regulatory Structure for Low-Level Radioactive Waste Management and Disposal."
- o On July 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Current and Planned Low-Level Waste Disposal Capacity Report."
- o On July 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the initial complex-wide Corrective Action Plan for low-level waste vulnerabilities. This plan was a follow-up to the Complex-Wide Review forwarded in May, 1996.
- o On July 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the initial site-specific Corrective Action Plans for low-level waste vulnerabilities. This plan was a follow-up to the Complex-Wide Review forwarded in May, 1996.
- o On July 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the memorandum documenting the Headquarters review of the Savannah River "Radiological Performance Assessment for the Z-Area Saltstone Disposal Facility."
- o On July 31, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board responding to the June 17, 1996, Board letter concerning Hanford tank safety issues.
- o On July 31, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting the Recommendation 92-4 Implementation Plan Quarterly Status Report.

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- o On August 1, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board naming a new Director for the Nuclear Materials Stabilization Task Group to lead the Recommendation 94-1 Implementation Plan efforts.
- o On August 1, 1996, the Associate Deputy Secretary for Field Management forwarded a letter to the Board responding to a July 22, 1996, Board letter and agreeing to set up a meeting with the Board to discuss the closure of Recommendation 92-2.
- o On August 8, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board staff providing crosswalks for the order on environmental protection standards and for the occurrence reporting rule.
- o On August 9, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded two Recommendation 94-4 Implementation Plan deliverables, the Quarterly Report and the contractor response to the Training Assistance Team report delivered on June 6, 1996.
- o On August 14, 1996, the Director of the Safety Management Implementation Team forwarded a letter to the Board providing two Recommendation 95-2 Implementation Plan commitments, the draft policy institutionalizing the Department's Safety Management System and the draft approach for improving technical expertise/competence necessary to implement the Safety Management System.
- o On August 15, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board staff providing a crosswalk change page for the order on environmental protection standards.
- o On August 19, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting the Recommendation 90-7 Implementation Plan Quarterly Report.
- o On August 19, 1996, the Secretary sent a letter to the Board proposing modifications to the Recommendation 94-1 Implementation Plan for the solid residue and solution stabilization programs at Rocky Flats.
- o On August 19, 1996, the Manager, Richland Operations Office, sent a letter to the Board providing a Recommendation 93-5 Implementation Plan deliverable,



the results of an evaluation of gas monitoring instrumentation upgrade requirements.

- o On August 20, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board following up on a March 8, 1996, Department letter and enclosing the Savannah River "Consolidated Training Facility Response Upgrade Report."
- o On August 21, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board acknowledging receipt of the August 1, 1996, Board letter concerning regulation and oversight of decommissioning activities.
- o On August 26, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board responding to the July 5, 1996, Board letter and providing actions that will prevent recurrence of premature operational readiness reviews at Idaho in the future.
- o On August 26, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board staff providing crosswalks for five new orders identified with crosswalk deficiencies by the Board in an August 14, 1996, Board staff summary matrix.
- o On August 27, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board staff providing a crosswalk for requirements from the old information reporting order to the new accident investigation order.
- o On August 29, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board staff providing crosswalks for proposed rules on conduct of operations, training, and occurrence reporting.
- o On August 30, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Low-Level Radioactive Waste Minimization and Evaluation Strategy."
- o On August 30, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, documentation of the Headquarters review of

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the "Performance Assessment for the Area 5 Radioactive Waste Management Site at the Nevada Test Site, Nye County, Nevada."

- o On August 30, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, documentation of the Headquarters review of the Idaho "Radioactive Waste Management Complex Low-Level Radiological Performance Assessment."
- o On August 30, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the submittal of the Hanford "Performance Assessment for the 200 East Area Burial Grounds" to Headquarters for review.
- o On August 30, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting a Recommendation 93-5 Implementation Plan deliverable, the "Report on Lightning."
- o On August 30, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board staff responding to actions taken in an August 21, 1996, meeting and providing the status and deliverables for the "Department's Action Plan for Closure of Order 420.1 Technical Issues."
- o On September 3, 1996, the Principal Deputy Assistant Secretary for Safety and Quality for Defense Programs forwarded a letter to the Board transmitting the Recommendation 93-2 Implementation Plan Quarterly Status Report.
- o On September 3, 1996, the Principal Deputy Assistant Secretary for Safety and Quality for Defense Programs forwarded a letter to the Board responding to the July 22, 1996, Board letter updating the list of staff needing routine weapons information.
- o On September 4, 1996, the Director of the Safety Management Implementation Team forwarded a letter to the Board enclosing the final draft of the "Department Approach for Improving the Technical Expertise/Competence Necessary to Implement the Safety Management System." This final draft incorporated the resolution of comments from the June 13-14, 1996, Off-Site Conference.

- o On September 16, 1996, the Secretary sent a letter to the Board accepting Recommendation 96-1.
- o On September 20, 1996, the Assistant Secretary for Environmental Management sent a letter to the Board transmitting the Action Plan resulting from the Systems Requirements Review of the Tank Waste Remediation System at Hanford reported to the Board in April, 1995.
- o On September 23, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting a Recommendation 93-5 Implementation Plan deliverable, the "Assessment of the Potential for Ferrocyanide Propagating Accidents."
- o On September 27, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the incorporation of the Safety Assessment for rotary mode core sampling in flammable gas tanks into the Tank Waste Remediation System Authorization Basis.
- o On September 30, 1996, the Deputy Director for the Office of Nuclear Energy, Science and Technology forwarded a letter to the Board enclosing a Recommendation 95-1 Implementation Plan commitment, the draft Safety Analysis Reports for the Paducah Gaseous Diffusion Plant, the Portsmouth Gaseous Diffusion Plant, and the K-25 site.
- o On September 30, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board following up on a May 23, 1996, Department letter and enclosing a response to Hanford B-Plant ventilation system concerns raised in a May 9, 1996, Board letter.
- o On September 30, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting a Recommendation 92-4 Implementation Plan deliverable, an analysis of the staffing needs for the Tank Waste Remediation System mission. This deliverable updated the analysis provided in April, 1995.
- o On September 30, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting a Recommendation 92-4 Implementation Plan deliverable, the Baseline Comparison Report for the replacement of the Cross-Site Transfer Line.

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- o On September 30, 1996, the Manager, Richland Operations Office, sent a letter to the Board providing Recommendation 93-5 Implementation Plan deliverables, the Systems Engineering Management Plan and associated implementing procedures for the Tank Waste Remediation System.
- o On October 1, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Maintenance of U.S. Department of Energy Low-Level Waste Performance Assessments."
- o On October 2, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Evaluation of the Safety Merits and Demerits of Using Privately Operated Facilities for Disposal of the Department of Energy Low-Level Waste."
- o On October 3, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting a delay in the completion of a Recommendation 93-5 Implementation Plan deliverable, the letter reporting qualification of the Rotary Mode Core Sampling System for use in flammable gas tanks.
- o On October 3, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a response to the July 15, 1996, Board letter regarding the venting of transuranic waste drums at Rocky Flats.
- o On October 4, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a response to the August 12, 1996, Board letter regarding the packaging and storage of high assay plutonium metal and oxide at the Savannah River Site.
- o On October 7, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Low-Level Waste System Description Document."
- o On October 7, 1996, the Secretary sent a letter to the Board responding to the August 20, 1996, Board conditional acceptance of the Recommendation 94-2 Implementation Plan.

- o On October 8, 1996, the Under Secretary sent a letter to the Board providing a program plan developed in response to issues raised in a Recommendation 91-6 Implementation Plan deliverable, the Infrastructure Evaluation Team Report.
- o On October 15, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board enclosing the October 10, 1996, Summary of Environment, Safety and Health Resident Weekly Surveillance Reports.
- o On October 16, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board sent a letter to the Board's Technical Director forwarding a set of Nuclear Explosive and Weapon Safety Appraisal Reports documenting results of assessments of the Department's Oakland, Nevada, and Albuquerque Operations Offices, and the Headquarters Office of Weapons Surety.
- o On October 21, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the organic speciation of core samples for BY-108 and BY-110 and auger samples for C-102.
- o On October 21, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, a safety assessment which covered pool and entrained solvent fires in Hanford waste tanks.
- o On October 22, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board reaffirming the Department's intent to use Buildings 779 and 771 as deactivation and decommissioning models at Rocky Flats.
- o On October 22, 1996, the Secretary forwarded a letter to the Board reporting the Department's efforts to satisfy Recommendation 91-6 Implementation Plan commitments and recommending that Recommendation 91-6 be considered for closure.
- o On October 28, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-1 Implementation Plan Quarterly Report.
- o On October 29, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board providing the

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Department's draft "Manual for Department of Energy Interface with the Defense Nuclear Facilities Safety Board."

- o On October 29, 1996, the Principal Deputy Assistant Secretary for Safety and Quality for Defense Programs forwarded a letter to the Board transmitting the Recommendation 93-6 Implementation Plan Quarterly Progress Report.
- o On October 30, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the Hanford Tank C-106 supernatant and sludge sampling and analysis.
- o On October 31, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, incorporation of the safety assessment for saltwell pumping in flammable gas tanks into the Tank Waste Remediation System authorization basis.
- o On October 31, 1996, the Manager, Richland Operations Office, sent a letter to the Board transmitting the Recommendation 92-4 Implementation Plan Quarterly Status Report.
- o On November 1, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Interim Format and Content Guide, and Standard Review Plan for U.S. Department of Energy Low-Level Waste Disposal Facility Performance Assessments." This document was delivered early consistent with a Board condition for acceptance of the Implementation Plan.
- o On November 1, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Interim Review Process and Criteria for Department of Energy Low-Level Waste Disposal Facilities Composite Analyses."
- o On November 1, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board transmitting the Recommendation 94-2 Implementation Plan Quarterly Progress Report.

- o On November 4, 1996, the Manager, Richland Operations Office, forwarded a letter to the Board transmitting the Recommendation 93-5 Implementation Plan Quarterly Report.
- o On November 5, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board reporting delays in two Recommendation 94-1 Implementation Plan commitments, thermally stabilizing plutonium oxide and repackaging items of plutonium metal in proximity to plastic at Rocky Flats.
- o On November 5, 1996, the Departmental Representative to the Defense Nuclear Facilities Safety Board forwarded a letter to the Board staff providing the Department's draft Directives System Order and associated Manual.
- o On November 5, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board responding to the October 16, 1996, Board letter concerning the Savannah River HB-Line.
- o On November 8, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs forwarded a letter to the Board providing two Recommendation 94-4 Implementation Plan deliverables, the Quarterly Report and an assessment report of the criticality safety program at the Y-12 Plant, and updating the corrective action plans for three other deliverables.
- o On November 12, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the completion of vapor space monitoring of the passively ventilated Hanford Single-Shell Tanks.
- o On November 12, 1996, the Secretary forwarded a letter to the Board enclosing the Recommendation 96-1 Implementation Plan for benzene generation at the In-Tank Precipitation Facility at Savannah River.
- o On November 19, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the implementation of fourier transform infrared moisture analysis capability in the 222-S Laboratory.
- o On November 21, 1996, the Deputy Assistant Secretary for Military Application and Stockpile Management for Defense Programs sent a letter to the Board's

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- Technical Director responding to a July 24, 1996, Board letter concerning the Unreviewed Safety Question program at Pantex.
- o On November 21, 1996, the Assistant Secretary for Environmental Management sent a letter to the Board responding to the November 6, 1996, Board letter regarding handling and storage of spent nuclear fuel at the Idaho and Savannah River sites.
  - o On November 25, 1996, the Manager, Richland Operations Office, sent a letter to the Board enclosing an informational copy of the Richland Nuclear Safety Management Manual. The recently completed Manual is intended to support the development and enforcement of consistent nuclear facility authorization bases at Hanford.
  - o On December 2, 1996, the Assistant Secretary for Environmental Management sent a letter to the Board advising the Board of the Department's intent to close the ferrocyanide safety issue at Hanford.
  - o On December 13, 1996, the Assistant Secretary for Environmental Management sent a letter to the Board following-up on the Department's letter of November 21, 1996 which provided a summary response to two Staff trip reports on handling and storage of spent nuclear fuel at the Idaho and Savannah River sites.
  - o On December 18, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the voidmeter and viscometer readings in selected double-shell tanks.
  - o On December 19, 1996, the Assistant Secretary for Environment, Safety and Health sent a letter to the Board providing the final quarterly status report for Recommendation 91-6.
  - o On December 20, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the "Organic Solvent Topical" supporting technical document for the organic solvent safety issue.
  - o On December 20, 1996, the Assistant Secretary for Defense Programs forwarded a letter to the Board reiterating that the deliverables for the Department's 93-6 Implementation Plan are complete and proposing closure of Recommendation 93-6.



- o On December 20, 1996, the Assistant Manager for High Level Waste, Savannah River Operations Office, sent a letter to the Board enclosing a Recommendation 96-1 Implementation Plan deliverable, the "Test Plan for Catalytic Decomposition of Soluble Tetraphenylborate."
- o On December 24, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the assessment for potential external equipment spark sources and their management by controls or equipment modifications.
- o On December 24, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting that completion of a Recommendation 93-5 Implementation Plan milestone will be delayed from December 1996 to June 1997. The milestone concerned an organic complexant safety issue technical report which has been drafted and is being revised and finalized.
- o On December 26, 1996, the Assistant Secretary for Environmental Management forwarded a letter to the Board enclosing a Recommendation 94-2 Implementation Plan deliverable, the "Low-Level Waste Projection Program Guide."
- o On December 26, 1996, the Assistant Secretary for Environmental Management sent a letter to the Board enclosing a "Mixed Low-Level Radioactive Waste Minimization Evaluation and Strategy" report. This report was a companion document to the Recommendation 94-2 Implementation Plan deliverable on low-level waste minimization provided to the Board on August 30, 1996.
- o On December 30, 1996, the Under Secretary of Energy sent a letter to the Board providing the anticipated schedule for completion of the level 1 and priority level 2 Functions, Responsibilities, and Authorities Manuals.
- o On December 30, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting completion of a Recommendation 93-5 Implementation Plan milestone, the conditional approval of the Tank Waste Remediation System Basis for Interim Operation.
- o On December 31, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting that completion of a Recommendation 93-5 Implementation Plan milestone will be delayed from December 1996 to January 1997. The milestone concerned a flammable gas project topical report which has been drafted and is being finalized.

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- o On December 31, 1996, the Manager, Richland Operations Office, sent a letter to the Board reporting that completion of a Recommendation 93-5 Implementation Plan milestone will be delayed further from the estimated December 1996 date reported in the last Quarterly Report. The milestone concerned qualification of the Rotary Mode Core Sampling System for use in flammable gas tanks.