



02-0001092

The Secretary of Energy

Washington, DC 20585

April 3, 2002

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DNF SAFETY BOARD

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

Dear Mr. Chairman:

I am pleased to forward the Annual Report for Calendar Year 2001, *Department of Energy Activities Relating to the Defense Nuclear Facilities Safety Board*. Section 316(b) of the Atomic Energy Act of 1954 requires the Department of Energy (Department) to submit a written report to Congress addressing the Department's activities related to the Defense Nuclear Facilities Safety Board (Board).

During 2001, the Department completed the final implementation plan milestones associated with Board recommendation 98-1, *Resolution of Safety Issues Identified by DOE Internal Oversight*. In addition, the Department formally accepted new Board recommendation 2001-1, *High Level Waste Management at the Savannah River Site*, and developed an implementation plan in response to the recommendation.

The Department also made significant progress on a number of broad-based initiatives to improve safety. These include upgrading the Department's Federal technical capability, reducing risk through stabilization of excess nuclear materials, and continuing improvements in the Department's integrated safety management programs.

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

Sincerely,

Spencer Abraham

Enclosure



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**ANNUAL REPORT
TO CONGRESS**

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

Calendar Year 2001

March 2002



The Secretary of Energy
Washington, DC 20585

April 3, 2002

The Honorable Richard Cheney
President of the Senate
Washington, D.C. 20510

Dear Mr. President:

I am pleased to forward the Annual Report for Calendar Year 2001, *Department of Energy Activities Relating to the Defense Nuclear Facilities Safety Board*. Section 316(b) of the Atomic Energy Act of 1954 requires the Department of Energy (Department) to submit a written report to Congress addressing the Department's activities related to the Defense Nuclear Facilities Safety Board (Board).

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The Department also made significant progress on a number of broad-based initiatives to improve safety. These include upgrading the Department's Federal technical capability, reducing risk through stabilization of excess nuclear materials, and continuing improvements in the Department's integrated safety management programs.

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

Sincerely,

A handwritten signature in black ink that reads "Spencer Abraham".

Spencer Abraham

Enclosure



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EXECUTIVE SUMMARY

The Department of Energy (Department) submits an Annual Report to Congress each year detailing the Department's activities relating to the Defense Nuclear Facilities Safety Board (Board), which provides advice and recommendations to the Secretary of Energy (Secretary) regarding public health and safety issues at the Department's defense nuclear facilities.

In 2001, the Department took active steps to resolve issues identified by the Board in formal recommendations and correspondence, staff issue reports pertaining to Department facilities, and public meetings and briefings. Additionally, the Department has several key safety initiatives to address and prevent safety issues: the Federal Technical Capability Panel, the Facility Representative Program, risk reduction through stabilization of excess nuclear materials, the Executive Safety Conference, and performance-based directives review. The following summarizes the key activities addressed in this Annual Report.

Activities Pertaining to Board Recommendations

New Recommendation and Implementation Plan

- The Department accepted new recommendation 2001-1, *High-Level Waste Management at the Savannah River Site*.
- The Department issued an implementation plan for this recommendation in September 2001. Eight of the seventeen implementation plan milestones were completed in 2001.

Recommendations Proposed for Closure

- The Secretary sent a letter to the Board on November 13, 2001, proposing closure of recommendation 98-1, *Resolution of Safety Issues Identified by DOE Internal Oversight*.
- The Secretary proposed closure of two Board recommendations prior to 2001: (1) recommendation 94-1, *Improved Schedule for Remediation in the Defense Nuclear Facilities Complex*; and (2) recommendation 92-4, *Multi-Function Waste Tank Facility at the Hanford Tank Farms*. These two recommendations remain open.

Other Active Recommendations

- A total of 12 Board recommendations are currently open. The Secretary has proposed closure of three of these recommendations.
- The Department has provided implementation plans for all open recommendations.

- The Department is actively working to resolve the safety issues identified in the Board recommendations through the Department's implementation plans.

Activities Pertaining to Department Key Safety Initiatives

Risk Reduction Through Stabilization of Excess Nuclear Materials

- Stabilization of plutonium solutions continued ahead of schedule at Rocky Flats. Removal of all liquids from Building 771 was completed two months early on October 15, 2001. Processing of the liquids was completed almost four months early on December 4, 2001.
- Savannah River Site commenced processing plutonium scrub alloy material in F-Canyon on March 22, 2001. The scrub alloy, a plutonium-rich material that is the byproduct of a process used to purify plutonium, was sent from Rocky Flats. The dissolution phase for processing the material was completed September 6, 2001.
- Brushing and repackaging of plutonium metals and associated corrosion products at the Hanford Plutonium Finishing Plant was completed on September 27, 2001. A total of 352 metals and their corrosion products were stabilized and packaged in accordance with the plutonium storage standard, DOE-STD-3013, *Stabilization, Packaging, and Storage of Plutonium-Bearing Materials*. Most items (298) were brushed and packaged as metal, and the remainder were thermally stabilized and packaged as oxides.

Executive Safety Conference

- On December 11-12, 2001, Under Secretaries Robert Card and General John Gordon hosted an Executive Safety Conference in Washington, DC. The conference featured presentations by industry experts and Department and contractor executives, break-out sessions to develop action plans, and de-briefings from the break-out sessions.
- The Department initiated efforts to achieve safety performance and reliability to enable reliable and efficient delivery of the Department's nuclear and high-hazard missions.

Performance-Based Directives Review

- The Department initiated a performance-based directives review in October 2001. The objective of the review was to identify and eliminate prescriptive requirements, including those focused on process considerations instead of outcomes.

Facility Representative Program

- The Department's Facility Representative Program continues to be a centerpiece of Department efforts to upgrade Federal technical capabilities. Over 200 Facility Representatives around the complex provide real-time oversight of operational activities important to mission accomplishment and public safety.
- In 2001, Field Office Managers nominated an all-time high of 15 people for the Department's Facility Representative of the Year Award.
- Twenty-five Facility Representatives from around the complex completed the Department's Facility Representative training course held from April 30 to June 15, 2001, at the Energy Technical Training Center in Albuquerque, New Mexico resulting in an increase of the percentage of qualified Facility Representatives to 78% in 2001.

Federal Technical Capability Panel Activities

- The Department improved and redesigned the Technical Leadership Development Program into a concentrated two-year program, now called the Technical Intern Program. Recruitment continued in 2001 and 16 more interns were hired as part of the program.
- As part of the Annual Workforce Analysis, the Federal Technical Capability Panel developed a nuclear criticality safety engineers profile for defense nuclear facilities.
- The Federal Technical Capability Panel worked to complete three commitments in the Department's 2000-2 implementation plan, *Configuration Management*, *Vital Safety Systems*.

Activities Pertaining to Integrated Safety Management (ISM)

- As of November 2001, all sites have completed initial implementation of ISM, the Department's approach to ensure public health and safety.
- The Department remains firmly committed to ISM as its enduring framework for safety management
- Most sites have completed annual ISM reviews and updates to their ISM system descriptions to ensure that safety management programs are being effectively implemented.

Activities Pertaining to Other Board Interface

- The Department continued to respond to reporting requirements issued by the Board. Fourteen reporting requirements were received in 2001.

- The Office of the Departmental Representative continued to facilitate the Board's review and evaluation of the Department's safety directives and standards that apply to the design, construction, operation, and decommissioning of Departmental defense nuclear facilities.
- The Department continued to use the Safety Issues Management System to manage commitments and actions related to interactions between the Department and the Board in a business-like manner.

Summary of the Department's Major Safety Accomplishments

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

- The Department significantly reduced risks from legacy nuclear materials by (1) removing and processing all radioactive liquids from Building 771 at Rocky Flats, (2) processing plutonium scrub alloy received from Rocky Flats at Savannah River's F-Canyon, and (3) repackaging plutonium metals at Hanford's Plutonium Finishing Plant.
- The Department reduced risks by repackaging more than 2,000 pits at Pantex in the 12 months ending September 2001.
- The Department completed an initial set of integrity inspections of identified packages containing U-233 at Oak Ridge Building 3019 - following associated standards development, training, and readiness review assessment.
- All sites completed phase I assessments of identified vital safety systems, including confinement ventilation and fire protection systems, to assess whether these systems were ready to perform their safety functions if called upon.
- The Department completed initial ISM verifications at Los Alamos National Laboratory, the Nevada Test Site, and the Y-12 Plant - completing initial ISM verifications at all DOE defense nuclear facilities.
- The Final Nuclear Safety Rule (10CFR830) became effective in February 2001 - requiring defense nuclear facility contractors to establish and maintain an adequate safety basis for operations and to perform work within this basis.
- The Department established expectations for contractor system engineers for vital safety systems at defense nuclear facilities and for federal technical capabilities to monitor safety system performance and oversee contractor system engineers.
- At least one federal engineer from each major field office with potential nuclear criticality safety hazards completed the qualification process to become a qualified nuclear criticality safety engineer.

2001 Annual Report to Congress

- In October 2001 the Department issued a Record of Decision (ROD) on Salt Processing Alternatives at SRS - the Department decided to implement the Caustic Side Solvent Extraction alternative.
- The Department completed the transfer of Three-Mile-Island spent nuclear fuel debris from wet storage to a new dry storage facility licensed by the Nuclear Regulatory Commission at the Idaho National Engineering and Environmental Laboratory.

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I. INTRODUCTION

Pursuant to Section 316(b) of the Atomic Energy Act of 1954, the Department submits this Annual Report to Congress, which describes the Department's activities for 2001 pertaining to the Board. This report details the Department's key safety initiatives, implementation of Board recommendations, implementation of Integrated Safety Management (ISM), and other Board interface activities.

A. Background

The Board is an independent executive-branch agency established by Congress in 1988 to provide advice and recommendations to the Secretary 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, and other requirements relating to the design, construction, operation, and decommissioning of the Department's defense nuclear facilities. Figure 1 (page I-5) provides the location of the major Department facilities involved in defense nuclear activities across the United States.

The Board communicates with the Department through a variety of mechanisms including formal recommendations, formal reporting requirements, letters requesting action and information, letters providing suggestions, letters providing information such as staff issue reports and trip reports, and Board and the Board's staff requests for information. In addition, the Board communicates with the Department through public meetings, briefings and discussions, and site visits.

B. Overview of the Department's Process Used to Interface With the Board

The Department and the Board share the common goal of ensuring adequate protection of public and worker health and safety and the environment at the Department's defense nuclear facilities. To accomplish this goal, the Department's interface policy, which is contained in DOE M 140.1-1B, *Interface with the Defense Nuclear Facilities Safety Board*, is 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.

C. Overview of the Department's 2001 Activities Pertaining to Board Recommendations

There are 12 open Board recommendations. Six of the associated implementation plans are no longer active. The Department has completed all implementation plan milestones for five of these implementation plans, and transferred all remaining open milestones for the sixth plan to a new replacement plan (in the case of recommendation 94-1):

- recommendation 98-1, *Resolution of Oversight Findings**;
- recommendation 97-2, *Criticality Safety*;
- recommendation 97-1, *Safe Storage of Uranium-233*;
- recommendation 95-2, *Safety Management*;
- recommendation 94-1, *Improved Schedule for Remediation**; and
- recommendation 92-4, *Multi-Function Waste Tank Facility at Hanford**.

Additionally, the Secretary has proposed closure of three of the 12 open recommendations (as noted with an "*" in the above list).

In 2001, the Department formally accepted Board recommendation 2001-1, *High-Level Waste Management at the Savannah River Site (SRS)*. The Secretary issued an implementation plan for this recommendation in September 2001. Eight of the seventeen milestones were met in 2001, and the Department expects to complete the final commitment in March 2003.

Table 1.A provides the change in the number of open Board recommendations for each year since the inception of the Board. The data in Table 1.A reflect the evolution of the recommendation process. Initially, Board recommendations addressed specific, highly technical, significant safety issues within the Department's activities. Over time, the Department has addressed these risks and established integrated programs to improve the Department's overall safety management process. Department success in these areas, combined with an increased use of letters and other notification methods by the Board, has led to the issuance of fewer, often more broad-based recommendations in recent years.

Table 1.B provides a summary status of Board recommendations. The Department intends to make the closure of applicable recommendations a priority in 2002. This will allow the Department to focus its resources on resolving fundamental safety issues addressed by the remaining open recommendations or identified through other interactions with the Board. Table 1.C provides key dates for active Board recommendations.

Table 1.A - Historical Trend of Open Board Recommendations

Year	Recommendations Issued	Recommendations Closed	Net Change in Open Recommendations for the Year	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
1997	2	1	+1	15
1998	2	0	+2	17
1999	1	9	-8	9
2000	2	0	+2	11
2001	1	0	+1	12*

*Five implementation plans are complete. The Secretary has proposed closure on three of the associated recommendations.

D. Department Focus for 2002

In 2002, the Department intends to ensure that implementation plans remain valid and workable, to manage actions to completion by the identified due dates, and to propose closure of recommendations when the underlying safety issues are resolved. The most significant challenges involve safety issues that are complex in nature and involve management cultural changes such as:

- initiating actions to assess and maintain the operational readiness of the Department's vital safety systems;
- sustaining progress on stabilizing excess nuclear material; and
- improving the Department's safety management system, which integrates all elements of safety (e.g., public health, occupational safety, environmental protection) into management and work practices at all levels so that work can be accomplished while protecting the public, worker, and environment.

The above items are long-term issues that will demand a dedicated multi-year effort to achieve lasting safety improvements. The Department is committed to these ongoing efforts and does not foresee any major shifts or re-direction in these core safety initiatives, thus providing continuity of direction for headquarters, field, and contractor organizations.

E. Report Preview

The remaining portions of the annual report are:

- *Section II, KEY DEPARTMENT SAFETY INITIATIVES*, describes broad-based Department activities that affect environment, safety and health;
- *Section III, IMPLEMENTATION OF BOARD RECOMMENDATIONS*, describes Department activities completed in 2001 to implement Board recommendations accepted by the Secretary;
- *Section V, SAFETY ACCOMPLISHMENTS AND ACTIVITIES AT MAJOR DEFENSE NUCLEAR SITES*, describes Department activities at sites and field offices pertaining to Integrated Safety Management (ISM) and other safety initiatives; and
- *Section IV, OTHER BOARD INTERFACE INITIATIVES*, describes Department activities to maintain communications and improve interaction between the Department and the Board.

Figure 1 - Location of Major Department Facilities

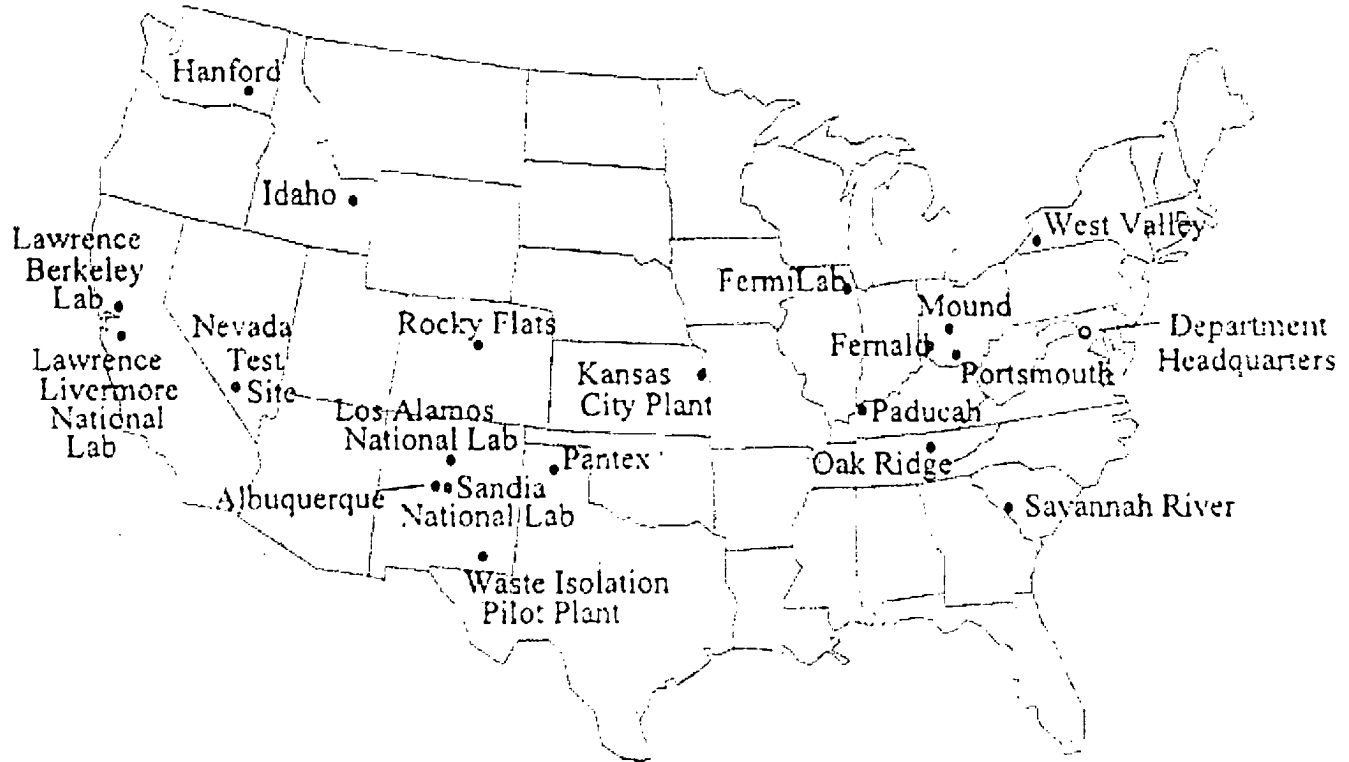


Table 1.B - Summary Status of Board Recommendations

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		9/4/96
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		11/8/96
92-1	Operational Readiness of the HB-Line at Savannah River		10/27/92
92-2	Facility Representatives		9/17/96
92-3	HB-Line Operational Readiness Reviews at Savannah River		2/3/93
92-4	Multi-Function Waste Tank Facility at Hanford	X ¹	
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		3/25/99
93-2	Critical Experiments Capability		12/30/97
93-3	Improving Technical Capability		11/9/99
93-4	Environmental Restoration Management Contracts		6/28/96
93-5	Hanford Waste Tanks Characterization Studies		11/15/99
93-6	Nuclear Weapons Expertise		4/27/99
94-1	Improved Schedule for Remediation	X ²	
94-2	Safety Standards for Low Level Waste		12/22/99
94-3	Rocky Flats Seismic and Systems Safety		5/27/99
94-4	Deficiencies in Criticality Safety at Oak Ridge Y-12		3/12/99
94-5	Rules, Orders, and Other Requirements		6/10/99

¹ Secretary proposed closure on December 16, 1998.

² Secretary proposed closure on June 8, 2000.

Table 1.B - Summary Status of Board Recommendations (Continued)

REC	SUBJECT	OPEN	CLOSED
95-1	Improved Safety of Cylinders Containing Depleted Uranium		12/16/99
95-2	Safety Management	X	
96-1	In-Tank Precipitation System at Savannah River	X	
97-1	Safe Storage of Uranium-233	X	
97-2	Criticality Safety	X	
98-1	Resolution of Safety Issued Identified by Internal Independent Oversight	X ³	
98-2	Safety Management at the Pantex Plant	X	
99-1	Safe Storage of Pits at the Pantex Plant	X	
2000-1	Stabilization and Storage of Nuclear Material	X	
2000-2	Configuration Management, Vital Safety Systems	X	
2001-1	High-Level Waste Management at the Savannah River Site	X	

Table 1.C - 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	10/8/97 (Revision 2)
94-1	Improved Schedule for Remediation	5/26/94	8/31/94	6/8/00 (Revision 3)
95-2	Safety Management	10/11/95	1/18/96	4/18/96
96-1	In-Tank Precipitation System at Savannah River	8/14/96	9/16/96	11/12/96
97-1	Safe Storage of Uranium-233	3/3/97	4/25/97	9/29/97
97-2	Criticality Safety	5/19/97	7/14/97	12/12/97
98-1	Resolution of Safety Issued Identified by Internal Independent Oversight	9/28/98	11/20/98	3/10/99
98-2	Safety Management at the Pantex Plant	9/30/98	11/20/98	9/25/00 (Revision 1)
99-1	Safe Storage of Pits at the Pantex Plant	8/11/99	10/12/99	2/1/00
2000-1	Stabilization and Storage of Nuclear Material	1/14/00	3/13/00	1/19/01 (Revision 1)
2000-2	Configuration Management, Vital Safety Systems	3/8/00	4/28/00	10/31/00

³ Secretary proposed closure on November 13, 2001.

2001 Annual Report to Congress

2001-1	High-Level Waste Management at the Savannah River Site	3/23/01	5/18/01	9/14/01 (Revision 1)
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II. KEY DEPARTMENT SAFETY INITIATIVES

Each of the key initiatives described below involves significant changes from past operating practices. They involve systems-based solutions, cross-organizational/site integration, cross-program integration, and fundamental management culture changes to address underlying safety and management issues. For example, Department determinations about ultimate pathways and long-term dispositions for hazardous materials require deliberate study and integration across the defense nuclear facilities complex. Funding and management of Department-wide efforts to maintain strong criticality prediction and control capabilities requires cross-program coordination. The ongoing transition from expert-based safety management to requirements-based safety management systems continues to be a significant cultural adjustment that needs to be achieved in all organizational parts and levels. The transition requires changes to practices developed over many years by sites, facilities, programs, and organizations operating largely independently and autonomously. Nevertheless, the Department is making progress overcoming these difficult challenges to establish a safety culture that is systems-based, requirements-based, and integrated across programs, organizations, and facilities.

A. Federal Technical Capability Panel Activities

The Department's Federal Technical Capability Program was established in response to Board recommendation 93-3, *Improving Technical Capability*. The program, under the auspices of the Deputy Secretary of Energy, represents a significant effort aimed at improving the Department's overall technical capability. The Deputy Secretary established a Federal Technical Capability Panel (FTCP) to oversee and resolve issues affecting the Federal Technical Capability Program. The FTCP consists of senior managers designated as Agents to represent headquarters and field elements with defense nuclear facility responsibilities, including the National Nuclear Security Administration (NNSA). Specific functions of the FTCP include overseeing the Senior Technical Safety Manager Program, conducting periodic assessments of the effectiveness of the Federal Technical Capability Program using internal and independent experts, and providing recommendations to senior Departmental officials regarding the Department's technical capability.

During 2001, the FTCP completed a number of activities which were summarized in its *Annual Report to the Secretary of Energy on the Status of Federal Technical Capability Related to the Safe Operation of Defense Nuclear Facilities*, released in May 2001. The FTCP continued its support of the Technical Leadership Development Program designed to expand the pool of potential technical managers in the Department through a variety of technical and managerial training opportunities. The FTCP closely followed the progress of the 16 technical interns hired in 2000, and ensured that sufficient local resources were made available to support the interns' corporate technical training. Three sessions of two weeks each were conducted at SRS, Nevada

Operations Office (NV, and Albuquerque Operations Office (AL). The Department improved and redesigned the Technical Leadership Development Program into a concentrated two-year program, now called the Technical Intern Program. Recruitment continued in 2001 and 16 more interns were hired. As of December 2001, there are a total of 32 technical interns at various Department headquarters and field offices.

The Department continues working to resolve a number of issues to ensure the continuation and improvement of the intern program. This includes continued funding, recruiting to obtain more recent college graduates, establishing protection for interns during downsizing, and improving overall program management. The FTCP will monitor the progress and effectiveness of the program.

Also in 2001, the FTCP continued support to a working group from the Office of Environmental Management (EM) on site closure. The working group is identifying technical resource needs at closure sites and determining how they can be met. Some needs may be met through the use of existing administrative flexibilities; others may require special initiatives such as legislative authority. EM is working with human resource professionals at closure sites and the FTCP in identifying closure needs and developing remedies.

As part of the Annual Workforce Analysis, the FTCP developed a nuclear criticality safety engineers profile for defense nuclear facilities. This was done in support of the Deputy Secretary's memorandum of September 18, 2000, on the subject of continuation of nuclear criticality safety initiatives. The profile summarized available nuclear criticality safety expertise throughout the defense nuclear complex and identified shortages that will be addressed.

The FTCP worked to complete three commitments in the Department's 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*. The FTCP is responsible for: (1) conducting a federal staffing analysis for system engineer expertise, (2) recommending actions to address critical technical skill gaps, and (3) recommending appropriate changes to the Technical Qualification Program or directives. The FTCP completed the first two items in January 2002 and expects to define a path forward on the third item in March 2002.

B. Facility Representative Program Activities

The Department's Facility Representative Program continues to be a centerpiece of Department efforts to upgrade federal technical capabilities. Over 200 Facility Representatives around the complex provide real-time oversight of operational activities important to mission accomplishment and public safety. The Department's standard, DOE-STD-1063-2000, *Facility Representatives*, defines the duties, responsibilities, and qualification for Department Facility Representatives. Facility Representatives are Department employees who provide effective day-to-day oversight of contractor operations at the Department's defense nuclear facilities so that

line managers have accurate information on safe work performance. The Facility Representative Program supports Department managers in ensuring that Facility Representatives are competent and technically-qualified to perform their job. Key components of the program include:

- complex-wide performance indicator reports provided to the Department's senior managers every quarter since 1999 for evaluation and feedback to improve the program;
- Facility Representative Program Working Groups formed to review Department standards that impact the job of Facility Representatives;
- Annual Facility Representatives Workshop to promote sharing lessons learned from Facility Representative Programs across the complex and foster the growth of the Facility Representative community; and
- Facility Representative Website (<http://www.facrep.org>) to provide information on the Facility Representative program, qualification standards, vacancy announcements, and other useful information for the Department's Facility Representatives.

Within the last two years, management awareness and support of the Facility Representative Program has improved measurably. The Department's senior managers recognize the contributions made by Facility Representatives and have hired approximately 30 new people into the program as of the end of 2001. In 2001, Field Office Managers nominated an all-time high of 15 people for the Department's Facility Representative of the Year Award. The Facility Representative Program Manager increased the participation by senior managers in the Annual Facility Representatives Workshop to a total of 17 in 2001. With regard to career progression, the percentage of personnel who left the program for a promotion increased over the past two years from approximately 5% to 25%. This demonstrates that the program is achieving its broader objective of upgrading the Department's technical workforce with highly qualified and experienced individuals.

The Department held a Facility Representative training course from April 30 to June 15, 2001, at the Energy Technical Training Center in Albuquerque, New Mexico. The purpose was to provide a combined curriculum for the General Technical Base and Facility Representative functional area qualification standards to accelerate the qualification time for Facility Representatives. Twenty-five Facility Representatives from around the complex completed the training; this contributed to an increase in the percentage of the qualified Facility Representatives from 71% to 78% in 2001. Subject matter experts provided much of the instruction, and qualified Facility Representatives from various Departmental sites assisted with seminars, facility walkthroughs, and practical exercises. Additionally, training provided by qualified Facility Representatives provided a valuable Facility Representative perspective for the instruction topics. The qualified Facility Representatives signed the students' qualification cards as competencies were completed and demonstrated during the various course modules.

The 2001 Annual Facility Representatives Workshop was held in Las Vegas, Nevada, from May 15-17, 2001. Departmental personnel in attendance totaled 120, a 36% increase from the 2000 workshop, and represented every major program and field office. Included in the total were 67 Facility Representatives, which represents about one-third of the Department's Facility Representative community. The workshop agenda included a combination of joint sessions, panel discussions, breakout sessions, and a small group discussion. The themes were: Program Successes and Challenges, Effective Operational Oversight, and Managing Your Career. Mr. Ralph Erickson, Associate Administrator for Facilities and Operations within the NNSA, provided the keynote address. The topics of his address were the importance and value of Facility Representatives to management, and recent actions within NNSA to achieve increased Facility Representative staffing. The workshop concluded with a tour of the Yucca Mountain Project.

At the workshop, the Department-wide 2000 Facility Representative of the Year Award was presented to Mr. John R. Eschenberg from Savannah River Operations Office (SR). Mr. Eschenberg has since transferred to the Office of Los Alamos Site Operations where he is a Facility Representative at the Technical Area 55 Plutonium Facilities. Mr. Eschenberg's noteworthy accomplishments include volunteering to serve on a team investigating the inhalation of plutonium by workers at Los Alamos, authoring a safety bulletin on the proper installation of compression fittings, leading a team that identified major deficiencies in radiological practices at SR, and identifying major shortcomings in the Job Hazards Analysis program of the site contractor.

Oversight performed by Facility Representatives provides Department line managers with accurate and objective information on the effectiveness of contractor work performance and practices, including implementation of ISM. The Department's experience has shown that when personnel are dedicated to this function, the information that they provide can be used proactively to ensure that work is completed in a safe and environmentally responsible manner.

C. Risk Reduction Through Stabilization of Excess Nuclear Materials

In February 1995, the Department established a program and plan to expedite remediation and stabilization of excess nuclear materials into safe, stable states for interim and long-term storage until ultimate disposition. 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 stabilization.

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 mixed oxides, special isotopes, certain uranium, and spent nuclear fuel (SNF). The majority of high-risk materials have been stabilized, specifically:

- all known plutonium metal in direct contact with plastic has been repackaged;
- the largest volumes of plutonium solutions have been stabilized, including all solutions at Rocky Flats Environmental Technology Site (RF); and
- significant progress has been achieved in stabilizing high-risk spent fuel and building spent fuel storage facilities.

As the few remaining high-risk material stabilization activities are pursued, other stabilization activities focused on managing the stabilization of more difficult, diverse material groups, such as plutonium residues, are underway.

EM's Office of Nuclear Materials and Spent Fuel integrates the Department's programs for stabilizing excess nuclear material to achieve safe, stable states for interim and long-term storage until ultimate disposition. This office established an integrated complex-wide program for managing nuclear materials stabilization activities. 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; and
- procuring standardized equipment to support plutonium oxide stabilization and packaging for long-term storage.

The Board issued recommendation 2000-1, *Prioritization for Stabilizing Nuclear Materials*, on January 14, 2000, re-iterating the urgency of completing the nuclear material stabilization activities the Department committed to under Board recommendation 94-1, *Improved Schedule for Remediation*. The Department continues to share the Board's concerns regarding nuclear materials stabilization. The urgent safety issues described in the recommendation 94-1 have either been corrected or had compensatory measures put in place to protect workers and the public until stabilization can be completed. Accordingly, in the original 2000-1 implementation plan, approved in June 2000, the Department requested that recommendation 94-1 be closed and the remaining stabilization activities be tracked under recommendation 2000-1.

Revision 1 of the Department's 2000-1 implementation plan was approved by the Secretary on January 19, 2001. This revision, in addition to incorporating several previously approved milestone changes, detailed an integrated plan with milestones for stabilization or discard of the

remaining materials addressed in the 94-1 implementation plan at the Los Alamos National Laboratory (LANL).

Several important stabilization milestones from revision 1 to the 2000-1 implementation plan were completed in 2001, including:

- Stabilization of plutonium solutions at RF. Removal of all liquids from Building 771 was completed two months early on October 15, 2001. Processing of the liquids was completed almost four months ahead of schedule on December 4, 2001.
- Operation of the Plutonium Stabilization and Packaging System at RF. The system provides safe long-term storage of plutonium metal and oxide materials inside welded cans. The first plutonium metal was successfully processed through the system in RF Building 371 on June 14, 2001.
- Processing plutonium scrub alloy material in F-Canyon at SRS. Processing commenced on March 22, 2001, and the dissolution phase was completed on September 6, 2001. The scrub alloy, a plutonium-rich material that is the byproduct of a process used to purify plutonium, was sent from RF.
- Transfer highly enriched uranium solution at SRS to a double-walled tank. This was completed two months ahead of schedule in July 2001.
- Brushing and repackaging of plutonium metals and associated corrosion products at the Hanford Plutonium Finishing Plant. This activity was completed on September 27, 2001. A total of 352 metals and their corrosion products were stabilized and packaged in accordance with the plutonium storage standard, DOE-STD-3013. Most items (298) were brushed and packaged as metal, and the remainder were thermally stabilized and packaged as oxides.

During 2001, the Department continued to examine ways to accelerate the remediation of all remaining nuclear materials requiring stabilization. In May 2001, NNSA's Office of Defense Programs directed LANL to re-baseline the scope, schedule, and budget for entire legacy inventory including the legacy programmatic items using project management principles and tools to ensure that the scope and schedule are adhered to. The re-baselining effort by the laboratory was completed in December 2001, and the results require NNSA approval prior to being incorporated in an implementation plan revision. The Department also instituted changes in the stabilization plans for plutonium and americium/curium materials at the SRS which have potential to accelerate the completion of those activities. In October 2001, the Department issued an amended record of decision to transfer the SRS americium/curium solution to the high-level waste system for vitrification in the Defense Waste Processing Facility. The Department also established the DOE-STD-3013 stabilization and packaging capability in FB-Line at SRS.

D. Executive Safety Conference

On December 11-12, 2001, Under Secretaries Robert Card and General John Gordon held an Executive Safety Conference in Washington, DC. The central theme of this senior management conference was *Taking ISM to the Next Level*. Over 200 Department and contractor executives, representing all Department offices, sites, and major contractors, participated in the conference. The conference featured presentations by industry experts and Department and contractor executives, break-out sessions to develop action plans, and de-briefings from the break-out sessions.

The Department's administration strongly endorsed ISM as a foundation of the Department's safety management strategy. The administration wants to see safety embraced as a core business value. A central Department safety objective is to achieve safety performance and reliability to enable reliable and efficient delivery of the Department's nuclear and high-hazard missions. Improvements are desired in a number of areas:

- safety performance, as measured by injury and exposure rates, and near misses;
- uptime reliability of high-hazard operations;
- reliability and costs of new high-hazard operations;
- public acceptance of the Department's ability to control and manage high-hazard operations; and
- understanding of how low and mid-hazard operations can become high-hazard operations.

Five main elements of the Department's safety strategy were defined as:

- improve Department line management of, understanding of, and responsibility for safety;
- improve safety considerations in the Department's management planning and decisions;
- improve holistic risk management and prioritization in safety improvements;
- improve contract management, measurement, and expectation communication; and
- improve oversight efficiency and effectiveness.

Under Secretaries Card and General Gordon requested senior Department and contractor management to undertake several initiatives to assist the Department in removing remaining barriers to the full implementation of ISM and achievement of excellence in safety management throughout the complex. A sample of the key initiatives that are being pursued as a result of the Executive Safety Conference is provided below:

- developing an integrated and risk-based planning approach for all oversight activities;
- implementing a system to identify and share lessons learned on contractor self-assessments programs;
- continuing the transition to a standards-based safety system;
- maintaining technical staffing plans for a five-year time horizon;
- developing a process that effectively identifies and resolves safety issues across the Department's complex before the safety issues result in significant events or recurrences;
- making available innovative business practices that address site-specific safety issues;
- maturing the existing processes for sharing lessons learned on continuous improvement and contract reform; and
- re-visiting the Conditional Payment of Fee Clause, which may be impeding risk-reducing work and discouraging potential contractors from accepting Department work.

E. Performance-Based Directives Review

The Department initiated a performance-based directives review in October 2001. The Department is preparing a comprehensive review of Department directives covering safety and other requirements. The objective of this review is to identify and eliminate overly-prescriptive requirements, including those overly-focused on process considerations instead of outcomes. The main focus is the Contractors Requirements Documents (CRD) within the directives; this is the section defining requirements for Department contractors. Where possible, the intent is to allow the use of industry standards rather than require contractors to use unique Department directives and standards. If successful, this effort will improve safety and efficiency by providing more focus on the essential requirements that will be retained.

Directives review teams were formed to include technical experts, stakeholders, and facilitators. The Department solicited comments from Department contractors on directives and requirements that should be considered for revision. The directives review teams performed analyses and made recommendations regarding the need to alter existing directives and requirements. Initial results indicate that many of the safety-related directives and requirements will be retained in their current form. However, several safety directives are being carefully considered for revision to improve the directive's focus and sharpen requirements toward performance-based outcomes. The Department expects decisions on the directives dispositions by April 2002, and completion of revised directives in due course in accordance with the Department's directives procedures as outlined in DOE O 251.1A, *Directives System Order*.

III. IMPLEMENTATION OF BOARD RECOMMENDATIONS

The Board issues recommendations to the Secretary on issues or circumstances that need to be resolved to ensure adequate protection of the public health and safety. The Secretary is required to respond to each Board recommendation within 45 days of publication of the recommendation in the *Federal Register*. In addition, the Secretary must submit an implementation plan to the Board within 90 days of the date that the Secretary's acceptance of the recommendation is published in the *Federal Register*. The Department's policy is to begin implementation plan development immediately after the recommendation is received and in parallel with the development of the Department's response as outlined in DOE M 140.1-1B, *Interface with the Defense Nuclear Facilities Safety Board*.

The Board has issued 42 recommendations to the Secretary since the Board was established in 1988. The Secretary has accepted 39 of the Board's recommendations in their entirety, and accepted the remainder with minor exceptions and clarifications. For each recommendation, the Secretary approved the Department's implementation plan. Thirty of the Board's recommendations are now closed. Twelve recommendations remain open, of which, the Secretary has proposed closure for three open recommendations. The Department is actively taking steps to resolve the safety issues in the remaining nine recommendations.

A. Recommendation Closures

The Department works to ensure that issues addressed in the Board's recommendations are resolved as described in the recommendation's associated implementation plan, and that the Department's implementation plan commitments are properly managed to closure. The Secretary proposes closure of recommendations when the implementation plan actions have been completed and the Department has institutionalized the implementation plan, so that future recurrence of the subject safety concern is unlikely. Closure reports typically provide the Department's basis for proposing closure of the recommendation and demonstrate that the Department has addressed all factors for institutionalizing the implementation plan:

- Departmental line management ownership of the safety issue and actions for resolution;
- clearly defined roles and responsibilities;
- engagement and attention of senior Departmental managers on the issue;
- incorporation and integration of issue resolutions into standard practices, procedures, and directives;
- continued funding at sufficient levels into the near future; and
- overall safety culture and mindset relative to the subject safety issue.

The Secretary sent a letter to the Board on November 13, 2001 proposing closure of recommendation 98-1, *Resolution of Safety Issues Identified by DOE Internal Oversight*.

Recommendation 98-1, Resolution of Safety Issues Identified by DOE Internal Independent Oversight

The Board issued recommendation 98-1 on September 28, 1998. The recommendation deals with the need for a systematic process for the disposition and resolution of the findings of the Department's internal, independent oversight organization. The Secretary accepted the recommendation on November 20, 1998, and approved the Department's implementation plan on March 10, 1999. The implementation plan identified specific actions to improve the Department's corrective action process, addressing the following elements: roles and responsibilities, issue/dispute resolution process, senior management involvement, contents of corrective action plans, tracking and reporting, and verification of corrective action effectiveness. The Department completed all implementation plan commitments as of September 2000. During 2001, the Corrective Action Management (CAM) program has been in the maintenance phase, having already completed the development/initial implementation phase.

As a result of the 98-1 implementation plan, the Department has developed a comprehensive and effective CAM program as demonstrated by the following points:

- a comprehensive and systematic corrective action program is now in place;
- clear lines of authority and responsibility have been established;
- a process and tool to track, report, and monitor corrective actions has been established;
- communications between line management and internal oversight has been enhanced;
- involvement of DOE line managers in approving and monitoring corrective action has been increased;
- follow-up on corrective actions by cognizant line managers has been improved; and
- quality, timeliness, accuracy, relevancy, and effectiveness of corrective actions have been improved.

The key accomplishments related to implementing and institutionalizing the Department's 98-1 implementation plan during 2001 are as follows:

- The Department continued operation of the Corrective Action Tracking System for Department-wide monitoring of the status of corrective actions in response to safety issues identified by oversight organizations.
- The Department continued issuance of the Secretary's Quarterly CAM Program Reports. CAM program reports have prompted senior management (including the Deputy Secretary) to ask questions and hold managers accountable for assessing and completing their corrective actions. This report has been discussed at senior management forums such as the Field Management Council and the field managers meetings. Comments from the Department's

senior managers have resulted in changes to the quarterly report to make this report more useful to senior managers. The Department's responsible line managers have provided Corrective Action Plans (CAPs) and Corrective Action Tracking System updates in a timely manner.

- The Department continued periodic meetings of the CAM Team to resolve program issues and to identify and implement program improvements. Recent improvements led by the CAM Team include automatic electronic notifications to applicable line managers of late CAPs and corrective actions past the CAP completion date, increased formal and informal follow-up activities with line management to ensure timely and accurate corrective action status, and upgrades to the Quarterly CAM Program Report.
- The Department briefed the Board on ISM, including the CAM program, at the Board's public meetings on February 22, 2001. In addition, the Department provided responses to follow-up questions from the Board's public meeting held on July 27, 2001.
- The Department revised DOE Guide 450.4-1B, *Integrated Safety Management Guide*, and DOE Guide 414.1-1A, *Management Assessment and Independent Assessment Guide*, to include detailed guidance for resolving oversight issues. The guides were issued on March 1, 2001, and May 31, 2001, respectively.

The 98-1 implementation plan was a Department-wide effort that required more than one year to execute and institutionalize. The plan was managed as part of the Department's ISM program. More than one year was required due to the need to assure that process changes had been adequately implemented and institutionalized as part of the ongoing safety management structure. The issues raised by recommendation 98-1 have been fully addressed. A clear basis for closure exists:

- The Department has completed all commitments and actions identified in its 98-1 implementation plan.
- The corrective actions have been fully institutionalized within the Department's management process.
- The safety issues raised in recommendation 98-1 have been resolved and confidence exists that they will remain resolved in the future.

B. Recommendations Previously Proposed for Closure

The Department proposed closure of two recommendations prior to 2001:

1. recommendation 94-1, *Improved Schedule for Remediation in the Defense Nuclear Facilities Complex*; and
2. recommendation 92-4, *Multi-Function Waste Tank Facility at the Hanford Tank Farms*

These two recommendations remain open.

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

The Secretary proposed closure of recommendation 94-1 in a June 8, 2000 letter to the Board. This recommendation addressed the hazards and risks involving the storage of nuclear materials within the Department's defense nuclear facilities complex. The most urgent safety issues described in the recommendation have either been corrected or had compensatory measures put in place to protect workers and the public until stabilization can be completed.

In January 2000, the Board issued recommendation 2000-1 to reemphasize the urgency the Board places on remaining nuclear material stabilization activities. The Department views the scope of the 2000-1 recommendation as essentially the same as the remaining recommendation 94-1 activities. In the Department's 2000-1 implementation plan, the Department included all remaining 94-1 activities. Accordingly, with the approval and delivery of the 2000-1 implementation plan in June 2000, the Secretary proposed closure of recommendation 94-1 to the Board. This recommendation remains open while the Board monitors progress on 2000-1 plan implementation.

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

The Secretary proposed closure of recommendation 92-4 in a December 16, 1998 letter to the Board. This recommendation addressed safety issues at the Tank Waste Remediation System (TWRS) Multi-Function Waste Tank Facility (MWTF) project at the Hanford Site. The recommendation identified three areas of concern:

- project management structure;
- design bases (systems engineering) for MWTF; and
- technical and managerial competence.

In developing an implementation plan to address these issues, the Department expanded the scope of its response to apply an integrated systems approach to define, plan, control, and execute the overall Hanford mission. While implementing this approach, the Department re-

evaluated the need for the MWTF project, canceled the project, and altered other TWRS projects. The Department completed 38 plan milestones, including all program management and site systems engineering commitments, in the first implementation plan and all milestones in revision 1 to the 92-4 implementation plan. The final implementation plan deliverable was completed and provided to the Board in July 1998.

The 92-4 implementation plan required more than one year to complete due to the magnitude of applying systems engineering principles to projects at the Hanford Site. This recommendation remains open due to continuing concerns on the part of at least one Board member. The Board has identified no additional activities it believes the Department needs to take in relation to the safety issues of this recommendation.

C. New Recommendation and Implementation Plan

In 2001, the Department accepted one new recommendation from the Board: recommendation 2001-1, *High-Level Waste Management at the Savannah River Site*.

Recommendation 2001-1, High-Level Waste Management at the Savannah River Site

The Board issued recommendation 2001-1 on March 23, 2001. The recommendation addressed the margin of safety and maintenance of the amount of tank space in the SRS High-Level Waste (HLW) system to enable timely stabilization of nuclear materials.

The Secretary accepted the recommendation on May 18, 2001, and provided an initial 2001-1 implementation plan. The Board amplified its expectations for this recommendation in a May 24, 2001 letter to the Secretary. The Secretary approved revision 1 to the 2001-1 implementation plan on September 14, 2001; the Board accepted it on October 1, 2001.

The Department made significant progress in 2001 in executing the 2001-1 implementation plan. Eight of the seventeen milestones in the plan were completed in 2001, and are highlighted as follows:

- Pump Tank 6 to below the lowest known leak site. The Department completed an initial transfer of 40,000 gallons of liquid from Tank 6 into Tank 8 on March 27, 2001. In addition, the Department finished lowering the level in Tank 6 to below the lowest known leak site on May 30, 2001.
- Pump Tank 5 to below the lowest known leak site. The Department lowered the waste level below the lowest known leak site on July 30, 2001, by pumping the material to Tank 46.
- The Department has identified a preferred technology for salt processing. The Salt Processing Alternatives Supplemental Environmental Impact Statement was issued in July 2001 and presents the Department's preferred technology selection along with the basis for the selection.

- The Department has issued a Record of Decision (ROD) on salt processing alternatives. The Assistant Secretary for Environmental Management signed the ROD for salt processing alternatives on October 9, 2001; it was published in the *Federal Register* on October 17, 2001.
- The Department briefed the Board on the preferred salt processing technology and schedule on June 30, 2001.
- The Department has issued the Salt Waste Processing Facility Request for Proposals (RFPs) for up to two Engineering, Procurement, and Construction contractor(s). The Department issued the RFPs on December 5, 2001.
- The Department has returned the 2H evaporator to service. The Manager of SR sent a memorandum to the contractor president on October 5, 2001, that approves restart of the 2H evaporator based on the results of the Department's operational readiness review and SR's review of facility readiness. The memorandum included an authorization agreement for resumption of HLW feed material into the 2H evaporator.
- The Department provided a progress briefing to the Board at SRS on November 13, 2001.
- The Department has returned Tank 49 to HLW service. The revised authorization basis was implemented and Tank 49 was available for HLW service on October 11, 2001.

This implementation plan is expected to take more than one year to complete due to the associated assessments, construction, and project work required to fully meet the plan commitments. The Department estimates completion of all actions and milestones for the 2001-1 implementation plan in 2003.

D. Other Active Implementation Plans

Recommendation 2000-2, Configuration Management, Vital Safety Systems

The Board issued recommendation 2000-2, *Configuration Management, Vital Safety Systems*, on March 8, 2000. This recommendation addressed the degrading condition of vital safety systems at the Department's defense nuclear facilities and the Department's capability to apply engineering expertise to maintain the configuration of these systems. Specifically, the recommendation identified possible degradation in confinement ventilation systems and noted the Department's lack of designating system engineers for systems and processes that are vital to safety.

The Secretary accepted the recommendation on April 28, 2000. The Board amplified the intent of recommendation 2000-2 in a letter to the Secretary on September 8, 2000. The letter expanded the term vital safety system, as used within the 2000-2 implementation plan to include safety-class systems, safety-significant systems, and other systems that perform an important defense in depth safety function. The Secretary provided the 2000-2 implementation plan to the Board on October 31, 2000, and assigned the Office of Environment, Safety and Health's (EH)

Principal Deputy Assistant Secretary with providing leadership for plan implementation. The key accomplishments in accordance with implementing the Department's 2000-2 implementation plan during 2001 are as follows:

- The Department initiated Phase I assessments and issued guidance and criteria to ensure consistent results on January 23, 2001, through use of a Criteria Review and Approach Document (CRAD).
- The Department initiated operability assessments of vital safety systems at certain key facilities listed in the 2000-2 implementation plan. The Department identified and prepared a list of vital safety systems for all sites and conducted Phase I assessments of safety class, confinement ventilation, and fire protection systems at the priority defense nuclear facilities. The vital safety system lists and the Phase I assessment results were released in March 2001.
- The Department established expectations for System Engineer Programs at the Department's defense nuclear facilities to designate system engineers for vital safety systems.
- The Department evaluated the option of consolidating the Filter Test Facility and the Qualified Products List Laboratory and determined that the consolidation is neither critical nor cost-effective.
- The Department reviewed Environment, Safety, and Health (ES&H) assessments conducted during the 2000 calendar year. Notice 231.1, *Environment, Safety and Health Reporting Notice*, was issued to institutionalize the Lead Program Secretarial Officer's annual reviews of ES&H assessments.
- The Department developed assessment criteria and guidelines to determine the condition of confinement ventilation systems.
- The Department initiated a revised draft DOE O 420.1, *Facility Safety* to incorporate the establishment of requirements for a system engineer concept to manage the configuration of systems designated as important to safety. The draft order has been submitted into the directives review process.
- The Department developed a plan for conducting a comprehensive study that provides an in-depth evaluation of the Department's capability to respond to wildfires and emphasizes facility fire safety.
- The Department completed Phase I assessments of all vital safety systems at the Department's defense nuclear facilities. Phase I assessments provided an initial evaluation of operational readiness of vital safety systems.
- The Department assembled teams to begin Phase II assessments. The first Phase II assessments were conducted at the New Waste Calcining Facility and the Irradiated Fuel Storage Facility in Idaho. Other Phase II assessments have been completed and are ongoing.

The Department is finalizing the scope of Phase II assessments on select safety systems. Phase II assessments provide a detailed evaluation of operational readiness.

The 2000-2 implementation plan is a Department-wide effort that requires more than one year to execute and institutionalize due to the complex and widespread actions necessary to fully meet all commitments outlined in the plan. The Department estimates completion of all actions and commitments for the 2000-2 implementation plan in 2002.

Recommendation 2000-1, Stabilization and Storage of Nuclear Material

The Board issued recommendation 2000-1, *Stabilization and Storage of Nuclear Material*, on January 14, 2000. The recommendation addressed the urgency of completing nuclear material stabilization activities that the Department previously agreed to under the implementation plan for recommendation 94-1. Recommendation 2000-1 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 environment.

On March 13, 2000, the Secretary accepted nine of the sub-recommendations dealing specifically with the technical aspects of the Department's material stabilization plans, but did not accept the two sub-recommendations directed at funding requirements. The Secretary approved the implementation plan on June 8, 2000, and assigned implementation leadership to EM's Deputy Assistant Secretary for Integration and Disposition. On July 14, 2000, the Board accepted the implementation plan for stabilization activities at the Hanford Site, RF, Lawrence Livermore National Laboratory (LLNL), and Oak Ridge National Laboratory (ORNL). The Board expressed concern with regard to plans at LANL and certain material types at SRS. The Board encouraged the Department to accelerate remediation and stabilization activities at these sites.

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. Revision 1 of the 2000-1 implementation plan was provided to the Board on January 19, 2001, to reflect changes in the schedule for stabilization activities at LANL as outlined in the June 2000 plan and consistent with the Board's July 2000 letter.

The key accomplishments in accordance with implementing and institutionalizing the Department's 2000-1 implementation plan during 2001 are as follows:

- The Department completed the Department/Tennessee Valley Authority Interagency Agreement for the Off-Specification Fuel Program. The Interagency Agreement was approved on April 5, 2001.

- The Department began dissolution of RF scrub alloy at SR. Stabilization processing of the RF scrub alloy began on March 22, 2001, and the dissolution phase was completed on September 6, 2001.
- The Department completed the process of refreshing and transferring the high-enriched uranium solution at SR to a double-walled tank on July 12, 2001.
- The Department started packaging metal oxide into DOE Standard 3013 containers at RF and completed the first DOE Standard 3013 can packaging with plutonium stabilization and packaging system on June 14, 2001.

The 2000-1 implementation plan requires more than one year to complete due to the technical complexity and diversity of material requiring stabilization at affected defense nuclear sites. The Department estimates completion of all actions and milestones for the 2000-1 implementation plan in the year 2010.

Recommendation 99-1, Safe Storage of Fissionable Material Called “Pits”

The Board issued recommendation 99-1, *Safe Storage of Fissionable Material Called “Pits,”* on August 11, 1999. The recommendation addressed issues associated with ensuring the long-term safety of pits, either those held for potential future national security purposes or those identified as surplus to national security needs.

The Secretary accepted recommendation 99-1 on October 12, 1999. The Secretary approved the implementation plan on February 1, 2000, and assigned implementation leadership to the Assistant Deputy Administrator for Military Application and Stockpile Operations in NNSA’s Office of Defense Programs.

The Department made significant progress towards the completion of the milestones identified in the implementation plan. Eight of the nine milestones have been met. The Department expects to complete the remaining milestone by the end of the first quarter of the 2002 calendar year. The key accomplishments in accordance with implementing and institutionalizing the Department’s 99-1 implementation plan during 2001 are as follows:

- The Department reduced long-term risks by repackaging 2,328 pits during 2001.
- The Department delivered AL-R8 Sealed Insert Pit Repackaging Reports quarterly to the Board.

The 99-1 implementation plan requires more than one year to complete due to the magnitude of the effort. The Department has completed all plan milestones, except for periodic briefings. Pit repackaging is proceeding as planned. The Department anticipates proposing closure of this recommendation in 2002.

Recommendation 98-2, Safety Management at the Pantex Plant

The Board issued recommendation 98-2, *Safety Management at the Pantex Plant* on September 30, 1998. The recommendation addressed the need to accelerate safety improvements for nuclear explosive operations at the Pantex Plant. Recommendation 98-2 represents a combination of issues raised in prior Board recommendations and issues by staff observations of Pantex activities.

The Secretary accepted recommendation 98-2 on November 20, 1998. The Secretary approved the implementation plan and provided it to the Board on April 22, 1999. Leadership for implementation was assigned to the Deputy Assistant Secretary for Military Application and Stockpile Management. The implementation plan was revised and provided to the Board on September 25, 2000. Revision 1 introduced a fundamental change in the Department's approach by increasing the focus and priority in making safety improvements applicable to multiple nuclear weapon processes. The Department continues to apply the concepts of Seamless Safety for the 21st Century (SS-21) to individual weapon processes in accordance with the schedules established. However, the Department believes major safety improvements can be gained by focusing on improved engineered controls applicable to multiple weapon programs and processes. Thus, the Department can achieve tangible improvements in safety on a near-term basis, allowing weapon project teams to focus on further eliminating or reducing hazards through process redesign, as required.

The Department continues to take active steps to complete the milestones in the 98-2 implementation plan. Sixteen of the twenty-nine milestones have been met. The key accomplishments in accordance with implementing the Department's 98-2 implementation plan during 2001 are as follows:

- On January 30, 2001, the Department revised and published the Development & Production Manual, Chapter 11.8, "Integration of Weapon Response into Authorization Bases at the Pantex Plant". Appendix A, "Evaluation and Documentation of Weapon Response Information" was developed by a cross-organizational team including members from the laboratories, the Pantex Management & Operating (M&O), Contractor, and the Department, and incorporated into the manual. The Pantex M&O Contractor completed its Technical Business Practice impact analysis and concluded that the requirements of the Development & Production Manual, Chapter 11.8, Change 39, have been implemented through MNL-254543, *Pantex Plant Integrated Safety Management Authorization Basis Manual*.
- On January 30, 2001, the Department completed an assessment of the unreviewed safety question (USQ) process to assess the adequacy of the Pantex M&O actions and the effectiveness of the USQ process used at the Pantex Plant upon the completion of the transition of the USQ process to line management and personnel.

- On January 31, 2001, the Department completed revision 2 of the ISM Authorization Manual to include additional guidance on the integrations of fire hazard analysis and tooling failure analyses.
- On August 23, 2001, the Department completed the revised Transportation Cart Plan.

The 98-2 implementation plan requires more than one year to complete due to the magnitude and complexity of the changes. Some of the changes are cultural in nature: they relate to long-term, deep-rooted assumptions and ways to do business. The Department currently estimates completion of all actions and milestones for the 98-2 implementation plan in 2003.

Recommendation 97-2, Criticality Safety

The Board issued recommendation 97-2, *Criticality Safety*, on May 19, 1997. This recommendation outlined the Board's vision for a robust criticality safety infrastructure within the Department and suggested specific actions necessary to achieve this vision. The specific actions would start with the foundation established by the Department in response to the Board's recommendation 93-2, *The Need for Critical Experiment Capability*. In addition, recommendation 97-2 raised issues related to assuring that criticality safety is effectively and efficiently addressed in current and future operations.

The Department accepted the recommendation on July 14, 1997. The Secretary approved the 97-2 implementation plan and provided it to the Board on December 12, 1997. Implementation leadership was assigned to the Assistant Secretary for Defense Programs. The Department began executing the plan in January 1998 by formally establishing the Nuclear Criticality Safety Program (NCSP). The NCSP consist of seven NCSP tasks:

- Critical Experiments;
- Benchmarking,;
- Analytical Methods;
- Nuclear Data,;
- Training and Qualification;
- Information Preservation and Dissemination; and
- Applicable Ranges of Bounding Curves and Data.

Each task is dependent upon the others for a successful program.

As of April 2001, the Department has completed all 30 of the milestones in the 97-2 implementation plan. Although all plan milestones are complete, stability of funding for the

NCSP is a primary concern. The NCSP Management Team is working with affected program offices to institutionalize and stabilize funding support for the NCSP.

The key accomplishments in accordance with implementing and institutionalizing the Department's 97-2 implementation plan during 2001 are as follows:

- The Department completed the final action of the implementation plan, which required the Department's field elements to provide line management dates for contractor's final implementation of qualification programs. This action was completed in April 2001.
- The Department, through the NCSP Management Team, reviewed the NCSP in detail, validated the program requirements, and updated the Five-Year Program Plan accordingly to include the basis for establishing an appropriate level of support for the NCSP.
- Acquisition of nuclear cross-section data continued at the Oak Ridge Electron Linear Accelerator. Capture and transmission measurements for potassium and fluoride commenced, and evaluations for other isotopes were updated.
- The Department continued training efforts through the NCSP. Hands-on criticality safety training continued at LANL.
- The Department continued to improve the NCSP web site, which is maintained at LLNL.

With the establishment of the NNSA in 2000, execution of the 97-2 implementation plan is under the leadership of the Assistant Deputy Administrator for Research, Development, and Simulation in NNSA's Office of Defense Programs. This plan required more than one year to complete due to the magnitude and scope of the actions. The Department estimates completion of institutionalizing of the plan in 2002. The Department expects to propose closure of recommendation 97-2 during 2002.

Recommendation 97-1, Safe Storage of Uranium-233

The Board issued Recommendation 97-1, *Safe Storage of Uranium-233* on March 3, 1997. The recommendation addressed safety issues for storing the existing inventories of unirradiated uranium-233 bearing materials. The Department accepted the recommendation on April 25, 1997. The Secretary approved the implementation plan and provided it to the Board on September 29, 1997. The Secretary assigned leadership of plan implementation to a Task Team reporting to the Department's Assistant Secretaries for Defense Programs and Environmental Management.

The Department has an inventory of approximately two metric tons of uranium-233 in many different chemical and physical forms, and stored under a variety of conditions throughout the complex. The largest quantities are ORNL and the Idaho National Engineering and

Environmental Laboratory (INEEL), with lesser quantities at LANL. Smaller quantities exist at numerous other sites. Some of the uranium-233 bearing material is managed under the Department's National SNF Program and the 2000-1 implementation plan.

The Department has completed all milestones in its 97-1 implementation plan as of July 1999. The last milestone, which was the development of the Program Execution Plan (PEP), was completed in July 1999 and documents the Department's plans to continue the efforts under the uranium-233 safe storage program.

In November 2001, the Department released a draft RFP for a private contract to extract thorium from the uranium-233 material at ORNL for medical use. Issuance of a final RFP was later placed on hold pending submission of a detailed project plan to Congress. The Department expects to provide this plan in April 2002.

The Department uses a systems engineering approach to manage the actions under the PEP and to institutionalize the 97-1 implementation plan. This includes the consideration of long term options for the uranium-233 inventory such as long term storage, disposition as excess materials, and possible beneficial use.

The key accomplishments in accordance with institutionalizing the Department's 97-1 implementation plan during 2001 are as follows:

- The Department completed the operational readiness review for the inspection and repackaging work at ORNL Building 3019 in July 2001. There were 13 pre-start findings and 6 post-start findings as a result of the review. All findings were resolved to allow the inspections to start.
- In October, 2001, the Department commenced pulling packages containing uranium-233 material from tube vaults in Oak Ridge Building 3019. No corrosion or evidence of any leakage from the packages has been noted.
- The Department initiated efforts to update to the PEP to reflect:
 - the development of a RFP for a private contract to extract thorium from the uranium-233 material at ORNL;
 - schedule changes for the inspection and repackaging work at ORNL Building 3019; and
 - the Department's Office of Nuclear Energy's involvement in beneficial use of the materials for medical research work.

The 97-1 implementation plan required more than one year to execute due to the complexity of the actions. All milestones in the implementation plan have been met as of July 1999. The Department expects to propose closure of recommendation 97-1 in 2002.

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

The Board issued recommendation 96-1, *In-Tank Precipitation System at the Savannah River Site* on August 14, 1996. The recommendation addressed concerns at the In-Tank Precipitation (ITP) 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.

The Secretary accepted recommendation 96-1 on September 16, 1996. The Secretary approved the 96-1 implementation plan and provided it to the Board on November 12, 1996. Leadership was assigned to the Assistant Manager for HLW at SR.

ITP is the process step in the vitrification of unstable hazardous radioactive and chemical liquid wastes that precipitates the highly radioactive salt fraction of liquid HLW to allow for vitrification of the wastes by the Defense Waste Processing Facility (DWPF). ITP began operations in September 1995, treating the first batch of high-level waste with sodium tetraphenylborate (TPB) to precipitate cesium and sodium titanate to adsorb uranium, plutonium, and strontium. Benzene in quantities greater than expected was first observed on December 1, 1995, following several startup tests of the slurry pumps, prior to sampling the tank. Since December 1995, the Department has been performing analysis and testing to better understand the observed benzene phenomenon.

Chemistry test program results have determined that TPB breaks down into intermediate products, producing benzene as each product decomposes. Certain waste components accelerate the decomposition reaction. Test results have indicated that benzene generation rates produced from decomposition reactions will cause benzene release rates to exceed the capacity of current plant hardware/systems. Not only does sodium TPB decompose, but potassium and cesium TPB can also decompose rapidly under certain conditions, threatening the ability to maintain the salt solution until prepared for vitrification processing at DWPF.

In January 1998, it was concluded that high benzene generation rates and precipitate solids instability would not support the ITP process as designed. As a result, the Department suspended ITP restart preparations pending the outcome of a system engineering evaluation of potential options for removing cesium from stored HLW solutions. The Westinghouse Savannah River Company (WSRC) completed the alternatives evaluation in November 1998. However, SR concluded that additional research and development (R&D) was required to address uncertainties associated with the final "short list" alternatives before a preferred alternative could

be selected. The additional R&D was completed in October 1999, but there were still significant technical uncertainties associated with the cesium-removal technologies.

In December 1999, SR recommended to the Department's Assistant Secretary for Environmental Management that additional R&D be performed to resolve the key technical uncertainties with the cesium-removal technologies until a preferred alternative with a high probability for success can be selected. In March 2000, an action plan was approved and issued describing the management approach for performing additional R&D and for developing and applying criteria to support selection of a preferred alternative(s).

The Department's key accomplishments in accordance with implementing the 96-1 implementation plan for 2001 are as follows:

- The Department completed the additional R&D and a preferred alternative was selected in June 2001.
- The Department issued a ROD in August 2001 to document the preferred alternative selection.

The 96-1 implementation plan required more than one year to complete due to the scope and magnitude of the research required to assess the safety issues. The 96-1 implementation plan, however, has been overcome by events: the Department is no longer pursuing ITP operations. For this reason the Department does not intend to complete or revise the remaining actions in the 96-1 plan. The Department expects to propose closure of recommendation 96-1 in 2002.

Recommendation 95-2, Integrated Safety Management (ISM)

Recommendation 95-2 called for: (1) an institutionalization process for ensuring environment, safety, and health requirements are met; (2) graded safety management plans for the 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 implement the streamlined process effectively.

The Secretary accepted the recommendation on January 17, 1996. The Secretary approved the implementation plan and provided it to the Board on April 18, 1996. Leadership was assigned to the Under Secretary of Energy, who created a Safety Management Implementation Team to implement the plan. The Department's 95-2 implementation plan describes the Department's approach for implementing these recommendations. The Department completed all implementation plan commitments between 1996 and 1998.

Key activities for 2001 are summarized below:

- The Department made significant progress in implementing ISM in 2001. The few remaining field offices that had not reported completion of initial ISM implementation in 2000, completed this milestone in 2001. Almost all sites completed an annual review of their

ISM program implementation and approval annual updates to their ISM system descriptions. The year 2001 clearly marked the transition from the development-initial implementation phase of ISM to the sustenance-maintenance phase of ISM, with the field and program offices having clear leadership.

- In February 2001, the Department participated in a public meeting chaired by the Board on the subject of ISM. Senior Department officials provided public testimony.
- In April 2001, the Department verified completion of initial implementation of ISM at LANL.
- In May 2001, the Department approved an update to DOE M 411.1B, *Safety Management Functions, Responsibilities, and Authorities Manual*. This Manual outlines the corporate-level functions, responsibilities, and authorities for Department organizations responsible for the overall direction of ISM systems throughout the Department's complex. Program office and field office implementing manuals have been completed by all organizations except NNSA and EH.
- In June 2001, the Department completed follow-up reviews for verifying completion of initial implementation of ISM at NV.
- In August 2001, the Department provided a report required by a May 2001 Board letter. This report addressed follow-up Board questions from the February 2001 Board public meeting on ISM as well as requested information on roles and responsibilities within EM and NNSA.
- In October 2001, the Oak Ridge Operations Office (OR) Manager revoked the September, 2000, ISM declaration of both the OR and a prime contractor, Bechtel Jacobs, Inc., and directed that ISM re-verification was needed after improvement were made. This is a significant self-policing action for maintaining the integrity of ISM system implementation.
- In November 2001, the Department verified completion of initial implementation of ISM at the Y-12 Area Office (YAO) at Oak Ridge.
- In December 2001, the Department held a 2-day Executive Safety Conference with over 200 Department and contractor executives to discuss improvements in implementing safety management and to take the ISM program to the next level.
- In December 2001, the Department performed an evaluation of the adequacy of ongoing ISM annual reviews and updates. The detailed results of this evaluation were reported to the Board in January 2002.

The Department has completed development and initial implementation of ISM. The ISM program has been institutionalized, and is now in sustenance/maintenance phase, where continuous improvement is expected. As reported in the 1996 Annual Report to Congress, the Department's 95-2 implementation plan required more than one year to implement due to the magnitude of the fundamental changes involved in the Department's approach to safety

management. ISM systems are now in place throughout the defense nuclear complex. This recommendation is fully implemented and is ready for closure. Closure of this recommendation would demonstrate support for the ISM fundamental principle that "line management is responsible for safety."

E. Report on Implementation Plans Requiring More Than One Year

When 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 the recommendation implementation plan. To monitor the Department's performance in completing implementation plans, Congress included a provision in the Board's enabling legislation that requires the Department to notify Congress whenever the Department requires more than one year to complete a recommendation implementation plan. 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 recommendation implementation plans. 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 makes 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 Chapter 21, Section 315 of the Atomic Energy Act of 1954 [42 U.S.C. § 2286d (f)(1)], the following active implementation plans are expected to require or have already required more than one year to complete:

- 92-4, Multi-Function Waste Tank Facility at Hanford¹
- 94-1, Improved Schedule for Remediation¹
- 95-2, Safety Management¹
- 96-1, In-Tank Precipitation System¹
- 97-1, Safe Storage of Uranium-233¹
- 97-2, Criticality Safety¹
- 98-1, Resolution of Internal Oversight Findings¹
- 98-2, Safety Management at the Pantex Plant¹
- 99-1, Safe Storage of Pits at the Pantex Plant¹
- 2000-1, Stabilization and Storage of Nuclear Material¹

¹ Previously reported to require more than one year to implement.

- 2000-2, Configuration Management, Vital Safety Systems¹
- 2001-1, High-Level Waste Management at the Savannah River Site

G. Categorization of Board Recommendations

There are several ways to categorize Board recommendations. These categories provide insight into the types of safety issues the Department is addressing and the schedules for issue resolution. The main categories are as follows:

- scope of organizations involved;
- lead implementation organization; and
- progress towards completion of implementations.

Scope of Organizations Involved

Recommendations vary in the scope of organizations involved and are categorized as:

- Department-wide;
- multiple-sites/multiple-organizations; and
- single-site/single-organization.

In general, the more organizations that are involved in executing a recommendation implementation plan, the more complex and time-consuming the resolution is. Department-wide recommendations are most likely to involve complex management and coordination efforts, which lengthen the time required for implementation and institutionalization. In addition, Department-wide recommendations are more likely to involve management culture changes, which require more time and attention to assimilate. Single-site recommendations are often of a more technical nature, which require less time for implementation. However, when extensive research, development, construction, and project work are required to resolve safety issues at single-sites, implementation time is lengthened. Complex-wide recommendations often involve management issues and also often require cultural and process changes. Again, implementation of these recommendations may require more time due to the complexity of the changes. Tables 3.A - 3.C show the scope of organizations involved for open Board recommendations and recommendations closed over the past three years.

Table 3.A - Department-Wide Recommendation

Open Recommendations	Closed Recommendations (1999-2001)
2000-2, Configuration Management, Vital	94-5, Rules, Orders, and Other

Safety Systems	Requirements
2000-1, Stabilization and Storage of Nuclear Material	94-2, Safety Standards for Low Level Waste
98-1, Resolution of Safety Issues Identified by Internal Independent Oversight	93-3, Improved Technical Capability
95-2, Safety Management	
94-1, Improved Schedule for Remediation	

Table 3.B - Multiple-Site/Multiple-Organization Recommendations

Open Recommendations	Closed Recommendations (1999-2001)
97-2, Criticality Safety	93-6, Maintaining Access to Nuclear Weapons Expertise
97-1, Safe Storage of Uranium-233	93-1, Standards Utilization at Defense Nuclear Programs

Table 3.C - Single-Site/Single-Organization Recommendations

Open Recommendations	Closed Recommendations (1999-2001)
2001-1, High-Level Waste Management at the Savannah River Site	95-1, Improved Safety of Cylinders Containing Depleted Uranium (Oak Ridge)
99-1, Safe Storage of Pits at the Pantex Plant	94-4, Deficiencies in Criticality Safety at Oak Ridge Y-12
98-2, Safety Management at the Pantex Plant	94-3, Rocky Flats Seismic and Systems Safety
96-1, In-Tank Precipitation Facility (Savannah River)	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. Table 3.D, 3.E, and 3.F show the lead organization for open recommendations managed from Department headquarters.

Table 3.D - Lead Organization: Environmental Management

Open Recommendations
2001-1, High-Level Waste Management at the Savannah River Site
2000-1, Stabilization and Storage of Nuclear Material
97-1, Safe Storage of Uranium-233
96-1, In-Tank Precipitation Facility (Savannah River Operations Office)
94-1, Improved Schedule for Remediation
92-4, Multi-Function Waste Tank Facility at Hanford

Table 3.E - Lead Organization: National Nuclear Security Administration

Open Recommendations
99-1, Safe Storage of Pits at the Pantex Plant
98-2, Safety Management at the Pantex Plant
97-2, Criticality Safety

Table 3.F - Lead Organization: Other Headquarters Organizations

Open Recommendations
2000-2, Configuration Management, Vital Safety Systems (Office of Environment, Safety and Health)
98-1, Resolution of Internal Oversight Findings (Office of the Deputy Secretary)
95-2, Safety Management (Office of the Deputy Secretary)

Progress Toward Completion of Implementation Plans

Implementation plans with long-term completion schedules involve more uncertainty than those with shorter completion schedules. 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 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 cannot be known with certainty several 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 Congress envisioned for typical implementation plan completion. Table 3.G, 3.H, and 3.I show the status of implementation plans based on anticipated completion dates.

Table 3.G - Implementation Plans with all Commitments Complete

Open Recommendations
98-1, Resolution of Oversight Findings
97-2, Criticality Safety
97-1, Safe Storage of Uranium-233
95-2, Safety Management
94-1, Improved Schedule for Remediation
92-4, Multi-Function Waste Tank Facility at Hanford

Table 3.H - Implementation Plans with Projected Completion Dates in 2002

Open Recommendations
96-1, In-Tank Precipitation Facility at Savannah River
99-1, Safe Storage of Pits at the Pantex Plant
2000-2, Configuration Management, Vital Safety Systems

Table 3.I - Implementation Plans With Projected Completion Dates After 2002

Open Recommendations (Projected Completion)
2001-1, High-Level Waste Management at the Savannah River Site (2003)
2000-1, Stabilization and Storage of Nuclear Material (2010)
98-2, Safety Management at the Pantex Plant (2003)

IV. SAFETY ACCOMPLISHMENTS AND ACTIVITIES AT MAJOR DEFENSE NUCLEAR SITES

A. Albuquerque Operations Office (AL)

AL continues to work with its respective sites (including Pantex, Los Alamos, Kirtland, and Kansas City) to provide guidance on the continued implementation of ISM as well as continuous oversight of their progress. Though all AL sites have completed the verification process, they are still expected to continue to enhance their ISM programs and continue to demonstrate improved performance.

All AL defense nuclear sites are adhering to AL supplemental directive AL 450.4-1A, *Maintaining Approved Integrated Safety Management System Descriptions*. All AL sites have completed annual updates to their ISM system descriptions of the calendar year with the exception of the LANL, which completed its initial ISM verification within the last 12 months. The status of ISM implementation at each AL defense nuclear organization is as follows:

- Kirtland Area Office declared its initial ISM implementation to be accomplished in July 2000. Sandia National Laboratories (SNL) updated their ISM system description on October 31, 2001. Kirtland approved and transmitted the annual update to AL in December 2001. Their transmittal included a summary of formal assessments performed by Kirtland that included ISM as a functional area, as well as on-going facilitation team activities.
- The Pantex Plant was initially verified in November 2000. In November 2001, the Amarillo Area Office transmitted an updated ISM system description as well as the 2001 fiscal year Self-Assessment Report to AL.
- Initial verification of the LANL ISM system was completed in April 2001. AL did not require an annual update this year due to the recentness of the LANL verification. Subsequent to the verification, AL issued a memorandum that documented expectations regarding the final destination for ISM at LANL. The memorandum included interim milestones for LANL to pursue.
- The annual update for the Kansas City Plant ISM system description was approved by the Kansas City Area Office in November 2001. Honeywell Federal Manufacturing and Technologies ES&H Management Plan Appendix E included a description of various reviews related to the implementation of ES&H. The descriptions included significant third party reviews (for example, Voluntary Protection Program (VPP) and International Standards Organization), a summary of self-assessments, as well as a description of changes and updates to their ISM system.

- The ISM system for the Office of Transportation Safeguards was initially verified in November 2000. Throughout the past year, this office has been working with relevant organizations to establish an authorization basis that adequately captures their operations. This office submitting their annual update at the end of 2001.

AL and site office personnel have monitored the implementation of the contractor's safety programs through oversight activities such as facility representative field observations, focused ES&H reviews, and readiness reviews. Additionally, implementation is monitored in interactions with contractor personnel during periodic contract performance reviews to provide additional assurance that work is being conducted safely.

The Office of Las Alamos Site Operations and LANL partnered in the following:

- development of improved measures of performance that will drive ISM to a higher level of acceptance and implementation; and
- development of detailed guidance documents for the review and approval of safety basis documents and for implementing the USQ process.

The Office of Amarillo Site Operations partnered with BWXT to complete the following:

- fire protection upgrade to enable automatic ultra-violet activation of deluge fire protection systems in nuclear explosive operating areas;
- achieving the integrated scheduling of safety programs and authorization basis upgrades into an interagency workload; and
- achieving significant acceleration in the repackaging of pits into sealed insert containers.

AL encourages each AL site office to take credit for their ongoing oversight of the contractor that occurs throughout the year. For example, the Kirtland Site Operations Office leads a facilitation team, which includes members from Kirtland, AL, and SNL, that meets at least monthly to discuss ISM-related issues. This team also periodically scores ISM performance. Kirtland has a formal team review the revised ISM system description, but they did not constitute a formal team to just review the annual submittal. Instead the Kirtland facilitation team concentrated on comparing the contractor's assessment of their performance to the data that was collected throughout the year.

In addition to ongoing oversight processes, each AL site prepares a Performance Analysis Matrix that depicts performance in key ES&H areas, including ISM. Ratings (i.e., red, yellow, or green, with arrows to capture performance trends) are developed based on documented performance and perceived risk. Areas for the annual Contractor Performance Assessment Program review are selected based on these ratings (the review focuses on poor or deteriorating performance). The results of the assessment are then captured in a revised matrix.

B. Carlsbad Field Office (CB)

The Waste Isolation Pilot Plant (WIPP) has maintained a world-class safety culture in transuranic (TRU) waste operations. The following are major initiatives and accomplishments during calendar year 2001:

- The WIPP received, handled, and disposed of over 10,000 drum-equivalents of TRU waste with excellent safety records. In March 2001, a Senator of New Mexico presented a congratulatory award to the WIPP staff for accomplishing two million worker-hours without a lost time accident.
- A best-selling business book recognized the safety culture created at the WIPP as “the worldwide standard for safety practices.” The book entitled “*Best Practices in Organization Development and Change Handbook*,” published in 2001 by Jossey-Bass of San Francisco, recognized best practice initiatives from “the world’s foremost organizations in various industries.”
- During 2001, the WIPP received its 15th consecutive Mine Operator of the Year award from the New Mexico Mining Association, along with the Certificate of Merit and the Safety Excellence Award from the New Mexico Inspector of Mines. The Department’s VPP also recognized the WIPP M&O Contractor, Westinghouse TRU Solutions LLC for its ongoing safety performance with the “Superior Star” award in August 2001. To qualify for the Superior Star award, a site must have injury and, or illness incidence rates and lost workdays due to injury and, or illness at least 50 percent below the Bureau of Labor statistical average for similar industries and continue to meet all annual VPP goals.
- In May 2001, the WIPP completed Phase I assessments of eight vital safety systems in support of the Department’s 2000-2 implementation plan.
- In December 2001, the WIPP completed a Phase II assessment of the WIPP Waste Handling Building Heating, Ventilation, and Air Conditioning system. These assessments verified the effectiveness of configuration management and the operational readiness of vital safety systems at the WIPP. No deficiencies were identified.

C. Idaho Operations Office (ID)

INEEL has met all of the INEEL specific commitments of the Department’s 2000-2 implementation plan. These included identifying all vital safety systems at INEEL defense nuclear facilities and conducting Phase I assessments of these systems. Phase I assessments included reviews of the system configuration management, current functional capability, upkeep, and understanding of the systems function as defined in the safety analysis report or operating license. The Phase I assessments results were analyzed to determine which facilities would receive Phase II assessments.

2001 Annual Report to Congress

LLNL continued to progress on its authorization basis corrective action plan. Over the past few years, a number of reviews identified issues relative to the authorization basis process for LLNL nuclear facilities. These issues stem from a November 1999 Price Anderson Amendments Act enforcement letter. LLNL conducted a self-assessment and concluded that the current system did not ensure an adequate level of adherence to authorization basis requirements. As a result, LLNL took steps to strengthen the authorization basis process including a formal root cause analysis. The authorization basis corrective action plan was developed in June 2000 by key nuclear facility and institutional managers to address the underlying issues. Key corrective actions addressed during the 2001 calendar year included hiring and enhancement of LLNL's nuclear safety expertise, development of key procedures for the preparation of authorization basis documentation, a rigorous and thorough baseline review of authorization basis documents, development of a graded approach policy, and implementation of an authorization basis issues tracking system.

The baseline review of authorization basis documents was a self-assessment to determine the adequacy of the authorization basis documents. The review included: evaluation of documents compared to the applicable LLNL Work Smart Standards; ensuring that hazards were identified, evaluated and controlled; technical accuracy review; and compiling a list of strengths and weaknesses of the development and maintenance process including procedures. The report was an outstanding effort demonstrating an effective self-assessment for LLNL.

Board recommendation 2000-2 provided an opportunity for LLNL to specifically evaluate its operability, reliability and maintainability of vital safety systems. Phase I assessments were completed on thirty LLNL vital safety systems. Analysis of these assessments indicated issues with fire protection and configuration management. During July 2001, the Defense Programs Phase II pilot assessment was conducted in Building 332 on the glovebox exhaust system. Valuable lessons learned from the pilot assessment will be used in the remaining Phase II assessments to be conducted during the 2002 and 2003 calendar years.

LLNL successfully demonstrated progress on the disposition of plutonium under the Department's 2000-1 implementation plan by canning four kilograms (kg) of metal. The Laboratory began ash washing and low-grade oxide washing during December 2001. The 2000-1 Implementation Plan commitment for completion of stabilization and packaging of plutonium metal, oxide, and ash residues at LLNL is projected to be delayed from May 2002. Oakland Operations Office (OAK) and LLNL are evaluating revised commitment dates. OAK will formally advise NNSA about the revised date when determined. This projected delay resulted from the addition of plutonium and uranium materials stored in LLNL's inventory (legacy items) to the existing 2000-1 inventory. Also attributing to the delay was the decision to radiograph all DOE Standard 3013 cans (instead of selected cans), and a greater degree of effort required for washing and calcining the plutonium oxide.

During 2001, several efforts were initiated to meet compliance requirements of the 10CFR830, Subpart B. An interim on-site transportation safety document was established during April 2001, authorizing on-site transportation activities. Unreviewed safety question (USQ) procedures were revised to reflect 10CFR830 Subpart B requirements and guidance and will be re-submitted to NNSA during the 2002 calendar year. LLNL prepared a project plan to meet full compliance requirement for their eight nuclear facilities and one activity (transportation) by April 10, 2003.

LLNL continued to improve and evaluate its ISM system. In June 2001, LLNL's Assurance Review Office (ARO) completed the annual ES&H Assessment that included ISM evaluation and the results of individual directorate assessments. The ARO's evaluation of the Directorates self-assessment reports resulted in the identification of three institutional ES&H issues:

- There is a continued need for some Laboratory organizations to address the enforcement of accountability and the understanding of ES&H roles and responsibilities.
- Management systems are not effectively used to ensure identification of problems, the tracking of corrective actions, and their timely completion.
- Current management systems are not effectively used to ensure an adequate level of adherence to authorization basis requirements by the LLNL nuclear facilities.

The annual update of the LLNL ISM system description was completed on September 19, 2001, to address the OAK comments as well as opportunities for improvements identified from prior ISM verifications. This system description was approved by OAK on November 14, 2001. Utilizing internal ISM expertise, OAK completed a series of evaluations to determine the effectiveness of review and implementation of the ISM system. For the 2001 fiscal year, a key performance criterion in the LLNL contract specifically evaluated ISM. A similar measure has been placed into the contract for 2002 fiscal year.

OAK also conducted an independent re-verification of ISM effectiveness and implementation at LLNL. A seven-member team undertook three initiatives. The first initiative was to evaluate the operational awareness data in the OAK Functional Information Safety Health and Environment Data Base for ISM trends and significance of issues. This data was the result of all walkthroughs and assessments prepared by OAK. The second initiative by the OAK team was targeting areas including Directorates that had not been reviewed during prior ISM verifications. The third initiative was validating corrective actions and their status from past ISM verifications. For all three initiatives, results from the OAK team did not vary significantly from the LLNL self-assessment results.

The Laboratory hosted several visits by the Board's staff during the 2001 calendar year on topics including: Building 332 conduct of operations and work control process, materials disposition, electrical safety, the 2000-2 Defense Programs confinement ventilation Phase II pilot, and

hazards analysis integration. OAK and LLNL provided briefings to the Board on the improvements in hazards analysis integration and organizational structure.

F. Oak Ridge Operations Office (OR)

On October 15, 2001, the Board sent a letter to Under Secretary Robert Card highlighting significant issues regarding implementation of Oak Ridge Bechtel Jacobs Company's (BJC) ISM system. Of particular concern to the Board were deficient conditions regarding facility safety basis authorization that were uncorrected months after the conditions were highlighted by the Department's ISM review.

In its letter, the Board asked for quarterly briefings and a report encompassing the following elements:

- A Department-Headquarters independent assessment, with appropriate expertise, of the adequacy of the authorization basis and safety posture for each of BJC's defense nuclear facilities.
- A list of the applicable Department orders of interest to the Board and the rationale for those not included as requirements in the work smart standards set of the BJC contract.
- An evaluation of the effectiveness of the ISM systems of BJC and OR.
- An assessment of the flowdown of responsibilities for technical direction (including those for authorization bases) from the Department directives to OR's Office of Environmental Management.

In response to the Board letter, OR and BJC managers commenced an operations assessment of nuclear operations at OR that resulted in suspension of 13 hazardous activities and all fissile material handling operations at the East Tennessee Technology Park. Additionally, OR and BJC personnel commenced walk-downs of all category 2 and 3 nuclear facilities to verify safety basis implementation. On October 23, 2001, the Assistant Secretary for Environmental Management rescinded all previous delegations of authority, and after careful review, issued delegations for specific responsibilities to the OR Manager on November 20, 2001.

The Office of Science, as the Lead Program Secretarial Officer for OR, was assigned the lead to respond to the Board. A series of responses are being coordinated with the OR and the EM to address the concerns in the Board's letter and provides updates on corrective actions necessary to ensure safe operations an OR-BJC defense nuclear facilities.

The status of actions corresponding to each of the elements from the Board's letter include:

- In December, a team of experienced nuclear safety analysts and technical managers commenced an independent assessment of the safety assurance of nuclear facilities at OR. Specific areas assessed by the team included the adequacy of safety basis documents, the technical competencies of OR and BJC technical personnel, and safety basis management processes and procedures. The team completed its assessment and issued a final report in March 2002.
- OR personnel examined the process used to develop the list of applicable Department orders in the BJC contract. The examination revealed that the review teams lacked subject matter experts in key technical areas and did not have an established procedure to ensure dissenting views of team members were appropriately documented and resolved. OR personnel are reviewing the orders of interest to the Board and will develop a more comprehensive and appropriate set to include in the BJC contract.
- On November 1, 2001, the OR Manager revoked the certification of ISM system implementation and requested a date by which BJC would be ready for a verification review.

The Office of Science intends to respond to the Board by issuing a comprehensive corrective action plan to address the findings from the above assessments and to address the more fundamental issue of why these problems were allowed to persist. A formal correction action plan is scheduled to be provided to the Board in April 2002.

G. Office of River Protection (ORP)

ORP declared initial implementation of ISM in July 2000. ORP and related site contractors continue to maintain a strong safety culture within its workforce, while continuing to make visible progress in its mission.

The Hanford Site, which includes ORP and its contractors, ranked in the top 6% in the on-going National Safety Council's safety culture survey. This independent survey ranks a broad range of both government and non-government industries in relation to each other's safety management and safety performance. This external safety culture measurement has confirmed that the Hanford site safety performance is evident, is being represented accurately, and the site workforce considers the Hanford site a safe place to work.

ORP awarded the new Waste Treatment and Immobilization Plant (WTP) contract with Bechtel National, Inc. (BNI) for designing, constructing, commissioning and supporting transition to operation of the WTP.

In April 2001, ORP completed turnover from the transition contractor, CH2M Hill Hanford Group (CHG) to BNI. This significant accomplishment authorized BNI to begin advancing the safety aspects of the Waste Treatment Plant design by approving BNI's Quality Assurance Program, ISM plan and Safety Requirements Document and completing a readiness assessment.

In October 2001, the Department authorized the start of limited construction, the first step toward building the treatment facility. In the WTP limited construction authorization, the contractor has been authorized to clear, grub and excavate the site, lay mud mats for the three major facilities, and construct temporary structures.

The last safety issue at the Hanford Tank Farms, dealing with flammable gas, was resolved which led to the removal of the remaining 24 Hanford underground storage tanks, including Tank 241-SY-101, from the Wyden Watchlist.

Significant progress has been made in modeling gas releases during supernatant decant of waste in Hanford Double Shell Tanks (DSTs). The predictive model is based upon data from actual gas releases measured in Hanford DSTs. The output of this modeling is currently being used in the development of the control strategy for the Safety Basis Amendment CHG plans to submit to ORP in April 2002. The strategy will also include a model for gas release during mixer pump operation, which is currently under development. The work to date has addressed the Board concerns on gas release during waste retrieval and it has a sound technical basis.

ORP and its contractors continue to institutionalize the guiding principals of ISM as the fundamental premise for environmental, health, safety and quality. The contractors' ISM system descriptions, authorization envelopes, safety programs and work activities continue to be routinely monitored for effective implementation and continuous improvements. Efforts continue both within the ORP office and contract organizations to improve the feedback and improvement processes, and clarify roles and responsibilities.

H. Ohio Field Office (OH)

OH has three major sites of interest to the Board: Miamisburg Environmental Management Project (Mound), Fernald Environmental Management Project (Fernald), and West Valley Demonstration Project (West Valley). ISM reviews and updates in 2001 for these key sites as follows:

- Mound - November 2001
- West Valley West Valley - November 2001
- Fernald - June 2001

Each of these three OH sites (Mound, West Valley and Fernald) conducts a formal, annual review. The basis for each site's review is established in a formal ISM annual review plan.

The review plans are approved at the project office level, and two OH representatives participate on each review team. As an example, the ISM review plan of May 2001 for Fernald is an eight chapter document that addresses scope, scope considerations, verification approach, team preparation, and references.

Miamisburg Area Office (Mound)

Specific accomplishments at the Miamisburg Area Office include:

- **Reduced Risk and Downgraded Three Nuclear Facilities** -The disposal of all excess nuclear material paved the way for downgrading of several major nuclear facilities (HH, WD and 38) in FY01 by reducing the inventory that must be considered in accident scenarios, thus facilitating D&D in those facilities.
- **Collapsed Emergency Planning Zone to 500 Feet**-The elimination of accountable-tritium, the solidification and off-site disposal of over 1.2M curies of tritiated water, and the solidification of tritiated oil for off-site disposal greatly reduced the risk to workers and the public from the former tritium source term at Mound. Mound's first TRU waste shipment, although small in volume, eliminated 20% of the total radioactivity remaining in stored TRU waste. These achievements in risk reduction resulted in a collapse of the emergency-planning zone surrounding Mound from a radius of 5 miles to just 500 feet. Soon, only residual contamination will remain at Mound.**Excellent Safety Record** - Mound had an Occupational Safety and Health Administration (OSHA) recordable rate of just 2.98 incidents per 200,000 person-hours in FY01, which is substantially below the Department's average of 3.5, and a Lost Time/Days Away from Work (LTDAW) rate of zero, bringing the total consecutive safe work hours to well over 6,000,000.
- The Governor of the State of Ohio recognized Mound's contractor BWXTO's achievements in safety when he awarded the Governor's Excellence in Worker's Compensation Award to BWXTO as one of twelve "stellar organizations from among the more than 280,000 employers across Ohio" with outstanding workplace safety programs.

Fernald Field Office (Fernald)

On January 8, 2001, the Board issued a letter to the Assistant Secretary for Environmental Management concerning a fire safety issue at the Fernald site. Two concerns were identified in the Board's staff issue report enclosed with the letter. The report recognized that the Fernald Project Office and the contractor were working to resolve the fire safety issues. Based upon direction provided by Fernald, at the OH, the contractor documented completion of associated corrective actions on March 1, 2001. The Department evaluated and verified that the corrective actions were completed on July 3, 2001. Although the Board did not request a response to their

letter, the Board staff conducted a follow-up review in September 2001 and expressed satisfaction with the response and corrective actions.

West Valley Demonstration Project (West Valley)

West Valley has fully embraced ISM. West Valley completed its second ISM Annual Review in February 2001. The review team reported that ISM systems continue to be effectively maintained and implemented.

West Valley was initiated by the Department, pursuant to the West Valley Act of 1980 (PL-96-368). It is on the site of a former commercially operated spent nuclear fuel reprocessing facility, that had reprocessed commercial fuel, as well as fuel from Hanford's N-Reactor. The Act requires the Department to conduct a high-level radioactive waste solidification demonstration project and decommission facilities used for the Project. The owner, New York State, is licensed by the Nuclear Regulatory Commission (NRC). The technical specifications of the license are being held in abeyance while the Department conducts the project.

I. Richland Operations Office (RL)

RL and its contractors, continue to maintain a strong safety culture within its workforce, while continuing to make visible progress in both its cleanup and science missions.

The Hanford site, which includes RL and its contractors, ranked in the top 6% in the on-going National Safety Council's safety culture survey. This independent survey ranks a broad range of both government and non-government industries in relation to each other's safety management and safety performance. This external safety culture measurement has confirmed that the Hanford site safety performance is evident, is being represented accurately, and the site workforce considers the Hanford site a safe place to work. Specific accomplishments for the Hanford site for 2001 are as follows:

- SNF Project achieved over 3.3 million hours through October 31, 2001.
- In September 2001, the Environmental Restoration Contractor (ERC) achieved 500,000 work hours without a lost time incident, and is nearing the one million work hours without a lost workday case. This will be the fourth time that the ERC has reached this one million-work hour milestone.
- In September 2001, Fluor Hanford's River Corridor Project team achieved over 1.9 million work hours without a lost time injury case, representing a time span of nearly three years.
- The Plutonium Finishing Plant has nearly all stabilization processes and packaging systems operating, and has worked over 2.3 million hours without a lost workday.

- Further evidence of a strong worker involvement can be found in the award of five VPP “Star” awards at the Hanford site (RL contractors), with a sixth award expected before the end of the year. This achievement of six “Star” awards at the Hanford site represents approximately one third of the total VPP awards throughout the Department’s complex.

Productivity in reducing the overall risk to the public continues to be well balanced with workforce safety. This year, the overall site risk has been reduced by the following activities;

- SNF Packaging and Storage in full operation;
- “B Cell” 324 Building clean-out; and
- Progress in Plutonium stabilization at the Plutonium Finishing Plant.

Specifically, completing the 324 Building “B Cell” clean-out was a significant accomplishment because of the removal of an extremely large amount of radioactive dispersible material and equipment (three million curies of radioactivity) that was near the Columbia River, and in close proximity to the residential area of the city of Richland, Richland public schools, and the Washington State University Tri-City campus.

The RL has also initiated an integrated management system in-house to improve the overall conduct of business, mission accomplishment as well as safety. The Richland Integrated Management System places all RL activities and requirements under one management system that supports processes that cut across traditional, functional office programs and organizations. This system reflects a strong management commitment to improve the overall operations at the Hanford Site by meeting the recognition that there was a need to become a more effective field office.

The RL and its contractors continue to institutionalize the guiding principals of ISM as the fundamental premise for environmental, health, safety and quality. The contractors’ ISM system descriptions, authorization envelops, safety programs and work activities continue to be routinely monitored for effective implementation and continuous improvements. Efforts continue both within the RL office and contract organizations to improve the feedback and improvement processes, plus clarifying roles and responsibilities.

J. Rocky Flats Field Office (RF)

RF’s major accomplishments in reducing risk and performing work safely are as follows:

- Liquids - Completed the last two remaining solution milestones in 2001 calendar year. The first milestone of removing all liquids from Building 771 was completed on October 15, 2001, approximately two months ahead of the December 31, 2001 commitment. The second milestone of processing all of the liquids removed from Building 771 was

completed on December 5, 2001, approximately four months ahead of the March 31, 2002 commitment.

- Residues - To date over 91,000 kg of residues, out of 106,000 kg, has been repackaged to meet the Interim Safe Storage Criteria or WIPP requirements. In the 2001 fiscal year alone, approximately 21,000 kg of residues was repackaged. Repackaging of sand, slag, and crucible residues to WIPP requirements was completed on July 19, 2001. Repackaging of Fluoride residues was completed ahead of planned schedules on November 8, 2001 well under estimated worker radiation exposure levels. The remaining residues are expected to be repackaged by the May 2002 commitment.
- Metal and Oxides - The commitment to start packaging plutonium metal and oxide was met on June 14, 2001. The Plutonium Stabilization and Packaging System has produced 187 certified containers. The May 2002 completion commitment will not be met due to the late start and slower than anticipated production rates. Plans are being implemented to mitigate further delays and an option of sending some of the less plutonium rich oxides to WIPP is being evaluated.

K. Savannah River Operations Office (SR)

SR completed its annual ISM system review in 2001. ISM continues to be an important priority and essential component of all aspects of work at SR. This importance is reflected in the improvements achieved in the site's occupational injury and illness rates. For example, WSRC has had its lowest workday rate since 1994. In June 2001, WSRC set a new safety record by completing over 14.7 million hours without a lost time injury/illness. Construction at SR has also continued to exhibit safe work practices by completing 7.5 million hours and 1,239 days without a lost-time injury/illness.

The mechanisms in place for supporting ISM system at SR remain strong and viable. The ISM Executive Steering Committee, composed of WSRC Senior Management, has continued to provide leadership and commitment to ensuring the integration and implementation of ISM. The effectiveness of ISM in the individual facilities is regularly evaluated by the contractor's independent inspection team and through the oversight of SR.

L. Y-12 Area Office (YAO)

On January 23, 2001, the Board issued a letter to NNSA highlighting several unresolved issues at the Y-12. These issues included Building 9206 deactivation and risk reduction, ISM verification, disassembly, resumption of the reduction process for enriched uranium operations, fire protection, and project management. The following are activities that have been/will be initiated to resolve the safety issues:

- Building 9206 deactivation and risk reduction - An operational readiness review is being conducted by BWXT for activities to stabilize pyrophoric materials. Following the BWXT operational readiness review, an NNSA operational readiness review will be conducted to ensure readiness to proceed.
- ISM verification - An NNSA Headquarters review team conducted an ISM Verification Review in November 2001. While there were recommendations to ensure progress, the team concluded that ISM has been implemented.
- Disassembly - BWXT and NNSA readiness assessments (RA) have been conducted and corrective actions are being implemented to prepare for disassembly activities.
- Reduction process - The Enriched Uranium Operations Reduction Process was restarted this year.
- Fire protection - BWXT has developed a Ten-Year Comprehensive Corrective Action Plan for fire protection. Activities for the 2001 fiscal year were identified, funded, and completed. Activities for the 2002 fiscal year have been identified and funded, and progress is underway.
- Project management - The acquisition strategy for major portions of the Highly Enriched Uranium Manufacturing Facility (HEUMF) Project is based on the use of a design-bid-build approach (i.e. an A-E subcontract for design followed by a competitively bid, firm, fixed-price construction subcontract). The Board Vice Chairman and Board staff visited Y-12 in January 2002 to review the present status of the HEUMF.

In addition to the issues above, other initiatives have occurred at Y-12 this past year, including:

- Following a Board's staff review in February covering integrated hazards management, Y-12 committed to removing the inventory of building 81-22 by the end of the 2001 calendar year. This was accomplished three months in advance, and planning for the destruction of this building is underway. With regard to the destruction of older buildings, the site achieved a 100,000 square foot reduction in the site footprint.
- Y-12 has supported the Department's efforts with respect to the Department's 2000-2 implementation plan. Vital Safety Systems were identified, Phase I analyses were completed, vulnerabilities were identified, and planning for Phase II analyses is under way. These Phase II analyses will be completed in the 2002 fiscal year.
- The Site-wide Environmental Impact Statement was submitted and approved.
- Review teams have noted progress in Emergency Management, and a Full Participation Exercise was held this year.
- A Comprehensive Strategic Plan that documents the desired future state for Y-12 was developed.

Board. As of December 2001, the Department is tracking 34 open letter commitments to the Board.

The Departmental Representative conducts qualitative and technical reviews of 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 SIMS database. Monthly summary reports on the status of commitment implementation and completion are distributed to responsible Department managers, points of contact, and Secretarial Officers. Department personnel can access detailed SIMS information and use various view, sort, and report formats via an on-line, Internet-based user interface.

G. Information Archive of Board-Related Documents

A key part of identifying, understanding, and resolving safety issues is maintaining effective communication between the Department and the Board. One of the key mechanisms to facilitate communication is regular correspondence between the Department and the Board. A large portion of the written communication involves the Board's recommendations and the associated deliverables, schedules, and reporting requirements contained in the Department's recommendation implementation plans. In addition, the Department receives and responds to trip reports detailing visits by the Board and the Board's staff to Department facilities. The Department also receives specific requests from the Board and the Board's staff for particular information or action by the Department. *Appendix C* provides a summary of key correspondence between the Department and the Board for 2001; this summary does not include transmittal of requested information and routine distribution of assessments and evaluations.

The Departmental Representative maintains an information archive of all correspondence, reports, plans, assessments, and transmittals between the Department and the Board online at <http://www.deprep.org>. The website provides an efficient way for the Department to share information, except information classified as official use only or higher, pertaining to defense nuclear facilities activities.

The following types of documents are included in the information archive:

- Board recommendations;
- Department responses and implementation plans;
- Department letters to the Board;
- Board letters to the Department;

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Appendix A provides a listing of the orders identified as "of interest" to the Board, and a listing of Departmental safety directives "of interest" to the Board that were changed in 2001.

B. Briefings, Site Visits, and Other Board Interactions

The Department, the Board, and the Board's staff are in constant contact to identify and resolve safety issues at the Department's defense nuclear facilities. The Department provides briefings to the Board on a regular basis in order to:

- update the Board on the Department's progress towards resolving issues identified in Board recommendations;
- update the Board on the Department's safety initiatives; and
- update the Board on specific safety issues as requested by the Board.

The Board and the Board's staff regularly visit the Department's defense nuclear facilities to perform reviews of the Department's safety initiatives, safety facilities and operations, and attend briefings at the sites. *Appendix B* provides a summary of site visits supported by the Department during 2001. In addition, Department personnel conducted numerous teleconferences and videoconferences to exchange information and resolve safety issues.

C. Responses to Board Reporting Requirements

The Board communicates with the Department through a variety of channels including formal recommendations and reporting requirements, letters requesting action and information, and letters providing suggestions and information, such as staff issue reports and trip reports. Communication channels also include Board and Board's staff requests for information, public meetings, briefings and discussions, and site visits. The Board's choice of communication vehicle suggests the level of the Board's concern, with the more formal channels used for clearly-defined safety issues that require prompt attention by Departmental managers. During 2001, the Board issued seven sets of formal reporting requirements, pursuant to Chapter 21, Section 313 of the Atomic Energy Act of 1954 [42 U.S.C. 2286b(d)], as shown in Table 5.A.

Table 5.A – Formal Reporting Requirements Established by the Board in 2001

Date	Reporting Requirements	Days To Report
1/8/01	A briefing on the Department's corrective action plan in response to the OA-30 report and the observations of the Board's staff regarding improvements to authorization bases at LLNL defense nuclear facilities	81
3/5/01	A report detailing the Department's plan to address the observations outlined in the Board's staff's Technical Report 29, <i>Criticality Safety at Department of Energy Defense Nuclear Facilities</i>	60
3/23/01	A report identifying proposed modifications to the revised 2000-1 implementation plan to accelerate nuclear material remediation schedules	60
4/10/01	A report regarding proposed statistical methodology (95 percentile methodology) for safety analysis	60
4/30/01	A briefing on the Department's plan for addressing the issues outlined in the Board's staff issue report on Integrated Hazard Analysis at the Oak Ridge Y-12 National Security Complex	60
5/29/01	A report addressing issues regarding identification and disposition of excess hazardous materials stored at the Oak Ridge Y-12 National Security Complex	90
5/29/01	A report with answers to follow-up questions from the public meetings held in February 2001 on recommendations 95-2, 98-1, and 2000-2, and organization charts showing line management safety responsibilities for NNSA and EM	60
5/29/01	A report addressing the Board's concerns pertaining to the feasibility of the HLW option, for stabilizing 14,000 liters of americium and curium solutions in F-Canyon at SR	45
6/28/01	A briefing on corrective actions pertaining to NNSA's Readiness Assessment of the new Oak Ridge Y-12 Plant disassembly campaign	60
6/28/01	A report that documents a technically defensible analysis of the scenarios discussed in the Justification for Continued Operations (JCO) of W88 Assembly, Disassembly, and Inspection in Building 12-85 at Pantex	30
6/28/01	A report that outlines corrective measures relative to NNSA guidelines for the use and application of weapon response data	60
10/2/01	A briefing on the procedural compliance issues at the Pantex Plant, and the associated corrective actions	60
10/15/01	A report regarding implementation of ISM program and authorization basis programs at Oak Ridge defense nuclear facilities	45
11/8/01	A report regarding the annual ISM reviews and system description updates	45

D. Board Public Meetings

The Board holds public meetings periodically to review significant safety and management issues in a public forum. The Board provides advance public notice for these meetings pursuant to the provision of the "Government in the Sunshine Act" (5 U.S.C. § 552b). During 2001, the Department supported the following five public meetings conducted by the Board as listed in Table 5.B.

Table 5.B - Public Meetings Held by the Board in 2001

Date	Topic Of Public Meeting
2/13/01	14 th quarterly briefing regarding the status of recommendations 95-2, 98-1, and 2000-2
2/22/01	Continuation of the 14 th quarterly briefing regarding the status of recommendations 95-2, 98-1, and 2000-2
3/28/01	Quality assurance within the Department's nuclear defense facilities
5/23/01	Quality assurance within the Department's nuclear defense facilities
8/15/01	Quality assurance within the Department's nuclear defense facilities

(All public meeting were held in Washington DC for the 2001 calendar year.)

E. Secretary of Energy Quarterly Briefings with the Board Members

The Secretary provides quarterly briefings to the Board members. The Secretary initiated these briefings in 1994 to facilitate senior level information exchange on key safety and management issues, and on relative priorities and directions. The Secretary, Deputy Secretary, Under Secretary, and the Departmental Representative typically represent the Department in these quarterly sessions. Quarterly briefings continued during 2001.

F. Safety Issues Management System (SIMS)

The Department established a Department-wide commitment management tool, SIMS, in August 1995. Using this tool, the Department has reduced the number of outstanding commitments related to Board recommendations from 694 in August 1995 to 90 in December 2001. The total number of overdue commitments related to Board recommendations has also declined significantly, from 245 in August 1995 to 26 in December 2001. In addition to commitments and actions related to Board recommendations, SIMS is also used to manage commitments and actions related to other interactions between the Department and the Board, such as Board requests for action or information and Department commitments in letters to the

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Appendix A

Orders and Departmental Safety Directives of Interest to the Board

This appendix provides a listing of the orders and departmental Safety Directives identified as "of interest" to the Board. Table A.1 provides the Orders of Interest to the Board and Table A.2 (on page A-6) provides the Department's Safety Directives Coordinated with the Board's staff and Issued in 2001.

Table A.1 - Orders of Interest to the Board

Table A.1-Group 1 – Currently Active Orders

Order Number	Title
O151.1	Comprehensive Emergency Management System
O210.1, Chg 2	Performance Indicators and Analysis of Operations Information
O225.1A	Accident Investigations
O231.1, Chg 2	Environment, Safety, and Health Reporting
O232.1A	Occurrence Reporting and Processing of Operations Information
O251.1A	Directives System
O252.1	Technical Standards Program
O360.1B	Training
0413.3	Program and Project Management for the Acquisition of Capital Assets
O414.1A, Chg 1	Quality Assurance
O420.1, Chg 3	Facility Safety
O425.1B	Startup and Restart of Nuclear Facilities
O430.1A	Life Cycle Asset Management
O433.1	Maintenance Management Program for DOE Nuclear Facilities
O435.1, Chg 1	Radioactive Waste Management
O440.1A	Worker Protection Management for DOE Federal and Contractor Employees
O442.1A	Department of Energy Employee Concerns Program
O451.1B, Chg 1	National Environmental Policy Act Compliance Program
O452.1B	Nuclear Explosive and Weapon Surety Program
O452.2B	Safety of Nuclear Explosive Operations
O460.1A	Packaging and Transportation Safety
O460.2, Chg 1	Departmental Materials Transportation and Packaging Management

Table A.1-Group 1 (Continued)

O461.1	Packaging and Transfer or Transportation of Materials of National Security
O470.2A	Security and Emergency Management Independent Oversight and Performance Assurance Program
O474.1A	Control and Accountability of Nuclear Materials
O3790.1B	Federal Employee Occupational Safety and Health Program
O4700.1, Chg 1	Project Management System
O4700.4	Project Manager Certification
O5400.1, Chg 1	General Environmental Protection Program
O5400.5, Chg 2	Radiation Protection of the Public and the Environment
O5480.4, Chg 4	Environment Protection, Safety, and Health Protection Standards
O5480.19, Chg 1	Conduct of Operations Requirements for DOE Facilities
O5480.20A	Personnel Selection, Qualification, Training and Staffing Requirements at Reactor and Non-Reactor Nuclear Facilities
O5480.30, Chg 1	Nuclear Reactor Safety Design Criteria
O5530.2	Nuclear Emergency Search Team
O5530.3, Chg 1	Radiological Assistance Program
O5530.4	Aerial Measuring System
O5600.1	Management of the Department of Energy Weapon Program and Weapon Complex
O5632.1C	Protection and Control of Safeguards and Security Interests
O5660.1B	Management of Nuclear Materials

Table A.1 Group 2—Archived or Deleted Orders of Interest to the Board Cited in Current Contracts

Order Number	Title
O1300.2A	Department of Energy Technical Standards Program
O1360.2B	Unclassified Computer Security Program
O1540.2, Chg 1	Hazardous Material Packaging for Transport - Administrative Procedures
O1540.3A	Base Technology for Radioactive Material Transportation Packaging Systems
O4330.4B	Maintenance Management Program
O5000.3B, Chg 1	Occurrence Reporting and Processing of Operations Information
O5400.2A, Chg 1	Environmental Compliance Issue Coordination
O5400.3	Hazardous and Radioactive Mixed Waste Program
O5400.4	Comprehensive Environmental Response, Compensation, and Liability Act Requirements
O5440.1E	National Environmental Policy Act Compliance Program
O5480.1B, Chg 5	Environmental, Safety and Health Program for DOE Facilities
O5480.21	Unreviewed Safety Questions
O5480.22, Chg 2	Technical Safety Requirements
O5480.23, Chg 1	Nuclear Safety Analysis Reports
O5480.3	Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes
O5480.5, Chg 2	Safety of Nuclear Facilities
O5480.6	Safety of Department of Energy-Owned Nuclear Reactors
O5480.7A	Fire Protection
O5480.8A, Chg 2	Contractor Occupational Medical Program
O5480.9A	Construction Safety and Health Program
O5480.10	Contractor Industrial Hygiene Program
O5480.11	Radiation Protection for Occupational Workers
O5480.15	Department of Energy Laboratory Accreditation Program for Personnel Dosimetry
O5480.17	Site Safety Representatives
O5480.18B	Nuclear Facility Training Accreditation Program
O5480.24	Nuclear Criticality Safety
O5480.25	Safety of Accelerator Facilities
O5480.26	Trending and Analysis of Operations Information Using Performance Indicators
O5480.28	Natural Phenomena Hazards Mitigation
O5480.29	Employee Concerns Management System

Table A.1-Group 2 (Continued)

Order Number	Title
O5480.31	Startup and Restart of Nuclear Facilities
O5481.1B, Chg 1	Safety Analysis and Review System
O5482.1B, Chg 1	Environment, Safety, and Health Appraisal Program
O5483.1A	Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated Facilities
O5484.1B	Environmental Protection, Safety and Health Protection Information Reporting Requirements
O5500.1B	Emergency Management System
O5500.2B, Chg 1	Emergency Categories, Classes, and Notification and Reporting Requirements
O5500.3A, Chg 1	Planning and Preparedness for Operational Emergencies
O5500.4A	Public Affairs Policy and Planning Requirements for Emergencies
O5500.7B	Emergency Operating Records Protection Program
O5500.10	Emergency Readiness Assurance Program
O5610.10	Nuclear Explosive and Weapon Safety Program
O5610.11	Nuclear Explosive Safety
O5610.12	Packaging and Offsite Transportation of Nuclear Components, and Special Assemblies Associated with the Nuclear Explosive and Weapon Safety Program
O5632.11	Physical Protection of Unclassified Irradiated Reactor Fuel in Transit
O5700.6C, Chg 1	Quality Assurance
O5820.2A	Radioactive Waste Management
O6430.1A	General Design Criteria

Table A.1-Group 3 – Documents Setting Forth Safety-Related Requirements

Document Number	Title
N203.1	Software Quality Assurance
P410.1A	Promulgating Nuclear Safety Requirements
P411.1	Safety Management Functions, Responsibilities and Authorities
P426.1	Federal Technical Capability for Defense Nuclear Facilities
P441.1	Radiological Protection for DOE Activities
P450.1	Environment, Safety, and Health Policy for the Department of Energy Complex
P450.2A	Identifying, Implementing, and Complying with ES&H Requirements
P450.3	Authorizing Use of the Necessary and Sufficient Process for Standards-Based Environment, Safety and Health
P450.4	Safety Management System Policy
P450.5	Line Environment, Safety and Health Oversight
P450.6	Secretarial Policy Statement on Environment, Safety, and Health
10CFR820	Procedural Rules for DOE Nuclear Activities
10CFR830, Subpart A	Quality Assurance Requirements
10CFR830, Subpart B	Safety Basis Requirements
10CFR834	Radiation Protection of the Public and the Environment
10CFR835	Occupational Radiation Protection
48CFR970.5204-2	Laws, Regulations, and DOE Directives
48CFR.5215-3	Conditional Payment of Fee, Profit, or Incentives
48CFR.5223-1	Integration of Environment, Safety, and Health Into Work Planning and Execution
Various	DOE Manuals, Guides, Handbooks, and Technical Standards Associated with Safety Management

Table A.2 - DOE Safety Directives Coordinated with the Board Staff and Issued in 2001*

Directive	Title	Date
O 433.1	Maintenance Management Program for DOE Nuclear Facilities	6/1/01
O 452.1B	Nuclear Explosive and Weapon Surety Program	8/6/01
O 452.2B	Safety of Nuclear Explosive Operations	7/26/01
O 452.4A	Security and Control of Nuclear Explosives and Nuclear Weapons	12/17/01
M 411.1-1B	Safety Management Functions, Responsibilities & Authorities	5/22/01
G 414.1-1A	Management Assessment and Independent Assessment Guide	5/31/01
G 421.1-2	Implementation Guide Developing Documented Safety Analyses/830	10/24/01
G 423.1-1	Developing Technical Safety Requirements	10/24/01
G 424.1-1	Addressing Unreviewed Safety Question Requirements	10/26/01
G 430.1-5	Transition Implementation Guide	4/24/01
G 433.1-1	Maintenance Management Program for DOE Nuclear Facilities	9/5/01
G 450.4-1B	Integrated Safety Management System Guide	3/1/01
STD-3015-2001	Nuclear Explosive Safety Study Process	2/28/01
TRNG-0013	General Technical Base Qualification Standard	10/29/01
TRNG-0015	Radiological Assessor Training	5/15/01
TRNG-0016	Radiological Safety Training for Plutonium Facilities	8/21/01
TRNG-0017	Radiological Control Training for Supervisors	8/14/01

* This does not include strictly administrative charges related to implementing the NNSA.

Appendix B

Site Visits Supported by the Department in 2001

Albuquerque Operations Office

- On January 4-5, 2001, the Board's staff visited the **Albuquerque Operations Office** to observe the Department's standing management team meeting.
- On January 29-31, 2001, the Board's staff visited the **Albuquerque Operations Office** to observe the Department's FTCP Meeting.
- On March 12-15, 2001, the Board's staff visited the **Albuquerque Operations Office** to participate in the Department's meeting on W80 CD issue.
- On April 2-6, 2001, the Board's staff visited the **Albuquerque Operations Office** to review the Pit Disassembly and Conversion unit operations by pit type.
- On June 4-8, 2001, the Board's staff visited the **Albuquerque Operations Office** to observe the Department's workforce analysis review and facility representative training.
- On September 10, 2001, Board member Joe DiNunno visited the **Albuquerque Operations Office** to observe the implementation plan 2000-2, *Vital Safety Systems, Configuration Management*, workshop.
- On September 10-13, 2001, the Board's staff visited the **Albuquerque Operations Office** to observe the implementation plan 2000-2, *Vital Safety Systems, Configuration Management*, workshop.
- On September 19-21, 2001, the Board's staff visited the **Albuquerque Operations Office** to review handling of damaged weapons.
- On October 22-26, 2001, the Board's staff visited the **Albuquerque Operations Office** to review the LANL Dynex activities.
- On November 1-2, 2001, the Board's staff visited the **Albuquerque Operations Office** to observe a management team meeting.

Hanford Site (Richland Operations Office and Office of River Protection)

- On January 8-11, 2001, the Board's staff visited the **Hanford Site** to observe the plutonium finishing plant and worker protection/radiological engineering review.
- On January 22-26, 2001, the Board's staff visited the **Hanford Site** to review the K-East Basin Integrated Water Treatment System design and alternate fuel retrieval strategy, and the Richland Integrated Safety Management.

- On February 12-16, 2001, the Board's staff visited the **Hanford Site** to review the tank farms construction projects and the K-East Integrated Water Treatment System design.
- On March 26-30, 2001, the Board's staff visited the **Hanford Site** to review tank integrity, ISM implementation at the RL, and the SNF Program Safety Analysis Report changes and tank facilities.
- On April 9-13, 2001, the Board's staff visited the **Hanford Site** to review software quality assurance.
- On April 16-20, 2001, the Board's staff visited the **Hanford Site** to review Decontamination and Disassembly (D&D) activities.
- On July 9-13, 2001, the Board's staff visited the **Hanford Site** to review the Plutonium Finishing Plant fire safety, 10 Code of Federal Regulations 830 implementation, K-Basin sludge storage design, and K-Basin fuel transfer design.
- On July 23-27, 2001, the Board's staff visited the **Hanford Site** to review waste treatment plant design and 10 Code of Federal Regulations 830 implementation strategy.
- On August 6-10, 2001, the Board's staff visited the **Hanford Site** to review the 2000-2 implementation plan, *Vital Safety Systems*, *Configuration Management*, fire protection assessment effort.
- On August 27-30, 2001, the Board visited the **Hanford Site**.
- On August 27-31, 2001, the Board's staff visited the **Hanford Site** to support the Board's site visit.
- On October 15-18, 2001, the Board's staff visited the **Hanford Site** to review line management preparations for the W460 stabilization.
- On November 5-8, 2001, the Board's staff visited the **Hanford Site** to review electrical and instrumentation control (I&C) systems at the Plutonium Finishing Plant.

Idaho National Engineering and Environmental Laboratory (Idaho Operations Office)

- On January 22-26, 2001, the Board's staff visited the **Idaho National Engineering and Environmental Laboratory** to observe the facility evaluation board review of the radioactive waste management complex and review INTEC's waste processing system.
- On February 20-23, 2001, the Board's staff visited **Boise, Idaho** to review the Advanced Mixed Waste Treatment Project.
- On March 12-16, 2001, the Board's staff visited the **Idaho National Engineering and Environmental Laboratory** to observe the review of the EM quality assurance program.

- On June 4-8, 2001, the Board's staff visited the **Idaho National Engineering and Environmental Laboratory** to review the status of authorization basis documents, follow-up on Facility Evaluation Board activities at Radioactive Waste Management Site, emergency preparedness, and status at **Idaho Nuclear Technologies and Engineering Center**.
- On August 20-24, 2001, the Board's staff visited the **Idaho Falls** to review INTEC, Radioactive Waste Management Complex, and chemical safety.
- On August 22-24, 2001, the Board's staff visited the **Idaho National Engineering and Environmental Laboratory** to review chemical safety.
- On September 10-14, 2001, the Board's staff visited **Idaho Falls** to observe the INEEL Facility Evaluation Board's review of INTEC.
- On October 18-19, 2001, the Board's staff visited the **Idaho National Engineering and Environmental Laboratory** to review the 2000-2 implementation plan, *Vital Safety Systems, Configuration Management*, Phase II assessment activities at the new waste calcining facility.
- On October 22-26, 2001, the Board's staff visited the **Idaho National Engineering and Environmental Laboratory** to review the 2000-2 implementation plan, *Vital Safety Systems, Configuration Management*, Phase II assessment activities at the new waste calcining facility.
- On November 5-9, 2001, the Board's staff visited the **Idaho National Engineering and Environmental Laboratory** to review the 2000-2 implementation plan, *Vital Safety Systems, Configuration Management*, Phase II assessment activities at the fuel storage facility.

Lawrence Livermore National Laboratory (Oakland Operations Office)

- On January 22-26, 2001, the Board's staff visited the **Lawrence Livermore National Laboratory** to observe the 2000-2 implementation plan, *Vital Safety Systems, Configuration Management*, workshop and 830 rule (Safety Analysis Requirements) briefings.
- On March 19-23, 2001, the Board's staff visited the **Lawrence Livermore National Laboratory** to observe the Enhanced Surveillance Campaign annual meeting.
- On May 29-June 1, 2001, the Board's staff visited the **Lawrence Livermore National Laboratory** to review and discuss conduct of operations, work control process, and feedback and improvement at Building 332.

- On July 16-20, 2001, the Board's staff visited the **Lawrence Livermore National Laboratory** to observe the Department's pilot assessment pertaining to the 2000-2 implementation plan, *Vital Safety Systems, Configuration Management*.
- On August 13-17, 2001, the Board's staff visited the **Lawrence Livermore National Laboratory** to review the emergency management program and observe a review by the Department's Office of Emergency Management Oversight.
- On October 22-25, 2001, the Board's staff visited the **Lawrence Livermore National Laboratory** to review legacy material inventory.
- On November 5-9, 2001, the Board's staff visited the **Lawrence Livermore National Laboratory** to review integrated hazard analysis and receive an update on authorization basis improvements.

Los Alamos National Laboratory (Los Alamos Area Office)

- On January 8-12, 2001, the Board's staff visited the **Los Alamos National Laboratory** to review tritium operations, activities pertaining to the Department's 2000-2 implementation plan, *Vital Safety Systems, Configuration Management*, and site-wide emergency preparations.
- On March 5-9, 2001, the Board's staff visited the **Los Alamos National Laboratory** to observe Defense Programs' quality assurance review.
- On March 12-16, 2001, the Board's staff visited the **Los Alamos National Laboratory** to review the technical project management.
- On March 12-15, 2001, the Board's staff visited the **Los Alamos National Laboratory** to review the technical project management and seismic issues.
- On June 11-15, 2001, the Board's staff visited the **Los Alamos National Laboratory** to observe the LANL Blue Ribbon panel on Dynamic Experiment.
- On July 23-25, 2001, the Board's staff visited the **Los Alamos National Laboratory** to review the Test Area 18 dam, seismic trench, and plans for the new Emergency Operation Center.
- On August 6-10, 2001, the Board's staff visited the **Los Alamos National Laboratory** to observe the 2001 LANL Energetic Materials Review.
- On August 13-17, 2001, the Board's staff visited the **Los Alamos National Laboratory** to introduce Dr. Charles Keilers as the Board's Site Representative and to tour and review the Laboratory with Dr. Keilers.

- On October 9-12, 2001, the Board's staff visited the **Los Alamos National Laboratory** to review progress on the 2000-1 implementation plan, *Prioritization for Stabilizing Nuclear Materials*.
- On October 15-18, 2001, the Board's staff visited the **Los Alamos National Laboratory** to review quality assurance and configuration management for new safety systems.
- On October 22-25, 2001, the Board's staff visited the **Los Alamos National Laboratory** to review the 2000-1 implementation plan, *Prioritization for Stabilizing Nuclear Materials*, research and development and materials identifications and surveillance program.
- On November 27-29, 2001, the Board visited the **Los Alamos National Laboratory** to observe a briefing on site-specific safety issues.
- On November 27-29, 2001, the Board's staff visited the **Los Alamos National Laboratory** to support the Board's trip.

Mound Site (Ohio Field Office)

- On April 9-12, 2001, the Board's staff visited the **Miamisburg Environmental Management Project** to review radiological assessment changes at the Mound site.

Nevada Test Site (Nevada Operations Office)

- On February 20-23, 2001, the Board's staff visited the **Nevada Test Site** to review work smart standards development, capability for disposition of damaged nuclear weapons, implementation of ISM, Device Assembly Facility fire protection system, and receive an update on Joint Actinide Shock Physics Experimental Research (JASPER).
- On April 3-6, 2001, the Board's staff visited the **Nevada Test Site** to review JASPER and ISM.
- On June 5-8, 2001, the Board's staff traveled to **Las Vegas** to observe the Department of Energy's and NNSA's project management workshop.
- On June 18-21, 2001, the Board's staff visited the **Nevada Test Site** to review damaged nuclear weapon program and JASPER.
- On October 1-5, 2001, the Board's staff visited the **Nevada Test Site** to review safety basis and observe safety evaluation panel meeting for STALLION series of subcritical experiments.

- On October 17-19, 2001, the Board's staff visited the **Nevada Test Site** to observe a containment review panel and the first of **Los Alamos National Laboratory's** subcritical experiments series STALLION.

Oak Ridge Reservation (Oak Ridge Operations Office)

- On January 10-12, 2001, the Board's staff visited the **Oak Ridge Reservation** to review the status of corrective actions for project management and receive an update on the status of the HEUMF.
- On March 8-9, 2001, the Board's staff visited the **Oak Ridge Reservation** to review the readiness preparation for U233 Inspection Program.
- On March 13-14, 2001, the Board's staff visited the **Oak Ridge National Laboratory** to observe the work group on development of the American Nuclear Society 8.24 computer code validation.
- On March 26-29, 2001, the Board's staff visited the **Oak Ridge** to observe the final design review meeting for Foster-Wheeler Environmental Corporation's Melton Valley Transuranic waste facility.
- On May 22-23, 2001, the Board's staff visited the **Oak Ridge** to review ISM in the design phase.
- On June 11-13, 2001, the Board's staff visited the **Oak Ridge** to review radiation protection design controls for the uranium-233 inspection program and 3019B vent sampling.
- On June 18-22, 2001, the Board's staff visited the **Oak Ridge National Laboratory** to observe the contractor Operational Readiness Review of the uranium-233 inspection program.
- On June 25-29, 2001, the Board's staff visited the **Oak Ridge** to observe a briefing on the criticality safety basis in the preliminary Safety Analysis Report for Melton Valley Transuranic Waste Facility.
- On July 16-20, 2001, the Board's staff visited the **Oak Ridge** to review Department of Energy Readiness Review for uranium-233 inspection program.
- On August 1-2, 2001, the Board's staff visited the **Oak Ridge** to review the Department's Operational Readiness Review for Uranium 233 inspection program.
- On November 7-8, 2001, the Board's staff visited the **Oak Ridge** to review status of uranium-233 inspection program.

Pantex Plant (Amarillo Area Office)

- On February 13-16, 2001, the Board's staff visited the **Pantex Plant** to observe a 99-1 implementation plan, *Safe Storage of Pits at Pantex*, meeting on pit management.
- On February 27-March 1, 2001, the Board's staff visited the **Pantex Plant** to review the progress of W76 and W88 Disassembly and Inspection.
- On February 20-22, 2001, the Board's staff visited the **Pantex Plant** to review fire protection controls in the Authorization Basis Upgrade Program.
- On March 5-9, 2001, the Board's staff visited the **Pantex Plant** to observe the performance of the new Nuclear Explosive Safety Study/Survey operational safety review (W56).
- On March 21-23, 2001, the Board's staff visited the **Pantex Plant** to review the 98-2 implementation plan, *Safety Management at the Pantex Plant*, SS-21/Integrated Weapons Activity Plan.
- On April 17-20, 2001, the Board's staff visited the **Pantex Plant** to review implementation of site-wide lightning protections.
- On May 1-3, 2001 the Board's staff visited the **Pantex Plant** to review W78 hazard analysis controls and flow-down of requirements.
- On July 9-13, 2001, the Board's staff visited the **Pantex Plant** to review causes of corrosion and mitigation actions for fire water loop, fire protection water supply system, and software quality assurance.
- On July 16-19, 2001, the Board's staff visited the **Pantex Plant** to review ongoing weapons operations, particularly the W79.
- On July 23-25, 2001, the Board visited the **Pantex Plant**.
- On July 23-27, 2001, the Board's staff visited the **Pantex Plant** to support the Board's trip and to observe W78 contractor readiness assessment.
- On September 10-14, 2001, the Board's staff visited the **Pantex Plant** to review W768 milestone 3.
- On October 16-18, 2001, the Board visited the **Pantex Plant**.
- On October 15-19, 2001, the Board's staff visited the **Pantex Plant** to review progress of the 98-2 implementation plan, *Safety Management at the Pantex Plant*, and observe the W78 Nuclear Explosive Safety Study kickoff.

- On November 5-9, 2001, the Board's staff visited the **Pantex Plant** to observe step 1 activities for the W78 nuclear explosive safety study.
- On November 12-16, 2001, the Board's staff visited the **Pantex Plant** to review the W78 nuclear explosive safety study.
- On December 3-7, 2001, the Board's staff visited the **Pantex Plant** to observe the W78 nuclear explosive safety study.

Rocky Flats Environmental Technology Site (Rocky Flats Field Office)

- On January 22-26, 2001, the Board's staff visited the **Rocky Flats Environmental Technology Site** to review preparation for startup of the Plutonium Stabilization and Packaging System.
- On April 30-May 4, 2001, the Board's staff visited the **Rocky Flats Environmental Technology Site** to observe the Department's Operational Readiness Review for Plutonium Stabilization and Packaging System.
- On June 11-15, 2001, the Board's staff visited the **Rocky Flats Environmental Technology Site** to review building 440 upgrade, and observe activities at the Inner Tent Chamber.

Sandia National Laboratory (Kirtland Area Office)

- On June 12-13, 2001, the Board's staff visited the **Sandia National Laboratory** to review technical area V Authorization Basis and Neutron Generator Facility.
- On September 10-14, 2001, the Board's staff visited the **Sandia National Laboratory** to observe War Reserve 708 (WR708) weapons development course.
- On November 27-28, 2001, the Board's staff visited the **Sandia National Laboratory** to review the Sandia underground reactor facility preliminary design and safety analysis.

Savannah River Site (Savannah River Operations Office)

- On January 8-12, 2001, the Board's staff visited the **Savannah River Site** to overview the contractors 70% design review of the tritium extraction facility, and perform oversight of Department's readiness assessment for cleaning and restart of the 2H HLW evaporator.
- On January 16-19, 2001, the Board's staff visited the **Savannah River Site** to perform oversight of the Department's readiness assessment for cleaning and restart of 2H HLW evaporator.

- On January 22-26, 2001, the Board's staff visited the **Savannah River Site** to review tritium operations, the tritium consolidation project, the L-Area Experimental Facility fire protection, and observe the Department's Office of Defense Programs quality assurance audit.
- On January 29-February 2, 2001, the Board's staff visited the **Savannah River Site** to observe the EM quality assurance audit.
- On February 13-16, 2001, the Board's staff visited the **Savannah River Site** to review safety related I&C electrical systems at the L Area Experimental Facility.
- On February 13-14, 2001, the Board's staff visited the **Savannah River Site** to review alternate salt processing.
- On February 15-16, 2001, the Board's staff visited the **Savannah River Site** to review the tritium extraction facility process building and uranyl nitrate tank.
- On February 20-21, 2001, the Board's staff visited the **Savannah River Site** to review the americium/curium safety analysis.
- On February 26-28, 2001, the Board's staff visited the **Savannah River Site** to review activities pertaining to the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*.
- On March 13-15, 2001, the Board's staff visited the **Savannah River Site** to observe the program review of 3013 can welding and corrosion and brittle fracture review of HLW storage tanks.
- On March 19-23, 2001, the Board's staff visited the **Savannah River Site** to review the H Area B Line Phase 2 electrical and I&C system.
- On March 19-21, 2001, the Board's staff visited the **Savannah River Site** to review the H Area B Line Phase 2 startup.
- On April 16-18, 2001, the Board's staff visited the **Savannah River Site** to review recent Tritium occurrences, H Area B Line Phase 2 double contingency analysis, and the EH follow-up of criticality safety review.
- On April 23-27, 2001, the Board's staff visited the **Savannah River Site** to observe the Department's fire commission presentation, H-Area B-Line review, and observe the Department's fire safety workshop.
- On April 24-25, 2001, the Board's staff visited **Columbia SC** to review the tritium extraction facility and pit disassembly and conversion projects.

- On April 23-25, 2001, the Board's staff visited the **Savannah River Site** to observe H-Area B-Line Phase 2 startup review.
- On April 23-24, 2001, the Board's staff visited the **Savannah River Site** to observe preliminary design review for High Enriched Uranium blend-down project and tour associated facilities.
- May 1-4, 2001, the Board's staff visited the **Savannah River Site** to observe meeting on salt processing project technical and programmatic risk analysis.
- On May 22-25, 2001, the Board's staff visited the **Savannah River Site** to review Electrical I&C, and fire protection systems at the tritium extraction facility.
- On June 5-7, 2001, the Board's staff visited the **Savannah River Site** to review activities pertaining to the 2000-1 implementation plan, *Prioritization for Stabilizing Nuclear Materials*.
- On June 11-14, 2001, the Board's staff visited the **Savannah River Site** to review activities pertaining to the 2000-2 implementation plan, *Configuration Management*, *Vital Safety Systems*, and ventilation and rad worker II training.
- On June 18-22, 2001, the Board's staff visited the **Savannah River Site** to review activities pertaining to the 2000-2 implementation plan, *Configuration Management*, *Vital Safety Systems*, and ventilation criteria and approach document verification.
- On June 25-29, 2001, the Board's staff visited the **Savannah River Site** to review the HLW tank farm and the americium/curium project.
- On July 11-13, 2001, the Board visited the **Savannah River Site**.
- On July 11-13, 2001, the Board's staff visited the **Savannah River Site** to support the Board's trip.
- On August 6-10, 2001, the Board's staff visited the **Savannah River Site** to observe demonstration runs associated with the H Area B-Line Phase 2 startup.
- On September 10-14, 2001, the Board's staff visited the **Savannah River Site** to review site generic issues, upgrade analysis for the HLW safety analysis report, and close out and review the condensate storage tank module safety analysis report.
- On October 15-19, 2001, the Board's staff visited the **Savannah River Site** to observe a software quality assurance subcommittee meeting, and perform a walkdown of the software testing facility.
- On October 23-26, 2001, the Board's staff visited the **Savannah River Site** to review the HLW double shell storage tank integrity.

- On November 5-9, 2001, the Board's staff visited the **Savannah River Site** to review the HB Line phase 2 startup, observe the Department's operational readiness review, and review the site's software quality assurance program for adequacy and potential application to other sites.
- On November 12-14, 2001, the Board visited the **Savannah River Site**.
- On November 12-16, 2001, the Board's staff visited the **Savannah River Site** to observe a Teller lecture series and accompany the Board.
- On December 3-6, 2001, the Board's staff visited the **Savannah River Site** to review uranium/thorium operations and the integrated hazards assessment.

Waste Isolation Pilot Plant (Carlsbad Field Office)

- On January 9-12, 2001, the Board's staff visited the **Waste Isolation Pilot Plant** to observe acceptance testing of remote handled transuranic waste emplacement equipment, observe briefings on current status of disposal operations and planned on-site waste characterization activities, and review the status of radiological worker training program
- On April 30-May 4, 2001, the Board's staff visited the **Waste Isolation Pilot Plant** for a site status review and site-specific safety training.
- On October 9-12, 2001, the Board's staff visited the **Waste Isolation Pilot Plant** to observe transuranic waste disposal operations.
- On November 14-16, 2001, the Board's staff visited the **Waste Isolation Pilot Plant** to observe transuranic waste disposal operations.

Y-12 Plant (Y-12 Area Office)

- On January 16-19, 2001, the Board's staff visited the **Y-12 Plant** to review the status of the Y-12 maintenance program.
- On February 6-9, 2001, the Board's staff visited the **Y-12 Plant** to review the status of hydrogen fluoride and technical issues associated with reduction and dismantlement at the Y-12 Plant.
- On February 12-16, 2001, the Board's staff visited the **Y-12 Plant** to observe the integrated hazards assessment review of the Y-12 plant and programs.
- On April 2-4, 2001, the Board visited the **Y-12 Plant**.
- On April 2-4, 2001, the Board's staff visited the **Y-12 Plant** to support the Board's trip.

- On April 23-27, 2001, the Board's staff visited the **Y-12 Plant** to observe the quality assurance assessment of the Y-12 Facility performed by NNSA.
- On May 3-4, 2001, the Board's staff visited the **Y-12 Plant** to review the stabilization process for pyrophoric uranium compound at Building 9206.
- On May 30-June 1, 2001, the Board's staff visited the **Y-12 Plant** to support the Board's trip.
- On July 16, 2001, the Department briefed the Board on improvements to the **Y-12 Plant** authorization bases.
- On July 25-27, 2001, the Board's staff visited the **Y-12 Plant** to review onsite packaging and storage of nuclear materials.
- On August 13-17, 2001, the Board's staff visited the **Y-12 Plant** to observe Y-12 activities.
- On August 27-30, 2001, the Board's staff visited the **Y-12 Plant** to review the maintenance program and dismantlement operations.
- On September 18-21, 2001, the Board's staff visited the **Y-12 Plant** to observe Y-12 activities.
- On October 9-12, 2001, the Board's staff visited the **Y-12 Plant** to observe Y-12 activities, and to review chemical safety follow-up activities including preparations for wet chemistry restart.
- On October 22-26, 2001, the Board's staff visited the **Y-12 Site** to observe the Enriched Uranium Operations restart, observe Y-12 activities, and perform a wet chemistry review.
- On October 30-November 2, 2001, the Board's staff visited the **Y-12 Site** to observe contractor readiness assessment of **Y-12** disassembly campaign.
- On November 6-8, 2001, the Board's staff visited the **Y-12 Site** to observe Y-12 activities.

Miscellaneous

- On October 29-November 1, 2001, the Board's staff visited the **Rapion Engineering Office in Denver, Colorado** to review the title I 60% design of the Pit Disassembly and Conversion Facility.
- On August 21-22, 2001, the Board's staff visited **Tacoma, Washington** to review the SNF Program fuel transfer case 1/4 scale drop test.

Appendix C

Key Correspondence Between the Department and the Board in 2001

From the Board to the Department:

- On January 8, 2001, the Board forwarded a letter to the Assistant Secretary for EM, enclosing a staff issue report on the fire protection program at Fernald.
- On January 8, 2001, the Board forwarded a letter to the Deputy Administrator for Defense Programs, enclosing a staff issue report on integrated hazard analysis at LLNL, and establishing an 81-day reporting requirement for a briefing on corrective actions.
- On January 10, 2001, the Board forwarded a public meeting announcement regarding recommendations 95-2, *Safety Management*, 98-1, *Resolution of Safety Issues Identified by Internal Independent Oversight*, 2000-1, *Stabilization and Storage of Nuclear Materials*, and 2000-2, *Configuration Management, Vital Safety Systems* scheduled for February 13, 2001, at 9:00 a.m., in the Board's Public Hearing Room, in Washington, DC.
- On January 22, 2001, the Board forwarded a letter to the Manager of AL enclosing a staff issue report on the design and construction projects for defense nuclear facilities at the LANL.
- On January 23, 2001, the Board forwarded a letter to the Administrator of NNSA, identifying unresolved issues at Y-12.
- On January 30, 2001, the Board forwarded a letter to the Administrator of NNSA, enclosing a staff issue report on the proposed changes to lightning controls for W87 Stockpile Life Extension Program.
- On February 13, 2001, the Board forwarded a public meeting announcement for the continuation of the 14th quarterly open meeting conducted on February 13, 2001 regarding recommendations 95-2, *Safety Management*, 98-1, *Resolution of Safety Issues Identified by Internal Independent Oversight*, and 2000-2, *Configuration Management, Vital Safety Systems*, scheduled for February 22, 2001, at 9:00 a.m., in the Board's Public Hearing Room, in Washington, DC.
- On February 16, 2001, the Board's General Counsel forwarded a letter to the Departmental Representative enclosing a list of Board questions relative to the public meeting scheduled to reconvene on February 22, 2001.
- On February 27, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing two staff issue reports on reauthorization of W88 assembly and disassembly and inspection, and implementation of seamless safety for W76 disassembly and inspection operations.

- On March 1, 2001, the Board forwarded a public meeting announcement regarding quality assurance within the Department's nuclear defense activities, scheduled for March 28, 2001, in the Board's Public Hearing Room, in Washington, DC.
- On March 5, 2001, the Board forwarded Technical Report 29, *Criticality Safety at Department of Energy Defense Nuclear Facilities*. It established a 60-day reporting requirement for detailing the Department's path forward for addressing the observations outlined in the report.
- On March 5, 2001, the Board forwarded Technical Report 30, *Safety Review of the Hanford SNF Project during the Design and Construction Phase*.
- On March 5, 2001, the Board forwarded a letter to the Administrator of NNSA, suggesting the Department revise the plan to expedite the design, procurement, and delivery of the Enhanced Transportation Carts to meet the intent of recommendation 98-2, *Safety Management at the Pantex Plant*.
- On March 15, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing a staff issue report on the maintenance program at Y-12.
- On March 21, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EM, enclosing a staff issue report on the americium/curium Stabilization Project at SR.
- On March 23, 2001, the Board forwarded a letter to the Secretary, forwarding recommendation 2001-1, *High Level Waste Management at the Savannah River Site*.
- On March 23, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EM, enclosing a staff issue report on safety management during thermal stabilization activities at RF.
- On March 23, 2001, the Board forwarded a letter to the Secretary, requesting modifications on the revised implementation plan for recommendation 2000-1, *Stabilization and Storage of Nuclear Materials*. It establishing a 60-day reporting.
- On March 29, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing a staff issue report on tritium operations and emergency hazard assessment at LANL.
- On April 10, 2001, the Board forwarded a letter to the Secretary, establishing a 60-day reporting requirement on the proposed statistical methodology ('95 percentile methodology').
- On April 30, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, establishing a 60-day reporting requirement on the Department's path forward for addressing the issues on Integrated Hazard Analysis at Y-12.

- On April 30, 2001, the Board forwarded a public meeting announcement regarding quality assurance, scheduled for May 23, 2001, at 9:00 a.m., in the Board's Public Hearing Room, in Washington DC.
- On May 3, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EM, requesting a briefing on actions to resolve issues associated with the lack of requirements in the standard for glovebox ambient conditions and the use of supercritical fluid extraction for moisture measurements in relation to recommendation 2000-1, *Stabilization and Storage of Nuclear Materials*.
- On May 3, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EM, forwarding a staff issue report on the resolution of technical issues in support of Waste Feed Delivery at the Hanford Site.
- On May 10, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EM, enclosing a staff issue report on the final design review of the Melton Valley Transuranic Waste Project at ORNL.
- On May 24, 2001, the Board forwarded a letter to the Secretary, providing a suggested course of action for the Department's revision of the implementation plan for recommendation 2001-1, *High Level Waste Management at the Savannah River Site*.
- On May 29, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, providing a 90-day reporting requirement on staff-generated issues regarding the material storage facilities at Y-12.
- On May 29, 2001, the Board forwarded a letter to the Secretary, providing a 60-day reporting requirement to answer follow-up questions from the public meetings held in February 2001, on recommendations 95-2, *Safety Management*, 98-1, *Resolution of Safety Issues Identified by Internal Independent Oversight*, and 2000-2, *Configuration Management, Vital Safety Systems*.
- On May 29, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EM, providing a 45-day reporting requirement to address the Board's concerns on the Department's plan to transfer the vitrification of the americium/curium solution in the F-Canyon Multi-Purpose Processing Facility to the HLW tank farms in the DWPF.
- On May 29, 2001, the Board forwarded a letter to the Secretary, requesting a written response regarding the Department's plan for the transfer of all long-term chemical separation activities from the F-Canyon to the H-Canyon Facility at the SR.
- On May 29, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EM, enclosing a staff issue report on the evaluation of the electrical and I&C systems at the L-Area Experimental Facility at SR.

- On June 7, 2001, the Board forwarded a letter to the Secretary, regarding the RF plutonium stabilization and packaging system in Building 371.
- On June 21, 2001, the Board forwarded a letter to the Secretary, commending the Facility Representative Program, and Mr. John Eschenberg for receiving recognition as the Department's Facility Representative of the Year for 2000.
- On June 21, 2001, the Board forwarded a letter to the Secretary, regarding closure of recommendation 90-2, *Codes and Standards*.
- On June 21, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing a staff issue report on Pantex Fire Protection Basis for Interim Operation.
- On June 21, 2001, the Board forwarded a letter to the Secretary, enclosing a staff issue report on the Department's Electrical Safety Program.
- On June 21, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing a staff issue report on the safety basis documentation to restart W78 Disassembly and Inspection operations at the Pantex Plant.
- On June 22, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing a staff issue report on the implementation of lightning protection controls at the Pantex Plant.
- On June 28, 2001, the Board forwarded a letter to the Administrator of NNSA, enclosing a staff issue report on NNSA's Readiness Assessment of the New Y-12 Disassembly Campaign and establishing a 60-day reporting requirement on the corrective actions raised in the report.
- On June 28, 2001, the Board forwarded a letter to the Administrator of NNSA, establishing two reporting requirements: (1) a 30-day reporting requirement documenting a technically defensible analysis of the scenarios discussed in the JCO of W88 Assembly, Disassembly, and Inspection in Building 12-85; and (2) a 60-day reporting requirement that outlines corrective measures relative to NNSA's guidelines for the use and application of weapon response data.
- On July 17, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing a staff issue report on the safety basis for JASPER facility at the Nevada Test Site.
- On July 18, 2001 the Board forwarded a letter to the Deputy Secretary of Energy, commending the Department's Facility Representative Program.
- On July 20, 2001, the Board forwarded a letter to the Secretary, outlining issues that must be resolved to achieve the criticality infrastructure envisioned by the Board in recommendation 97-2, *Criticality Safety*.

- On July 20, 2001, the Board forwarded a letter to the Administrator of NNSA, enclosing a staff issue report on the review of the Approved Container Program at the Pantex Plant.
- On July 20, 2001, the Board forwarded a letter to the Assistant Secretary for EM, enclosing three staff issue reports pertaining to SR: (1) Electrical and I&C Systems, HB-Line Phase II; (2) Chemical Process Safety, HB-Line Phase II; and (3) Fire Protection Review, HB-Line Phase II.
- On July 23, 2001 the Board forwarded a public meeting announcement regarding quality assurance, scheduled for August 15, 2001, at 9:00 a.m., in the Board's Public Hearing Room, in Washington DC.
- On July 23, 2001, the Board forwarded the announcement of the assignment of Dr. Charles Keilers as the Board's site representative at LANL.
- On July 30, 2001 the Board forwarded a letter to the Secretary, enclosing a staff issue report on Salt Processing at SR.
- On August 14, 2001, the Board forwarded a letter to the Acting Assistant Secretary for EH, enclosing observations made by the Board's staff during their reviews of the pilot Phase II assessments of confinement ventilation systems, conducted at SR's H-Canyon and LLNL.
- On August 14, 2001, the Board forwarded a letter to the Assistant Secretary for EM, enclosing a staff issue report on Facility Disposition Activities at the Hanford Site.
- On August 27, 2001, the Board forwarded an announcement of the assignment of Dr. Thomas D. Burns, Jr. as one of the Board's site representative at SR.
- On August 27, 2001 the Board forwarded an announcement of Dr. Charles R. Martin as the 2001 recipient of the John W. Crawford, Jr. Award for Staff Excellence.
- On September 6, 2001, the Board forwarded a letter to the Administrator of NNSA, regarding the preparations for the Phase I Uranium-233 Inspection and Repackaging Program at ORNL.
- On September 25, 2001, the Board forwarded a letter to the Assistant Secretary for EM, regarding the review of the revised safety basis to restart the 242-16H evaporator at SR.
- On September 25, 2001, the Board forwarded a letter to the Administrator of NNSA, enclosing a staff issue report on the Hydrogen Fluoride Supply System at Y-12.
- On September 25, 2001, the Board forwarded a letter to the Administrator of NNSA, regarding canned subassemblies.
- On September 25, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, responding to the Department's letter dated September 14, 2001, regarding JCO for W88 activities at the Pantex Plant.

- On October 1, 2001, the Board forwarded a letter to the Secretary, responding to the Department's letter dated September 14, 2001, regarding the revised implementation plan for recommendation 2001-1, *High Level Waste Management at the Savannah River Site*.
- On October 2, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, establishing a 30-day reporting requirement to provide details on the procedural compliance problem at the Pantex Plant and the corrective actions the Department proposes to resolve them.
- On October 2, 2001, the Board forwarded a letter to the Assistant Secretary for EM, enclosing a staff issue report on the feedback and improvement programs at the Hanford Tank Farms.
- On October 2, 2001 the Board forwarded a letter to the Assistant Secretary for EM, enclosing a staff issue report on the observations of the activities at INEEL.
- On October 10, 2001, the Board forwarded a letter to the Deputy Secretary of Energy, enclosing a staff issue report on the review of workforce analyses, technical qualification program, and Facility Representative training at AL, Kirtland Area Office, and Los Alamos Area Office.
- On October 15, 2001, the Board forwarded a letter to the Under Secretary of Energy, Science and Environment, establishing a 45-day reporting requirement relative to the issues raised regarding the implementation of ISM at OR.
- On October 31, 2001, the Board forwarded a letter to the Secretary, commending him on his expectations of Department managers as outlined in his speech during the Quarterly Leadership Meeting held on October 15, 2001.
- On November 5, 2001, the Board forwarded a letter to the Deputy Secretary, enclosing a staff issue report on support facilities needed during emergencies at LANL.
- On November 8, 2001, the Board forwarded a letter to the Secretary, establishing a 45-day reporting requirement on items cited in the letter regarding ISM.
- On November 13, 2001, the Board forwarded an announcement of the assignment of Dr. Matthew J. Forsbacka as one of the Board's site representatives at Y-12.
- On November 21, 2001, the Board forwarded a letter to the Secretary, providing suggestions on the revised implementation plan for recommendation 2000-1, *Stabilization and Storage of Nuclear Materials*.
- On November 26, 2001, the Board forwarded a letter to the Acting Deputy Administrator for Defense Programs, enclosing a staff issue report on a follow-up review of the maintenance program at Y-12.

- On December 11, 2001, the Board Chairman John T. Conway provided remarks to the Department at the Department's Executive Safety Conference held on December 11-12, 2001, in Washington, DC.
- On December 11, 2001, Board Member Joseph DiNunno provided remarks to the Department at the Department's Executive Safety Conference held on December 11-12, 2001, in Washington, DC.
- On December 18, 2001, the Board forwarded a letter regarding Phase II assessment of the operability of vital safety systems at the Department's defense nuclear facilities relative to the implementation plan for recommendation 2000-2, *Configuration Management, Vital Safety Systems*.

From the Department to the Board:

- On January 2, 2001, the Assistant Secretary for EM sent a letter to the Board enclosing the INEEL Waste Management Complex Disposal Authorization Statement, Nevada Test Site Area 5 Composite Analysis, Department-Headquarters review of the Nevada Test Site Area 5 Composite Analysis, and Nevada Test Site Area 5 Disposal Authorization Statement (deliverables for the final four commitments of the Departments 94-2 implementation plan, *Conformance with Safety Standards at Department of Energy Low-Level Nuclear Waste and Disposal Sites*).
- On January 9, 2001, the Acting Assistant Secretary for EH sent a copy of the Department's Memorandum for Distribution to the Board providing information on the management structure for actions under the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*.
- On January 9, 2001, the Acting Assistant Deputy Administrator for Research, Development and Simulation in Defense Programs sent a letter to the Board responding to the Board's staff issue report regarding electrical, I&C, and fire protection systems at LANL.
- On January 11, 2001, the Assistant Deputy Administrator for Military Application and Stockpile Operations in Defense Programs sent a letter to the Board enclosing the AL-R8 Sealed Insert Container Surveillance Report for Fiscal Year 2000 (a deliverable for the 99-1 implementation plan, *Safe Storage of Pits at Pantex*).
- On January 16, 2001, the Deputy Secretary of Energy sent a letter to the Board regarding the Department's Integrated Nuclear Materials Management Plan.
- On January 19, 2001, the Secretary sent a letter to the Board enclosing revision 1 of the 2000-1 implementation plan, *Prioritization for Stabilizing Nuclear Materials*.

- On January 23, 2001, the Principal Deputy Assistant Secretary for EH sent a letter to the Board stating that the Department had begun conducting operability assessments of vital safety systems at certain defense nuclear facilities listed in the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*, (commitment 1), and proposing closure of the commitment.
- On January 29, 2001, the Acting Assistant Secretary for EH sent a letter to the Board enclosing a report on Initial Joint Review of Wildland Fire Safety at the Department's sites (a deliverable for commitment 12 of the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*).
- On January 29, 2001, the Acting Deputy Administrator for Defense Programs sent a letter to the Board responding to the Board's letter dated October 23, 2000, on concerns involving lightning controls at the Pantex Plant.
- On January 31, 2001, the Acting Assistant Secretary for EH sent a letter to the Board: (1) stating that the Department had taken steps to maintain operation and funding of the Filter Test Facility at OR and maintain contact with the Army's Edgewood facility to remain apprised of plans for its continued operation until a revised strategy is implemented (commitment 28 of the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*); (2) proposing closure of commitment 28; and (3) forwarding information on a delay in deliverables due and outstanding under the 2000-2 implementation plan.
- On January 31, 2001, the Assistant Deputy Administrator for Military Application and Stockpile Operations in Defense Programs sent a letter to the Board providing an update on the Y-12 W56 dismantlement campaign.
- On January 31, 2001, the Manager of AL sent a letter to the Board providing information on outstanding commitments due relative to revision 1 of the 98-1 implementation plan, *Resolution of Safety Issues Identified by Internal Independent Oversight*.
- On February 15, 2001, the Acting Deputy Administrator for Defense Programs sent a letter to the Board responding to the Board's letter dated May 2, 2000, on the evaluation of systemic deficiencies in the fire hazards analyses and controls at the Pantex Plant.
- On February 21, 2001, the Acting Assistant Secretary for EH sent a letter to the Board enclosing the Secretary's memorandum issued to the Department directing the establishment of System Engineer Programs at the department's defense nuclear facilities (a deliverable for commitment 14 of the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*) and proposed closure of the commitment.

- On February 22, 2001, the Assistant Deputy Administrator for Research, Development, and Simulation in Defense Programs sent a letter to the Board enclosing the quarterly status report for the first quarter of the 2001 fiscal year relative to the 97-2 implementation plan, *Continuation of Criticality Safety at Defense Nuclear Facilities*.
- On February 22, 2001, the Assistant Deputy Administrator for Military Application and Stockpile Operations in Defense Programs sent a letter to the Board providing information on the Department's 452 Orders that would be published in May 2001, relative to the 98-2 implementation plan, *Safety Management at the Pantex Plant*.
- On February 28, 2001, the Manager of AL sent a letter to the Board relative to the 98-2 implementation plan, *Safety Management at the Pantex Plant*, enclosing the Department's-Approved Basis for Interim Operations Module and TSR (commitment 4.3.1), the approved additional TSR controls derived from Nuclear Explosive Safety Master Studies (commitment 4.3.5), and updates on overdue commitments. Closure was proposed for commitment 4.3.5.
- On March 5, 2001, the Acting Assistant Secretary for EM sent a letter to the Board enclosing the Corrective Action Tracking System Secretary's Quarterly Report for the 1st quarter of the 2001 fiscal year.
- On March 6, 2001, the Departmental Representative sent a letter to the Board enclosing a set of 11 recent reports forwarded from the Office of Independent Environment, Safety and Health Oversight.
- On March 6, 2001, the Deputy Assistant Secretary for Integration and Disposition in EM sent a letter to the Board stating that the Department had completed the conceptual design for 235-F Stabilization subproject and begun its detail design (commitment 205 and 206, respectively, of the 2000-1 implementation plan, *Prioritization for Stabilizing Nuclear Materials*), and further proposed closure of both commitments.
- On March 9, 2001, the Administrator of NNSA sent a letter to the Board forwarding a classified report on Y-12 W56 Dismantlement Campaign.
- On March 11, 2001, the Acting Deputy Administrator for Defense Programs sent a letter to the Board responding to the Board's letter dated February 27, 2001, on the implementation of SS-21 for the W76 and W88 nuclear explosive operations at the Pantex Plant.

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- On August 24, 2001, the Assistant Secretary for EM sent a letter to the Board responding to the Board's letter dated July 30, 2001, relative to the selection of a preferred alternative for processing the HLW salt solutions and salt cake at SR.
- On August 27, 2001, the Acting Assistant Secretary for EH sent a letter to the Board stating that the Department had briefed the Board on the effectiveness of confinement ventilation assessment criteria, enclosing the Department's criteria and guidelines, *Assessment Criteria and Guidelines to Ascertain the Current Condition of Confinement Ventilation Systems in Defense Nuclear Facilities* (a deliverable for commitment 10 of the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*) and proposing closure of the commitment.
- On August 28, 2001, the Acting Deputy Administrator for Defense Programs sent a letter to the Board enclosing BWXT Y-12's Project Plan for Ten Year Non-Material Access Area Storage Management Program.
- On August 29, 2001, the Administrator of NNSA sent a letter to the Board enclosing the Project Management Plan for the Y-12 Fire Protection Program Comprehensive Corrective Action Plan.
- On August 30, 2001, the Assistant Secretary for EM sent a letter to the Board providing the status of actions taken in response to the Board's letter dated August 29, 2000, regarding the Hanford River Protection Program HLW Tank Integrity Project.
- On September 4, 2001, the Secretary sent a letter to the Board regarding alternate methodologies in preparing documented safety analyses.
- On September 14, 2001, the Secretary sent a letter to the Board enclosing the Department's revised implementation plan for recommendation 2001-1, *High Level Waste Management at the Savannah River Site*.
- On September 14, 2001, the Acting Deputy Administrator for Defense Programs sent a letter to the Board responding to the Board's letter dated June 28, 2001 regarding JCO of W88 Assembly, Disassembly, and Inspection.
- On September 14, 2001, the Acting Deputy Administrator for Defense Programs sent a letter to the Board regarding issues raised in the Board's Technical Report 24, *Safe Handling of Insensitive High Explosive Weapon Subassemblies at the Pantex Plant*.
- On September 19, 2001, the Secretary sent a letter to the Board providing additional information relative to the Board's letter dated March 23, 2001, requesting the Department to expedite remediation activities.
- On September 24, 2001, the Assistant Deputy Administrator for Military Application and Stockpile Operations in Defense Programs sent a letter to the Board regarding readiness to start new disassembly campaign at Y-12.

- On October 2, 2001, the Assistant Secretary for EM sent a letter to the Board responding to the Board's letter dated August 14, 2001, regarding the incorporation of the disposition requirements of DOE Order 430.1A in contracts at Hanford.
- On October 22, 2001, the Assistant Secretary for EM sent a letter to the Board responding to the Board's letter dated September 25, 2001 regarding safety basis for the SR 242-16H (2H) evaporator.
- On October 25, 2001, the Deputy Assistant Secretary for Integration and Disposition in Environmental Management sent a letter to the Board stating that the Department had completed the dissolution of RF scrub alloy at SRS) and providing an update on the Department's status of the plutonium metals repackaging milestone at Hanford (commitments 229 and 110 of the 2000-1 implementation plan, *Prioritization for Stabilizing Nuclear Materials*). Closure was proposed for commitment 229.
- On October 30, 2001, the Acting Associate Administrator for Facilities and Operations sent a letter to the Board responding to the Board's letter dated December 1, 1999, regarding quality assurance at NNSA sites.
- On October 31, 2001, the Assistant Secretary for EM sent a letter to the Board responding to the Board's letter dated May 29, 2001, regarding the use of the F-Canyon for plutonium disposition.
- On November 1, 2001, the Under Secretaries for NNSA and for Energy, Science and Environment sent a memorandum to the Board regarding the Department's Executive Safety Conference scheduled for December 11-12, 2001 in Washington, DC.
- On November 1, 2001, the Chief of Staff in EM sent a letter to the Board enclosing the Department's record of decision on salt processing alternatives; stating that Tank 49 was available for HLW service; and stating that the 2H evaporator had been restarted (commitments 2.2, 3.3, and 3.6, respectively, of the 2001-1 implementation plan, *High-Level Waste Management at the Savannah River Site*).
- On November 13, 2001, the Secretary of Energy sent a letter to the Board enclosing the final report to the Board on recommendation 98-1, *Resolution of Safety Issues Identified by Internal Independent Oversight*, and proposing closure. On November 21, 2001, the Assistant Deputy Administrator for Research, Development, and Simulation in Defense Programs sent a letter to the Board enclosing the 4th quarter status report for the 2001 fiscal year relative to the 97-2 implementation plan, *Criticality Safety*.

- On December 7, 2001, the Assistant Deputy Administrator for the NNSA sent a letter to the Board stating that AL, Chicago Operations Office, ID, OR, Oak, RL, ORP, RF, SR, and Y-12 had completed a review of their contractor self-improvement plans; and the Nuclear Criticality Safety Program Management Team's Criticality Safety Support Group had reviewed and commented on EH's Nuclear Safety Rule draft guides (representing completion of two commitments in the Department's report submitted to the Board on May 30, 2001 relative to the Board's Technical Report 29, *Criticality Safety at Department of Energy Defense Nuclear Facilities*).
- On December 7, 2001, the Deputy for Program Execution for the AL sent a letter to the Board enclosing results of the Office of Amarillo Operations assessment of the Pantex contractor implementation of Technical Business Practice (TBP-901), "Integrated Safety Process of Nuclear Weapons Operations and Facilities," and the Office of Weapon Programs Management's assessment of the design laboratory implementation of the Technical Business Practice; and an update of the Department's progress towards Revisions to AL Supplemental Directives 452.1 and 452.2 (a deliverable for commitment 4.1.2 and commitment 4.4.3 of revision 1 of the 98-2 implementation plan, *Safety Management at the Pantex Plant*).
- On December 7, 2001, the Acting Manager of ID sent a letter to the Board reporting commencement of Phase II assessments relative to the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*.
- On December 13, 2001, the Chief of Staff for EM sent a letter to the Board stating that the Salt Waste Processing Facility Final RFP was issued (commitment 2.4 of the 2001-1 implementation plan, *High Level Waste Management at the Savannah River Site*).
- On December 14, 2001, the Acting Principal Deputy Director for the Office of Science sent a letter to the Board requesting an extension to complete the report addressing to Board's letter dated October 15, 2001, regarding ISM systems at OR.
- On December 17, 2001, the Principal Deputy Assistant Secretary for EH sent a letter to the Board providing an update on deliverables due for the 2000-2 implementation plan, *Configuration Management, Vital Safety Systems*.
- On December 19, 2001, the Acting Deputy Administrator sent a letter to the Board pertaining to the tritium facility operations and site-wide emergency hazard assessment activities at the LANL.

Appendix D List of Abbreviations and Acronyms

2000-1	Board Recommendation 2000-1
2000-2	Board Recommendation 2000-2
2001-1	Board Recommendation 2001-1
233U	Uranium 233
92-4	Board Recommendation 92-4
94-1	Board Recommendation 94-1
94-2	Board Recommendation 94-2
95-2	Board Recommendation 95-2
96-1	Board Recommendation 96-1
97-1	Board Recommendation 97-1
97-2	Board Recommendation 97-2
98-1	Board Recommendation 98-1
98-2	Board Recommendation 98-2
99-1	Board Recommendation 99-1
AAO	Amarillo Area Office
AL	Albuquerque Operation Office
ARO	Assurance Review Office
BJC	Bechtel Jacob's Company
BNI	Bechtel National, Inc
Board	Defense Nuclear Facilities Safety Board
CAM	Corrective Action Management
CAP	Corrective Action Plans
CB	Carlsbad Field Office
CFR	Code of Federal Regulations
CHG	CH2M Hill Hanford Group
CRAD	Criteria Review and Approach
CRD	Contractors Requirements Documents
D&D	Decontamination & Disassembly
Department	Department of Energy
Departmental Representative	Office of the Departmental Representative to the Board
DP	Office of Defense Programs in NNSA
DST	Double Shell Tanks
DWPF	Defense Waste Processing Facility
EH	Office of Environment, Safety, and Health
EM	Office of Environmental Management
ERC	Environmental Restoration Contractor