

March 31, 2000

The President
The White House
Washington, DC 20500

Dear Mr. President:

The Defense Nuclear Facilities Safety Board (Board) is pleased to submit its Annual Program Performance Report for Fiscal Year 1999.

As required by the Government Performance and Results Act, this report sets forth the actual performance achieved compared with the performance goals which were established for Fiscal Year 1999. Also, a copy of this report is being provided to the Director of the Office of Management and Budget (OMB) as required by OMB Circular No. A-11.

Respectfully submitted,

John T. Conway
Chairman

Enclosure: as stated

FISCAL YEAR 1999 PERFORMANCE REPORT
SUBMITTED UNDER PROVISIONS OF THE
GOVERNMENT PERFORMANCE AND RESULTS ACT

DEFENSE NUCLEAR FACILITIES
SAFETY BOARD



MARCH 2000

EXECUTIVE SUMMARY

This report is submitted in accordance with the specific requirements of the Government Performance and Results Act (GPRA). The report describes achievements that satisfy goals identified by the Defense Nuclear Facilities Safety Board (Board) in its Fiscal Year 1999 Performance Plan, published most recently in the Board's Fiscal Year 2000 Budget Request to Congress (dated February 1999). As discussed in this report, all of the performance goals established in the Board's Fiscal Year 1999 Performance Plan have been achieved.

The Board is required by the Atomic Energy Act of 1954, as amended (Section 316), to submit annually to the Committees on Armed Services and on Appropriations of the Senate and to the Speaker of the House of Representatives a written report concerning the Board's activities. In addition to setting forth all recommendations made by the Board during the preceding year, this Annual Report to Congress is required to include an assessment of the improvements in the safety of Department of Energy defense nuclear facilities resulting from actions taken by the Board or taken on the basis of the Board's activities.

There is a direct correlation between the Board's Annual Report to Congress and this GPRA Performance Report. However, the time periods differ slightly because the GPRA Performance Report is based on a fiscal year, while each Annual Report to Congress covers a calendar year. Additional details concerning the actions reported in this Performance Report for FY 1999 can be found in the Board's Ninth and Tenth Annual Reports to Congress, dated February 1999 and February 2000, respectively. These reports are located on the Internet at www.dnfsb.gov/annual/annual9.pdf and www.dnfsb.gov/annual/annual10.pdf.

The Atomic Energy Act also requires the Department of Energy to submit an annual report to Congress addressing the Department of Energy's activities related to the Board.

The report highlights Department of Energy activities resulting from the Board's oversight, and so is relevant to the Board's performance. Information concerning many of the actions reported in the Board's Performance Report for Fiscal Year 1999 can be found in the Department of Energy reports for calendar year 1998, and 1999, dated February 1, 1999 and February 9, 2000, respectively. These reports are located at <http://dr.tis.doe.gov/archive/annlrpts/doe/ar99f01b.pdf> and <http://dr.tis.doe.gov/archive/annlrpts/Ar00f09d.pdf>

The experience and insight gained from implementation of the GPRA requirements, namely the tracking and reporting of performance relative to the Board's goals and objectives, are being factored into the development of future annual performance plans, adjustments to the Board's Strategic Plan, and agency actions to improve goal-oriented performance.

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1. INTRODUCTION

The Defense Nuclear Facilities Safety Board (Board) is an independent executive branch agency charged with providing technical safety oversight of the Department of Energy's (DOE's) defense nuclear facilities and activities. With its broad health and safety oversight mission, as defined by statute, the Board developed seven general outcome goals that should result from its oversight activities:

1. The safety of nuclear weapons at DOE defense nuclear facilities will continue to be assured.
2. Events or practices at hazardous DOE defense nuclear facilities that have adversely affected or may adversely affect public health and safety will be identified and, as needed, recommendations will be made to the Secretary of Energy identifying technically and economically feasible measures to address these hazards.
3. A flexible and adaptable DOE standards-based safety management program will be established that incorporates recognized good nuclear safety practices and allows for integration of work and safety planning for work that DOE and contractors perform at its hazardous defense nuclear facilities.
4. DOE technical expertise will be improved to permit DOE to better manage the hazardous work associated with defense nuclear facilities.
5. Integrated Safety Management programs will be implemented for operations at defense nuclear facilities, with processes and controls tailored to the hazards involved.¹
6. New defense nuclear facilities under design or construction will meet current safety standards.
7. Facilities used in the past for defense nuclear purposes will be safely cleaned up and deactivated in such a manner as to permit safe eventual disposition.

Pursuant to these seven general goals, the Board and its staff established seven strategic objectives. These strategic objectives served as the primary drivers for the Board's oversight activities during Fiscal Year (FY) 1999, and are implemented by specific FY 1999 performance goals.

The Board's statutory mission, strategic objectives, and FY 1999 performance (31) goals are logically divided into three strategic areas of concentration:

¹ Integrated Safety Management (ISM) is the means by which DOE is institutionalizing the process of incorporating into the planning and execution of every major defense nuclear activity involving hazardous materials those controls necessary to ensure that environment, safety, and health objectives are achieved.

1. Complex-Wide Health and Safety Issues,
2. Safe Management and Stewardship of the Nuclear Weapons Stockpile and Components, and
3. Safe Storage and Disposition of the Hazardous Remnants of Weapons Production.

The Board's deployment of its resources is also aligned with these strategic areas of concentration, as is this FY 1999 Performance Report. The relationship among these areas is discussed in the Board's Strategic Plan (on the Internet at www.dnfsb.gov/strateg/sbp97.pdf).

This FY 1999 Performance Report compares the Board's actions and outcomes against the FY 1999 Performance Plan, published most recently in the Board's FY 2000 Budget Request to Congress (dated February 1999). During the course of the year, the Board determined that some minor adjustments to the plan were warranted to facilitate reporting, as well as to reflect the Board's focus of its limited resources on those activities and issues at DOE facilities that presented the highest risk to public health and safety or that offered the most improvement in overall risk. The resulting changes maintained the structure of strategic objectives discussed above and preserved the same level of effort as the previous version of the plan. Details of the changes are described in the crosswalk provided in the appendix to this report.

The Board revised its Strategic Plan in August 1999 to incorporate the experience gained during the first year of implementation and to meet the Office of Management and Budget (OMB) guidance contained in Circular A-11, which was issued in July 1999. The revision simplified the Strategic Plan by streamlining its general goals and by more closely aligning the Board's strategic objectives with these goals. This revised plan is available on the Internet at www.dnfsb.gov/strateg/sbp99.pdf.

2. PERFORMANCE RESULTS

As presented in Tables 1, 2, and 3, all 31 of the Board's FY 1999 performance goals have been achieved. These individual performance goals were established to directly support the strategic objectives identified in the Board's Strategic Plan.

Tables 1, 2, and 3 briefly describe the manner in which each of the 31 FY 1999 performance goals were achieved, as well as the general impact on safety. These descriptions are not repeated here. Instead, this section briefly summarizes progress toward the Board's seven strategic objectives as a result of achieving the FY 1999 performance goals.

Objective I-A. *Verify that Integrated Safety Management (ISM) programs at DOE facilities are tailored to existing hazards, developed to prescribed standards, and implemented by managers and workers.*

The Board's earliest recommendations urged DOE to adopt a standards-based safety management program for the defense nuclear complex. This emphasis has continued, as reflected in more recent recommendations (95-2, 98-1), which have greatly facilitated DOE's efforts to establish complex-wide implementation of ISM.

Objective I-A was pursued by reviewing DOE directives and guides that support the ISM program; encouraging and monitoring the development, implementation and verification of facility and site-wide ISM programs; evaluating the design and construction of projects to ensure early application of ISM principles; and encouraging effective reporting and monitoring mechanisms for feedback and continued ISM improvement.

The Board's reviews, public meetings, and other interactions with DOE in FY 1999 have resulted in (1) an improved set of health and safety requirements and guidance for radiological protection of workers during a facility's operational life cycle and during deactivation and decommissioning activities, (2) significant progress in DOE's verification of ISM implementation at its defense nuclear facilities, and (3) identification to DOE of specific safety issues associated with its ongoing design and construction projects.

FY 2000 performance goals will continue to include the Board's specific reviews of DOE's directives, its verification of ISM implementation and its design and construction projects, with an added focus on institutionalizing ISM during the design and construction phases of a facility's life cycle. Full realization of this objective is expected to require a multiyear effort by both the Board and DOE.

Objective I-B. *Confirm that roles, responsibilities, experience, and competencies required to protect workers and the public are explicitly defined and implemented for both DOE and its contractor personnel.*

Since its inception, the Board has encouraged DOE to (1) identify the safety management roles and responsibilities of federal employees and (2) ensure that federal and contractor personnel have the technical competency necessary to execute their safety management responsibilities. Several of the Board's recommendations, including Recommendations 93-3, 95-2, and 97-2, have underscored the importance of these items.

Objective I-B was addressed by review of organizational documents, encouragement and assessments of DOE actions to institutionalize a program to ensure federal technical capability, and implementation of two of the Board's recommendations related to technical capability (Recommendations 93-3 and 97-2).

As a result of the continuing efforts and encouragement of the Board and its staff in FY 1999, DOE has (1) issued more comprehensive directives defining the safety management roles and responsibilities of the federal work force; (2) institutionalized its technical qualification program leading to closure of Recommendation 93-3; and (3) continued its progress in developing federal and contractor expertise in nuclear criticality in response to the Board's Recommendation 97-2.

The Board's FY 2000 performance goals in this area will include specific assessments of DOE's implementation of directives related to roles and responsibilities for safety management, and DOE's progress in developing a technically competent federal and contractor workforce.

Objective II–A. *Cause DOE to improve the collection, analysis, and availability of information related to safety, as part of its weapons stockpile stewardship and management program.*

Although efforts to advance this objective are part of almost all the Board's efforts involving safety oversight of the enduring nuclear weapons stockpile, specific reviews of weapon information and weapon response under abnormal environments were conducted to assess the status of weapon information related to safety. In addition, the Board prompted DOE to complete an important directive that will ensure all future safety analyses capture information necessary to ensure the long-term safety of nuclear explosive activities.

The Board plans to continue to stress the need for DOE to improve the collection, analysis, and availability of information related to safety. DOE has responded to the Board's past initiatives in this regard, and is making progress in archiving information and documenting safety analyses. The Board has determined that, in the future, this objective should be approached as part of an overall effort to ensure and improve the safety of nuclear weapons-related activities. This determination will be factored into future performance plans.

Objective II–B. *Confirm that the safety of DOE defense nuclear facilities and activities relating to the maintenance, storage, and dismantlement of the nuclear weapons stockpile are performed safely using an Integrated Safety Management approach that adequately controls the hazards associated with these activities.*

Activities to address Objective II-B included facility and activity-level assessments of safety analyses, safety controls, safety management programs, feedback and improvement programs, and operational readiness determinations.

As a result of efforts toward this objective by both the Board and DOE, several mission activities that had been suspended by DOE for safety-related reasons were restarted with improved safety systems. In addition, DOE took a major step toward repackaging plutonium pits into improved containers, thus providing a safer storage environment.

The Board's efforts this year also contributed to the long-term objective of ensuring the safety of ongoing operations. The results described in Table 2 represent significant progress in this area. DOE's activities that are the focus of this objective are commonly referred to as the stockpile management program. This long-term mission, which addresses the industrial aspects of supporting the nation's nuclear deterrent, involves hazardous activities that the Board helps to ensure are performed safely. In FY 1999, the Board prompted DOE to make improvements in safety at all primary DOE defense nuclear sites involved in stockpile management. This type of support will remain a principal safety objective of the Board for the foreseeable future.

Objective II-C. *Confirm the safety of DOE defense nuclear activities undertaken to ensure the continuing safety of the nation's nuclear weapon stockpile in the absence of underground nuclear testing.*

The primary focus of DOE's weapons-related research and development is to replace underground nuclear testing with a science-based approach. This long-term DOE mission, termed stockpile stewardship, which continues to mature, involves energetic and hazardous nuclear activities that must be performed safely. The Board addressed Objective II-C through the evaluation of the adequacy of both the development and the execution of ISM principles at facilities involved in stockpile stewardship.

As described in Table 2, the Board achieved all its FY 1999 performance goals supporting this objective, thus contributing to DOE's considerable progress in confirming and improving safety at defense nuclear facilities engaged in weapons-related research and development.

Objective III-A. *Verify that DOE properly characterizes, stabilizes, processes, and safely stores surplus plutonium, uranium, and other actinides, residues, spent fuel, and wastes from the nuclear weapons program, and that DOE provides for expeditious disposal as needed.*

Many of the Board's achievements during FY 1999 contributed to accomplishment of this broad objective. Board actions, summarized in Table 3, helped ensure the safe management and disposition of legacy materials from DOE weapons production activities. Complete stabilization and disposition of these legacy materials, encompassing excess special nuclear materials, process residues, spent nuclear fuel, and radioactive wastes will require decades. The Board's activities during FY 1999 represent significant incremental steps toward achieving this objective. As reflected in Table 3, the Board had reasonable success during FY 1999 in ensuring that DOE's

stabilization activities were conducted safely, and that designs for new processes and facilities provide adequate safety features and controls. However, progress on this objective continues to suffer from inconsistent program direction by DOE, including, in some instances, a lack of commitment to aggressive stabilization activities, as well as from inadequate funding of stabilization work. A major effort of the Board in FY 1999 was focused on leading DOE to develop an effective plan for addressing some of the greatest hazards; this effort continued into FY 2000, and led to the recent issuance of the Board's Recommendation 2000-1.

Objective III-B. *Verify that DOE aggressively pursues the safe decommissioning of excess defense nuclear facilities that pose a significant risk to workers or the public.*

The Board's efforts during FY 1999 focussed on a few of the many DOE non-operational facilities slated for cleanup and disposition. Decommissioning of DOE's excess weapons facilities will continue for decades; thus the Board's FY 1999 accomplishments represent incremental DOE progress toward achieving this objective. With certain notable exceptions, such as the fast-track decommissioning programs at the Rocky Flats Environmental Technology Site and the Fernald Environmental Management Project, facility decommissioning remains a relatively low priority for DOE. This is particularly true at sites with enduring programmatic missions (such as the Y-12 Plant at Oak Ridge). A key objective of the Board in FY 2000 and beyond will be to work with DOE towards ensuring that contaminated facilities are maintained safely while awaiting clean-up to a non-time critical state and that decommissioning efforts reflect priority attention to the most hazardous ones. The Board worked to ensure that decommissioning activities conducted during FY 1999 were done safely and with appropriate controls to protect workers and the public.

Table 1. FY 1999 Outcomes in Strategic Area of Concentration I: Complex-Wide Health and Safety Issues

FY 1999 Performance Goal	FY 1999 Outcomes
<p>OBJECTIVE I-A: Verify that Integrated Safety Management (ISM) programs at DOE facilities are tailored to existing hazards, developed to prescribed standards, and implemented by managers and workers.</p>	
<p>PERFORMANCE GOAL I-A.1.a: Lead DOE towards consolidating and integrating its set of health and safety directives.</p>	<p>The Board's staff reviewed 18 directives that support 10 CFR 835, <i>Occupational Radiation Protection</i>. As a result, guidance in support of this important safety management function was clarified and strengthened to provide more effective tools for the protection of workers.</p> <p>The Board's staff reviewed three guides associated with newly developed disposition requirements of DOE Order 430.1A, <i>Life Cycle Asset Management</i>: DOE Guide 430.1-2, <i>Surveillance and Maintenance During Facility Disposition</i>; DOE Guide 430.1-3, <i>Deactivation Implementation Guide</i>; and DOE Guide 430.1-4, <i>Decommissioning Implementation Guide</i>. The three guides incorporated comments from the Board's staff that improved the deactivation and decommissioning end-point development process and the rigor of surveillance and maintenance requirements, and provided greater assurance that workers will be protected.</p>
<p>PERFORMANCE GOAL I-A.1.b: Encourage DOE to appropriately update the health and safety directives explicitly associated with ISM, based on experience and lessons learned in implementing ISM.</p>	<p>Through the institutionalization of ISM, DOE has developed a process for reviewing all new or revised directives to ensure they are integrated with other directives, as required, and are consistent with the DOE ISM program. The Board's staff reviewed draft revisions to the updated DOE Guide 450.4-1, <i>Integrated Safety Management Guide</i>, and ensured that lessons learned from implementing ISM, new DOE organizational changes, and changes made in feedback and improvement programs in response to the Board's oversight in this area were adequately incorporated.</p>

**Table 1. FY 1999 Outcomes in Strategic Area of Concentration I: Complex-Wide Health and Safety Issues
(Continued)**

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL I-A.2.a: Confirm that the essential elements of facility-level ISM are implemented for the 12 Recommendation 95-2 “top priority facilities.”</p>	<p>All priority facilities have fully verified ISM implementation except Technical Area (TA)-55 and the Chemistry and Metallurgy Research (CMR) Facility at Los Alamos National Laboratory (LANL), the Hanford K-Basins, and the Pantex bays and cells. In addition, as of the end of FY 1999, ISM implementation had been verified at 23 of the 43 follow-on facilities. DOE has scheduled verification of ISM implementation at all remaining priority and follow-on facilities during FY 2000.</p>
<p>PERFORMANCE GOAL I-A.2.b: Encourage DOE to have institutional-level ISM System Descriptions in place for all defense nuclear sites.</p>	<p>The Board has monitored and encouraged the development of ISM System Description documents required by the DOE Acquisition Regulations (DEAR). DOE approved ISM System Descriptions for the Idaho National Engineering and Environmental Laboratory (INEEL), the Hanford Tank Farms, Sandia National Laboratories (SNL), Lawrence Livermore National Laboratory (LLNL) Superblock, LANL, and Oak Ridge National Laboratory (ORNL). ISM System Descriptions were approved in 1998 for the Savannah River Site (SRS), the Y-12 Plant, the Waste Isolation Pilot Plant (WIPP), and the Rocky Flats Environment Technology Site (RFETS). ISM System Descriptions for the Pantex Plant, the Nevada Test Site (NTS), and the Hanford Site are pending DOE approval, which is expected to occur in 2000. As of the end of FY 1999, ISM System Descriptions for 35 of the 43 follow-on facilities had been verified.</p>
<p>PERFORMANCE GOAL I-A.2.c: Negotiate an acceptable schedule for institutional-level ISM System implementation for all operational defense nuclear sites.</p>	<p>Secretary of Energy Bill Richardson has tasked the complex with ISM implementation at all DOE facilities by September 2000. Detailed ISM implementation schedules were presented to the Board during each of its public meetings on ISM.</p>

**Table 1. FY 1999 Outcomes in Strategic Area of Concentration I: Complex-Wide Health and Safety Issues
(Continued)**

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL I-A.3.a: Complete two design and construction reviews and urge DOE to take appropriate actions in response to any significant findings from these reviews.</p>	<p>The Board conducted a series of design review meetings with DOE and its contractor for the Tritium Extraction Facility (TEF) at SRS, which resulted in the Board's identifying a number of issues. The preliminary facility design did not appear to have fully implemented a hierarchy of safety controls consistent with what is considered good safety practice. The Board also identified additional design features that would enhance safety by improving the reliability of the controls and providing additional defense in depth without a significant impact on the cost and schedule for the project. These issues were communicated to DOE during reviews. Formal correspondence from the Board on these matters will be issued to DOE during FY 2000.</p> <p>At the Board's urging, the Hanford Spent Nuclear Fuel Project (SNFP) contracted for new containers for storing spent nuclear fuel. The containers are to be code stamped to the requirements of Section III of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, thus providing enhanced reliability for safely storing spent nuclear fuel.</p> <p>The Board's reviews identified several incidents that indicate a breakdown in weld quality assurance associated with design and construction projects at DOE sites, including the Hanford Site, the Y-12 Plant, and INEEL. Such a breakdown in weld quality assurance could have allowed components with defective welds to be put into service in systems where weld failure could adversely affect the health and safety of workers and the public, or result in contamination of the environment. The Board issued a letter requesting DOE to identify steps it will take to resolve this problem.</p>

**Table 1. FY 1999 Outcomes in Strategic Area of Concentration I: Complex-Wide Health and Safety Issues
(Continued)**

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL I-A.4.a: Encourage DOE to improve integration of environment, safety, and health (ES&H) reporting requirements. Candidates for review include contractually required performance measures for one national laboratory, and utility and integration of various Order-mandated ES&H reports.</p>	<p>Limited reviews by the Board's staff of contractually required performance measures at several DOE sites indicated that while some measures appear to be adequate, there is a need to develop a consistent approach to establishing and objectively implementing these measures across the complex. At the Board's urging, DOE had the Institute of Nuclear Power Operations (INPO) evaluate DOE's performance indicator program for measuring the effectiveness of ISM. INPO's recommendations were incorporated into the DOE program. With input from the Board, DOE is also developing guidance for contracting officers on the use of site-level performance measures to determine contract award fees.</p>
<p>PERFORMANCE GOAL I-A.4.b: Drive DOE to develop an adequate plan to consolidate and make necessary changes to its system for disseminating results of internal assessments, oversight activities, and lessons learned.</p>	<p>The Board has focused considerable attention on DOE's progress in implementing ISM through an effective program for obtaining feedback from operating experience, and applying that feedback to ongoing and future work at DOE's facilities and sites.</p>
<p>PERFORMANCE GOAL I-A.4.c: Encourage DOE to more clearly define current assignments for the feedback and improvement function.</p>	<p>As a result of the Board's efforts in monitoring and encouraging DOE's successful implementation of the Board's Recommendation 98-1, DOE has clarified its roles and responsibilities for feedback and improvement, established formal processes for addressing and tracking issues, and improved its lessons learned program.</p>

**Table 1. FY 1999 Outcomes in Strategic Area of Concentration I: Complex-Wide Health and Safety Issues
(Concluded)**

FY 1999 Performance Goal	FY 1999 Outcomes
<p>OBJECTIVE I-B: Confirm that roles, responsibilities, experience, and competencies required to protect workers and the public are explicitly defined and implemented for both DOE and its contractor personnel.</p>	
<p>PERFORMANCE GOAL I-B.1.a: Review DOE's implementation of the safety functions and responsibilities contained in the corporate-level, program office, and field element Functions, Responsibilities, and Authorities Manuals (FRAMs).</p>	<p>The Level 1 FRAM was revised during 1999 to address the Board's comments. These comments included the need to require that subtier documents for DOE headquarters and field offices incorporate the health and safety responsibilities of DOE personnel in applicable DOE Orders; and to incorporate DOE organizational changes and additional responsibilities developed in response to Recommendation 98-1.</p>
<p>PERFORMANCE GOAL I-B.2.a: Encourage DOE to complete rigorous self-assessments of the Technical Qualification Program for DOE employees and to determine whether the skills and competencies necessary to conduct nuclear and nuclear explosive activities safely are adequate and continue to improve.</p>	<p>The Board has encouraged DOE to take further steps to institutionalize the Federal Technical Capability Program to ensure that DOE's technical competence will continue to improve. The Board's staff observed and evaluated the detailed assessments conducted by DOE staff of the Technical Qualification Programs at SRS, the Albuquerque Operations Office, the Pantex Plant, LANL, and NTS. In February 1999, the Board held a public meeting to review DOE's progress in implementing the Board's Recommendation 93-3.</p>
<p>PERFORMANCE GOAL I-B.2.b: Confirm that progress is being made to implement the commitments contained in the Implementation Plans for the Board's Recommendations 93-3, <i>Improving DOE Technical Capability in Defense Nuclear Facilities Programs</i>, and 97-2, <i>Criticality Safety</i>.</p>	<p>In recognition of the progress DOE has made in improving the technical competence of federal employees, the Board closed Recommendation 93-3 in November 1999. Examples of specific DOE accomplishments in this area included a Technical Qualification Program tailored to safety responsibilities assigned to approximately 1,800 federal employees, identification of 251 senior technical safety management positions, and an excepted service hiring authority for an additional 200 positions.</p> <p>Reviews by the Board and its staff of DOE's implementation of the Board's Recommendation 97-2, <i>Criticality Safety</i>, resulted in the development of an acceptable guide for reviewing criticality safety evaluations that ensure the safety of processes and operations involving fissile material. DOE also produced acceptable guidance documents defining site-specific training and qualification programs for criticality specialists.</p>

Table 2. FY 1999 Outcomes in Strategic Area of Concentration II: Safe Management and Stewardship of Nuclear Weapons Stockpile and Components

FY 1999 Performance Goal	FY 1999 Outcomes
<p>OBJECTIVE II-A: Cause DOE to improve the collection, analysis, and availability of information related to safety, as part of its weapons stockpile stewardship and management program.</p>	
<p>PERFORMANCE GOAL II-A.1.a: Conduct four reviews to determine whether DOE is continually improving its surveillance operations and knowledge of stockpile safety issues and whether dismantlement/enduring stockpile operations appropriately consider safety implications associated with high explosive aging and other degradation.</p>	<p>The Board conducted five separate reviews covering the four targeted review areas related to stockpile safety issues. Specific activities and outcomes achieved were as follows.</p> <p>DOE Standard on Hazard Analysis Reports: DOE responded positively to comments from the Board’s staff and published a technically sound standard on conducting and documenting hazard analyses for nuclear explosive operations. This important directive sets DOE’s fundamental expectations and provides guidance on how to establish and document the safety basis that ensures hazardous activities involving nuclear explosives can be completed safely.</p> <p>W76 Weapons Safety Specification: Review by the Board’s staff of the W76 Weapon Safety Specification (WSS), the source document identifying and analyzing the hazards and safety controls inherent in a nuclear weapon (including aging effects), revealed that the W76 WSS was generally a high-quality document.</p> <p>B83 Weapons Safety Specification: The Board evaluated the W83 WSS, and identified to DOE that several relevant sections of the WSS had yet to be completed.</p> <p>Electrical Equipment Control Program Nuclear Explosive Safety (NES) Master Study: In response to the Board’s review of the Electrical Equipment Control Program NES Master Study, DOE took explicit action to ensure that line managers would retain responsibility for safety decisions and that independent review groups would constrain themselves to the proper role of providing assessments of those decisions. These expectations were codified in a revision to the DOE Albuquerque Operations Office Supplemental Directive, <i>Development and Production Manual</i>.</p>

T2-1

Table 2. FY 1999 Outcomes in Strategic Area of Concentration II: Safe Management and Stewardship of Nuclear Weapons Stockpile and Components (Continued)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL II-A.1.b: Conduct one special study of unique or significant hazards to assess DOE's actions to improve its understanding of nuclear weapon and component response to abnormal environments.</p>	<p>The Board conducted three separate reviews covering one targeted review area related to understanding nuclear weapon and component response to unique hazards in abnormal environments. Specific activities and outcomes achieved were as follows.</p> <p>Lightning Protection at Pantex: Through continued efforts of the Board and its staff during 1999, the DOE lightning protection project team (which was established in response to a Board reporting requirement) completed a comprehensive investigation and report detailing the threat of lighting to nuclear explosives, analyzing potential controls and mitigating measures, and summarizing the actions DOE considers necessary to protect nuclear explosive operations at Pantex from lightning threats. During this same time, DOE identified and installed many additional lighting protection measures at the plant.</p>

Table 2. FY 1999 Outcomes in Strategic Area of Concentration II: Safe Management and Stewardship of Nuclear Weapons Stockpile and Components (Continued)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>OBJECTIVE II-B: Confirm the that the safety of DOE defense nuclear facilities and activities relating to the maintenance, storage, and dismantlement of the nuclear weapons stockpile are performed safely using an Integrated Safety Management (ISM) approach that adequately controls the hazards associated with these activities.</p>	
<p>PERFORMANCE GOAL II-B.1.a: Determine the adequacy of facility- or activity-level ISM Systems, particularly safety analysis and development of controls, by evaluating six activities at the Pantex Plant, the Oak Ridge Y-12 Plant, the SRS tritium facility, or stockpile management at LANL.</p>	<p>The Board conducted eight separate reviews covering the six targeted review areas related to the adequacy of the facility- or activity-level ISM Systems. Specific activities and outcomes achieved were as follows.</p> <p>Consolidated Tritium Facilities Safety Analysis Report (SAR): In producing the SAR for the Consolidated Tritium Facilities, DOE and its contractor used conservative industry standards and practices in the design and safety analysis, resulting in a design more likely to provide the preventive and mitigating functions required of vital safety systems. The contractor also used defense in depth in establishing additional safety features. As a result of review by the Board’s staff, DOE and its contractor changed some of the worst-case fire scenarios and also agreed to have the additional defense in depth features sustained at a level of maintenance and surveillance similar to that for safety-class systems.</p> <p>Pantex Transportation Basis for Interim Operation Upgrade Module: DOE is addressing a problem concerning the integration of numerous safety analysis and control documents by refocusing the Pantex contractor’s efforts, and by assigning several senior, experienced federal employees to review and oversee the project to upgrade safety bases at Pantex.</p> <p>W56 Dismantlement: As a result of review by the Board’s staff of the safety basis for the W56 dismantlement program, DOE instituted a significant number of more robust controls.</p> <p>Y-12 Dismantlement: The Board’s staff observed delays in establishing an updated authorization basis for the first new dismantlement campaign at the Oak Ridge Y-12 Plant in more than 5 years. The staff also observed inadequacies in the performance of job hazard analyses and unreviewed safety question determinations, and in the implementation of safety-related controls. DOE has acknowledged issues identified by the Board and is in the process of developing a plan to address these issues.</p> <p>W62 Disassembly and Inspection (D&I): As a result of the Board’s numerous reviews to evaluate the safety basis and hazard analysis for the W62 D&I program, DOE and its contractor upgraded the safety analysis and controls as necessary to resume the program safely.</p> <p>Nuclear Facilities Safety Bases at Y-12: Evaluation by the Board’s staff of the safety bases of two Y-12 facilities (Buildings 9720-5 and 9204-4) that support assembly and disassembly of nuclear components, resulted in DOE requiring its contractor to develop properly tailored SARs for facilities with high hazards and long operational lifetimes addressing all relevant topics, such as worker protection and environmental impacts.</p>

T2-3

Table 2. FY 1999 Outcomes in Strategic Area of Concentration II: Safe Management and Stewardship of Nuclear Weapons Stockpile and Components (Continued)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL II-B.1.b: Perform two reviews of specific safety management functional areas (e.g., training, work planning, or conduct of operations; configuration management; unreviewed safety question determination; or criticality safety) at selected weapons complex sites, thereby determining whether safety-related programs established under requirements in ISM System Descriptions and authorization bases are adequate.</p>	<p>The Board conducted three separate reviews covering the two targeted review areas related to specific safety management functional areas (e.g., training, conduct of operations, configuration management) at selected weapons complex sites. Specific activities and outcomes achieved were as follows.</p> <p>Chemical Safety: On the basis of two evaluations by the Board's staff, DOE stepped up efforts to complete a chemical management program at the Y-12 Plant, including a renewed commitment to characterize chemical inventories for emergency planning purposes and to dispose of excess chemicals. In addition, DOE developed and is implementing a corrective action plan.</p> <p>Worker Protection at Y-12: As a result of a review by the Board's staff, additional engineered controls were developed to resolve the elevated airborne uranium levels observed in the Oak Ridge Y-12 facility that supports enriched uranium operations (Building 9212).</p>
<p>PERFORMANCE GOAL II-B.2.a: Evaluate the implementation of ISM Systems and facility- or activity-specific safety controls for five stockpile management activities (i.e., at the Pantex Plant, Oak Ridge Y-12, LANL, or SRS). These evaluations will include dismantlement activities (i.e., the W56 and W79) and focus on whether effective feedback and improvement programs are being executed.</p>	<p>The Board conducted six separate reviews covering the five targeted review areas related to implementation of ISM Systems and facility- or activity-specific safety controls at stockpile management sites. Specific activities and outcomes achieved were as follows:</p> <p>Building 9212 Furnace Operations: Reviews by the Board's staff of the furnace operation to support enriched uranium operations revealed the need for more focus by senior contractor management on safety basis development and implementation of controls. As a result, DOE directed the contractor to take action to ensure that all nuclear facilities would become compliant with the DOE nuclear safety requirements as soon as practical.</p> <p>W79 Dismantlement: As a result of the resolution of safety issues noted in a March 1999 letter from the Board, the DOE readiness review process for the W79 resulted in a safe operation. A subsequent review by the Board's staff in June 1999 of W79 dismantlements in process revealed no adverse safety issues, the technicians were well trained, and the authorization basis controls were being maintained.</p> <p>W87 Life Extension Program: As a direct result of interactions by the Board's staff with DOE and its contractor, significant improvements were made in the safety basis for W87 nuclear explosive operations. First, the hazards analysis for W87 operations was extended from covering only the life extension program to include D&I procedures. Second, process controls were identified for some more vulnerable configurations of the device during disassembly. The readiness review process continued to evolve in a positive way, providing better assurance that the contractor was ready to perform nuclear explosive operations on this system.</p>

Table 2. FY 1999 Outcomes in Strategic Area of Concentration II: Safe Management and Stewardship of Nuclear Weapons Stockpile and Components (Continued)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL II-B.2.a: (Continued)</p>	<p>W62 Activities at Pantex: Several reviews by the Board’s staff of the safety basis of the W62 D&I Program identified a number of areas requiring improvement as well as potential problems with the integration of various safety upgrade projects. These issues were resolved by DOE prior to initiation of W62 operations, thus significantly improving the safety of these nuclear explosive operations.</p> <p>Plutonium Pit Storage and Recommendation 99-1: Reviews by the Board’s staff of plutonium pit storage at Pantex revealed that progress toward placing plutonium pits in safe long term storage was being made at an unacceptably slow rate. Accordingly, the Board issued Recommendation 99-1, which called on DOE to accelerate repackaging of pits into acceptable storage configurations. DOE has provided the Board with a technically acceptable Implementation Plan for this recommendation, and has started taking action to accelerate pit repackaging and increase the reliability of the new pit storage containers.</p>
<p>PERFORMANCE GOAL II-B.2.b: Confirm that ISM is in place and effective before new weapons activities are started by evaluating the implementation of authorization basis controls during three DOE/contractor operational readiness determinations, such as Operational Readiness Reviews (ORRs) or Safety Evaluations at the Pantex Plant; the ORR for Phase-B Enriched Uranium Operations (EUO) restart at Oak Ridge Y-12; or readiness reviews for stockpile management work at LANL.</p>	<p>The Board conducted seven separate reviews covering the three targeted review areas related to the implementation of authorization basis controls. Specific activities and outcomes achieved were as follows.</p> <p>Enriched Uranium Restart at Y-12: As a result of reviews by the Board’s staff of Phase B EUO at the Oak Ridge Y-12 Plant, the Board identified to DOE several safety issues related to the resumption project, including problems with the design, safety analysis, and implementation of safety controls. The Board and DOE worked cooperatively to resolve these issues in support of future restart of high-priority national defense-related missions.</p> <p>W87 Life Extension Program: The Board’s reviews of DOE preparations to start the W87 Life Extension Program (LEP) safely, identified safety issues that DOE corrected prior to starting operations. As a result, W87 operations are on-going safely at Pantex. The Board’s efforts on the W87, combined with similar reviews of the W56 (see below), indicated substantial problems with this function of integrated safety management. In response to the Board’s initiatives, DOE has redefined its expectations for readiness reviews to clearly emphasize the need to resolve safety issues (rather than just plan to address them) prior to requesting final authorization to commence hazardous work.</p> <p>W56 Dismantlement at the Pantex Plant: Dismantlement of the W56 is underway safely now that DOE has addressed issues raised by the Board and its staff. DOE is also making progress to address the longer-term issues identified as a result of the Board’s effort on the W56 and similar efforts relating to the W87 LEP (see above).</p>

Table 2. FY 1999 Outcomes in Strategic Area of Concentration II: Safe Management and Stewardship of Nuclear Weapons Stockpile and Components (Concluded)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>OBJECTIVE II-C. Confirm the safety of DOE defense nuclear activities undertaken to ensure the continuing safety of the nation's nuclear weapon stockpile in the absence of underground nuclear testing.</p>	
<p>PERFORMANCE GOAL II-C.1.a: Conduct two reviews to assess the adequacy of ISM development, particularly facility or activity safety analyses and work planning at LANL, LLNL, SNL, or NTS.</p>	<p>The Board conducted two separate reviews covering the two targeted review areas related to the adequacy of ISM development at stockpile stewardship sites. Through a combination of on-site reviews, staff-to-staff meetings, and action-forcing Board correspondence. The following outcomes were achieved.</p> <p>Los Alamos National Laboratory Pajarito Laboratory: The Board and its staff identified that an updated authorization basis for the Pajarito Laboratory (also known as TA-18, which includes the Los Alamos Critical Experiments Facility) would not be completed for approximately 2 years. Given this delay, the Board concluded that it would be desirable for TA-18 to quickly complete a Basis for Interim Operation to replace its existing SAR. LANL and DOE subsequently agreed to complete a Basis for Interim Operation by May 2000.</p> <p>Fire Protection and Electrical requirements at LANL: Observations by the Board's staff of the fire protection and electrical requirements at LANL resulted in DOE establishing plans to conduct fire protection assessments during FY 2000.</p>
<p>PERFORMANCE GOAL II-C.2.a: Evaluate the adequacy of the execution of approved ISM processes for three stockpile stewardship activities at LANL, LLNL, SNL, or NTS.</p>	<p>The Board conducted three reviews covering the three targeted review areas related to the adequacy of the execution of approved ISM processes for stockpile stewardship activities. Through a combination of on-site reviews, staff-to-staff meetings, and action-forcing Board correspondence. The following outcomes were achieved.</p> <p>LANL Classified Experiment: Through intensive staff interaction and Board action-forcing efforts, DOE assembled a team of scientific experts to independently review all safety aspects and complexities associated with the proposed classified experiments. DOE appears to understand the safety issues associated with the classified experiment.</p> <p>B332 Restart at LANL: The Board identified weaknesses in work planning, authorization, and control in the Plutonium Facility (Building 332), and interacted with LLNL and DOE throughout Building 332's resumption of operations. The Board has encouraged and assisted DOE and laboratory personnel to develop and implement an improved process to plan, authorize and control work involving special nuclear material safety. With the Board's encouragement, the process has been applied to the other facilities in the Superblock (Tritium Facility and Hardened Engineering Test Building).</p> <p>Los Alamos National Laboratory (Site-wide): Review by the Board's staff of the implementation of worker protection at LANL resulted in improved Laboratory Implementation Requirements, which are site-wide requirements for worker protection for nonfacility work. In addition, LANL issued associated Laboratory Implementation Guidance.</p>

Table 3. FY 1999 Outcomes in Strategic Area of Concentration III: Safe Storage and Disposition of the Hazardous Remnants of Weapons Production

FY 1999 Performance Goal	FY 1999 Outcomes
<p>OBJECTIVE III-A: Verify that DOE properly characterizes, stabilizes, processes, and safely stores surplus plutonium, uranium, and other actinides, residues, spent fuel, and wastes from the nuclear weapons program, and that DOE provides for expeditious disposal, as needed.</p>	
<p>PERFORMANCE GOAL III-A.1.a: Review activities addressing plutonium and plutonium-bearing materials.</p>	<p>Throughout FY 1999, the Board and its staff conducted extensive reviews and discussions with DOE to evaluate complex-wide nuclear material stabilization programs. These activities resulted in numerous positive outcomes related to hazard reduction at specific DOE sites, as well as improvements in complex-wide coordination of these activities.</p> <p>The Board's insistence on an improved overall plan led DOE to develop an improved Implementation Plan for Recommendation 94-1, which established aggressive but achievable commitments for materials stabilization. The remaining open issues were identified for DOE resolution in a letter from the Board dated January 28, 1999. The Board continued to pursue these issues (associated largely with SRS) in letters dated May 14, 1999; May 27, 1999; and September 22, 1999. Also, as the result of reviews by the Board and its staff and formal comments provided in a letter from the Board dated May 21, 1999, DOE has improved the requirements and technical basis for a significant revision to its complex-wide standard for stabilization and storage of plutonium metal and oxides.</p> <p>The Board performed several reviews to assess plutonium stabilization and storage at RFETS. The Board verified that DOE had adequately implemented Recommendation 94-3, regarding plutonium storage facilities at RFETS, and subsequently closed this recommendation in a letter dated May 27, 1999. Also as a result of the Board's reviews, DOE is taking corrective actions to address the potential for high efficiency particulate air (HEPA) filters in plutonium processing facilities to be weakened by filter deluge systems. The Board's reviews of programs to characterize and stabilize plutonium-bearing residues at RFETS ensured that DOE gathered and correctly applied characterization data showing that several suspect residues were in fact low-risk, and determined that others required treatment prior to repackaging for storage and eventual disposal.</p> <p>The Plutonium Finishing Plant (PFP) at the Hanford Site was the subject of extensive reviews by the Board and its staff in FY 1999. These reviews resulted in numerous positive outcomes, such as (1) stimulating PFP to provide meaningful input to the revision of DOE's Implementation Plan for Recommendation 94-1; (2) causing PFP to start a "war room" to initiate planning efforts for all plutonium stabilization activities; and (3) leading PFP to develop a plan to meet plutonium stabilization and packaging requirements of the DOE plutonium storage standard in a timely manner. The Board identified numerous safety issues related to stabilization activities and led PFP to resolve them. DOE has now successfully begun safe stabilization of plutonium-bearing materials at PFP.</p>

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Table 3. FY 1999 Outcomes in Strategic Area of Concentration III: Safe Storage and Disposition of the Hazardous Remnants of Weapons Production (Continued)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL III-A.1.a: (Continued)</p>	<p>Reviews of new plutonium facilities focused on SRS. The Board and its staff reviewed the new K-Area Materials Storage project, the proposed Actinide Packaging and Storage Facility, and the proposed plutonium disposition facilities expected to be located at SRS. DOE has not yet resolved the Board's questions regarding stabilization and storage of plutonium at SRS. The Board's reviews of the design and operational readiness of the K-Area Materials Storage project continued into FY 2000.</p>
<p>PERFORMANCE GOAL III-A.1.b: Review activities at ORNL, INEEL, and LANL involving uranium-233 (U-233) materials, including review of development of a safe storage standard for U-233.</p>	<p>The Board and its staff conducted a series of reviews to evaluate DOE's program for characterization, stabilization, safe storage, and disposition of its U-233 inventory (the subject of Recommendation 97-1). Positive outcomes resulting from these activities include the following.</p> <p>DOE has satisfactorily completed an acceptable Program Execution Plan (PEP) for the U-233 Safe Storage Program. The PEP serves as the multiyear management and technical plan for implementing the remainder of Recommendation 97-1. The Board's staff also actively participated in the regular meetings of DOE's 97-1 Technical Team, which proved to be an effective means to discuss issues in a technical forum and to track the resolution of the Board's issues and other problems.</p> <p>On the basis of numerous reviews by the Board and its staff, as well as formal comments provided in a letter from the Board dated December 14, 1998, DOE significantly strengthened the technical basis for its draft standard for stabilization and storage of U-233 and revised it to be more consistent with the plutonium storage standard. For example, repackaged U-233 will be placed in two welded metal containers for improved protection of workers, the public, and the environment.</p> <p>The Board's involvement also led to improvements in DOE's U-233 characterization program in FY 1999. At the Board's urging, DOE tested U-233 fuel pellets stored at INEEL to demonstrate that their condition supported continued safe near-term storage. Reviews at ORNL led DOE to develop technically adequate inspection criteria for the site's U-233 inspection and characterization program, improve the program's as low as reasonably achievable (ALARA) radiation protection plan, and ultimately implement a 30-day pause in the program as a result of concerns involving equipment safety and reliability identified by the Board.</p> <p>Additionally, in response to Recommendation 97-1 and subsequent reviews, U-233 at LANL has been relocated from an unsafe to a safe location. DOE also committed to make a U-233 disposition decision in a timely manner so that upgrades to the ORNL U-233 storage facility (Building 3019) can be implemented effectively, and committed to prepare a fire hazard analysis of Building 3019.</p>

Table 3. FY 1999 Outcomes in Strategic Area of Concentration III: Safe Storage and Disposition of the Hazardous Remnants of Weapons Production (Continued)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL III-A.1.c: Review activities to address americium-curium solutions at SRS.</p>	<p>The Board and its staff also reviewed DOE's progress in dispositioning highly hazardous americium-curium solutions stored at SRS. The Board and its staff reviewed the Preliminary Design for the americium-curium vitrification project and associated research and development work, and found no significant issues.</p>
<p>PERFORMANCE GOAL III-A.1.d: Review activities to address uranium-bearing salt residues at ORNL.</p>	<p>DOE is safely progressing toward removal of the uranium deposits, and has committed to removal of these deposits by December 2000.</p>
<p>PERFORMANCE GOAL III-A.2.a: Assess the adequacy of DOE's progress on characterization of waste to identify potentially hazardous conditions and facilitate stabilization and disposal efforts at Hanford.</p>	<p>The Board and its staff conducted numerous reviews of DOE's efforts to address hazards in the Hanford high-level waste tanks. Positive outcomes of these reviews included (1) stimulating DOE to change its readiness review approach for 101-SY mitigation activities from a surveillance of ongoing activities to a formal Readiness Assessment consistent with DOE Order 425.1, and (2) ensuring that DOE took action to remediate issues related to both surface-level growth and flammable gas in Tank 241-SY-101. Preparations to remediate this highly hazardous tank continued into FY 2000. Reviews of DOE's efforts to address the Board's Recommendation 93-5, regarding safety-related characterization of Hanford's high-level waste tanks, resulted in DOE developing a successful methodology to adequately characterize all the wastes for safety purposes without sampling each tank. This approach allowed DOE to complete the required characterization work and led the Board to close this recommendation in early FY 2000.</p>
<p>ACTION PLAN III-A.2.b: Determine the adequacy of DOE's progress on waste operations at Hanford and SRS.</p>	<p>The Board and its staff closely reviewed equipment design and readiness preparations for retrieval of high-heat waste from Tank 241-C-106 at Hanford. No significant issues were found, and retrieval of this waste was safely completed in September 1999.</p> <p>The Board and its staff also conducted several reviews of the design and operational readiness of the new Replacement High-Level Waste Evaporator at SRS. As a result of these reviews, DOE committed to changes in the Technical Safety Requirements that will improve controls to mitigate or prevent accidents involving the evaporator. Furthermore, based on the Board's urging, DOE decided to conduct a full ORR for this facility (in lieu of a less rigorous Readiness Assessment). Contractor preparations for startup are complete, and a successful DOE ORR was performed in early FY 2000.</p>

Table 3. FY 1999 Outcomes in Strategic Area of Concentration III: Safe Storage and Disposition of the Hazardous Remnants of Weapons Production (Continued)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>PERFORMANCE GOAL III-A.2.c: Determine whether the process selected for processing high-level, cesium-bearing waste in the In-Tank Precipitation (ITP) Facility at SRS is safe, is technically acceptable, and has been adequately demonstrated in pilot operations.</p>	<p>The Board and its staff conducted several reviews of DOE's efforts to choose a replacement technology for the ITP Facility at SRS. The Board ensured that DOE considered a broad range of options and verified that an appropriately rigorous selection process was used. The Board formally commented on the principal options in a letter dated March 24, 1999. DOE did not select a new process in FY 1999, and the Board is continuing to follow this issue in FY 2000.</p>
<p>PERFORMANCE GOAL III-A.3.a: Determine the adequacy of DOE's preparations for spent fuel processing operations at SRS.</p>	<p>Delays in the spent fuel stabilization program at SRS led the Board to suspend reviews of H-Canyon readiness preparations after a review in February 1999. The Board resumed reviewing this activity in FY 2000 as DOE readiness activities recommenced.</p>
<p>PERFORMANCE GOAL III-A.4.a: Conduct an annual assessment of the research and development (R&D) program associated with the safe treatment and storage of high-risk residues, spent fuel, and waste.</p>	<p>The Board and its staff continued to review DOE's R&D plan by reviewing activities at specific DOE sites and participating in key DOE program reviews and conferences. The Board believes the R&D program currently provides adequate support for DOE's material stabilization needs.</p>

Table 3. FY 1999 Outcomes in Strategic Area of Concentration III: Safe Storage and Disposition of the Hazardous Remnants of Weapons Production (Concluded)

FY 1999 Performance Goal	FY 1999 Outcomes
<p>OBJECTIVE III-B. Verify that DOE aggressively pursues the safe decommissioning of excess defense nuclear facilities that pose a significant risk to workers or the public.</p>	
<p>PERFORMANCE GOAL III-B.1.a: Confirm the adequacy of plans, standards, procedures, and operational activities at one DOE defense nuclear facility scheduled for early deactivation at RFETS or Hanford, to reduce the risk posed by radioactive materials.</p>	<p>In FY 1999, the Board and its staff conducted numerous reviews aimed at ensuring that DOE would give appropriate priority to the safe decommissioning of its most hazardous excess defense facilities, and that decommissioning activities would be well planned and safely executed. The Board's evaluations of DOE's strategy for prioritizing decommissioning work has identified general weaknesses in the DOE approach and an overall lack of priority relative to other programs, but these issues need to be further developed in FY 2000. Specific reviews at facilities undergoing decommissioning yielded more definitive results.</p> <p>The Board and its staff performed several reviews of decommissioning work at RFETS, particularly for work in Buildings 771 and 779. These reviews revealed an overreliance on personal protective equipment instead of engineered controls to protect workers. The Board's comments led DOE to commit to improving its use of engineered controls to prevent the spread of contamination and worker exposure/intake during this work, and RFETS has developed and is continuing to improve containment structures for decommissioning work. The Board's reviews of the design of these structures led RFETS to reconsider its approach to their design and construction to better consider safety requirements and functionality.</p> <p>The Board and its staff reviewed decommissioning activities at the Hanford Site, notably work in the 233-S Plutonium Concentration Facility, Building 324/327, and B-Plant. Reviews at 233-S continued into FY 2000, and led to formal correspondence from the Board on deficiencies in hazard characterization and work planning in early FY 2000. The other reviews contributed to the successful ongoing implementation of ISM at Building 324/327, and to improvements in the surveillance and maintenance program for Hanford's B-Plant.</p> <p>The Board and its staff also performed several reviews at the Miamisburg Environmental Management Project (MEMP). The Board identified several issues related to the potential presence of stable metal tritide contamination in the areas undergoing decommissioning at MEMP. These reviews led to formal correspondence from the Board on this subject in early FY 2000.</p>
<p>PERFORMANCE GOAL III-B.1.b: Evaluate ISM work planning processes for tapping and draining plutonium-bearing process lines in B771 at RFETS.</p>	<p>The reviews discussed above were integrated with reviews of the work planning process for tapping and draining of process lines at RFETS. As discussed above, these reviews led to improved work planning processes at RFETS and greater utilization of engineered controls to mitigate radiological hazards.</p>

APPENDIX. CROSSWALK OF GOALS

Strategic Area of Concentration I: Complex-Wide Health and Safety Issues

The FY 1999 performance goals most recently published in the Board's FY 2000 and FY 2001 Budget Request to the Congress, dated February 1999, remain unchanged for this area of concentration.

Strategic Area of Concentration II: Safe Management and Stewardship of the Nuclear Weapons Stockpile and Components

OLD	OLD PERFORMANCE GOAL DESCRIPTION	NEW	NEW PERFORMANCE GOAL DESCRIPTION
II-A.1.a	Review surveillance operations for two enduring stockpile weapons. Candidate Criteria: one bomb, one warhead, and one weapon each from LLNL and LANL.	II-A.1.a (Defense Programs (DP)-wide initiatives and weapons safety information)	The Board and its staff conduct four reviews to determine: <ul style="list-style-type: none"> • Whether DOE is continuously improving its surveillance operations and knowledge of stockpile safety issues (particularly aging effects). • Whether weapons dismantlement/enduring stockpile operations appropriately consider safety implications associated with high explosive aging/other degradation.
II-A.2.a	Determine whether potential safety implications of age-related changes in components in the W76, W78, or B83 are addressed through research and evaluations. (one review)		
II-A.2.b	Determine whether weapons dismantlement/enduring stockpile operations appropriately consider safety implications associated with high explosive aging/other degradation (one review).		
II-A.1.b	Conduct one special study of unique or significant hazards at a stockpile management facility to confirm the adequacy of hazard or accident analysis.	II-A.1.b (DP-wide initiatives and weapons safety info)	The Board and its staff conduct one special study of unique or significant hazards to assess DOE's actions to improve its understanding the response of nuclear weapons and components to abnormal environments.

Strategic Area of Concentration II: Safe Management and Stewardship of the Nuclear Weapons Stockpile and Components (Continued)

OLD	OLD PERFORMANCE GOAL DESCRIPTION	NEW	NEW PERFORMANCE GOAL DESCRIPTION
II-A.1.c (1) (stockpile management)	Review the adequacy of safety basis analyses for three (split: one management/two stewardship) weapons activities or facilities. Candidates: Pantex, Y-12, SRS tritium activities.	II-B.1.a (stockpile management)	Determine the adequacy of the facility- or activity-level ISM Systems, particularly safety analyses and development of controls, by evaluating four activities at the Pantex Plant, the Oak Ridge Y-12 Plant, activities at a SRS tritium facility, or stockpile management at LANL.
II-B.1.a (1) (stockpile management)	Determine whether the authorization basis controls that are established for three (split: two management/one stewardship) weapons complex activities adequately address the associated hazards. Candidates: Pantex weapons programs, Y-12 activities, SRS tritium activities, or new stockpile management activities at LANL.		
II-C.1.c	Determine the adequacy of the ISM System at Y-12 for the dismantlement of secondary systems (one review).		
II-B.2.c (1) (stockpile management)	Perform three (split: two management/one stewardship) safety management functional areas reviews at selected weapons complex sites. Candidates: training, work planning, or conduct of operations; configuration management; unreviewed safety question determination; or criticality safety.	II-B.1.b (stockpile management)	By performing two reviews of specific safety management functional areas (e.g., training, work planning, or conduct of operations; configuration management; unreviewed safety question determination; or criticality safety) at selected weapons complex sites, determine whether safety-related programs established under requirements in ISM System Descriptions and authorization bases are adequate.
II-B.2.a	Evaluate the adequacy of approved activity-specific hazard analysis, and identification and implementation of controls for ongoing activities at three of the four stockpile management sites. Candidates: Pantex, Y-12, LANL, or SRS.	II-B.2.a (stockpile management)	Evaluate the implementation of ISM Systems and facility- or activity-specific safety controls for five stockpile management activities (i.e., at the Pantex Plant, Oak Ridge Y-12, LANL, or SRS). These evaluations will include dismantlement activities (i.e., the W56 and W79) and focus on whether effective feedback and improvement programs are being executed.
II-C.1.a	Verify the initial implementation of the new Integrated Safety Process for the W56 weapon dismantlement campaign, and for any other new weapon dismantlement campaigns (at least one review).		
II-C.1.b	Verify the continuing safety of the ongoing W79 weapon dismantlement operation (one review).		

Strategic Area of Concentration II: Safe Management and Stewardship of the Nuclear Weapons Stockpile and Components (Continued)

OLD	OLD PERFORMANCE GOAL DESCRIPTION	NEW	NEW PERFORMANCE GOAL DESCRIPTION
II-B.2.b	Evaluate the implementation of authorization basis controls during three DOE/contractor operational readiness determinations. Candidates: ORR or Safety Evaluations at Pantex, ORR for Phase-B EUO restart at Y-12; or readiness reviews for stockpile management work at LANL.	II-B.2.b (stockpile management)	Confirm that an ISM System is in place and effective before weapons activities are started by evaluating the implementation of authorization basis controls during three DOE/contractor operational readiness determinations, such as ORRs or Safety Evaluations at the Pantex Plant; the ORR for EUO restart at Y-12; or readiness reviews for stockpile management work at LANL.
II-A.1.c (2) (stockpile stewardship)	Review the adequacy of safety basis analyses for three (split: one management/two stewardship) weapons activities or facilities. Candidates: LLNL, or LANL	II-C.1.a (stockpile stewardship)	Determine the adequacy of the facility- or activity-level ISM Systems, particularly safety analyses and development of controls, by evaluating three stockpile stewardship activities at LANL, LLNL, SNL, or NTS.
II-B.1.a (2) (stockpile stewardship)	Determine whether the authorization basis controls that are established for three (split: two management/one stewardship) weapons complex activities adequately address the associated hazards. Candidates: new stockpile stewardship activities at LANL or LLNL.		
II-B.2.c (2) (stockpile stewardship)	Perform three (split: two management/one stewardship) safety management functional area reviews at selected weapons complex sites. Candidates: training, work planning, or conduct of operations; configuration management; unreviewed safety question determination; or criticality safety.	II-C.1.b (stockpile stewardship)	By performing a review (one review) of a specific safety management functional area (e.g., training, work planning, or conduct of operations; configuration management; unreviewed safety question determination; or criticality safety) at selected weapons complex sites, determine whether safety-related programs established under requirements in ISM System Descriptions and authorization bases are adequate.
II-B.3.a	Evaluate the adequacy of the execution of approved ISM processes for one ongoing research and development weapons activity. Candidates: SNL, Y-12, or Pantex.	II-C.2.a. (stockpile stewardship)	Evaluate the implementation of ISM Systems and facility- or activity-specific safety controls at one of the four stockpile stewardship sites (i.e., LANL, LLNL, SNL, or NTS). This evaluation will focus on whether effective feedback and improvement programs are being executed.
II-B.3.b	Evaluate the adequacy of the execution of approved ISM processes for two newly initiated weapons research and development activities. Candidates: LANL, LLNL, or NTS.	II-C.2.b (stockpile stewardship)	Confirm that an ISM System is in place and effective before defense nuclear activities are started at a laboratory by evaluating the implementation of authorization basis controls during at least two DOE/laboratory operational readiness determinations.

Strategic Area of Concentration III: Safe Storage and Disposition of the Remnants of Weapons Production

OLD	OLD PERFORMANCE GOAL DESCRIPTION	NEW	NEW PERFORMANCE GOAL DESCRIPTION
III-A.1.a	<p>Assess the adequacy of DOE’s progress on characterization activities to identify potentially hazardous conditions at:</p> <ul style="list-style-type: none"> • Hanford – satisfactory closure of safety issues for storage, retrieval and processing of high-level tank wastes. • RFETS – safe processing and storage of residues. • ORNL, INEEL, and LANL – safe storage. 	<p>III-A.2.a</p> <p>III-A.1.a(1)</p> <p>III-A.1.b(3)</p>	<p>Assess the adequacy of DOE’s progress on characterization of waste to identify potentially hazardous conditions and facilitate stabilization and disposal efforts at Hanford (satisfactory closure of safety issues for storage, retrieval, and processing of high-level tank wastes).</p> <p>Review activities to address plutonium and plutonium-bearing materials at RFETS.</p> <p>Review activities to address U-233 materials at ORNL, INEEL, and LANL</p>
III-A.1.b	<p>Conduct an annual assessment of research and development associated with key efforts for safe treatment and storage of high-risk residues, spent fuel, and waste. The intent of this review is to confirm that these research and development efforts adequately address identified technology gaps.</p>	III-A.4.a	<p>Conduct an annual assessment of the research and development program associated with the safe treatment and storage of high-risk residues, spent fuel, and waste.</p>
III-A.1.c	<p>Review the technical adequacy of the DOE standard being prepared for storage of uranium-bearing materials, and identify any areas that require improvement.</p>	III-A.1.b	<p>Review the technical adequacy of the DOE standard being prepared for storage of uranium-bearing materials, and identify areas that require improvement.</p>
III-A.1.d	<p>Determine whether the process selected for processing high-level, cesium-bearing waste in the ITP Facility at SRS is safe, is technically acceptable, and has been adequately demonstrated in pilot operations.</p>	III-A.2.c	<p>Determine whether the process selected for processing high-level, cesium-bearing waste in the ITP Facility at SRS is safe, is technically acceptable, and has been adequately demonstrated in pilot operations.</p>

**Strategic Area of Concentration III: Safe Storage and Disposition of the Remnants of Weapons Production
(Continued)**

OLD	OLD PERFORMANCE GOAL DESCRIPTION	NEW	NEW PERFORMANCE GOAL DESCRIPTION
<p>III-A.2.a</p>	<p>Determine the adequacy of DOE’s preparations for the following activities:</p> <ul style="list-style-type: none"> • SRS – Review one operational activity at the High-Level Waste Evaporator and Phase III processing of spent nuclear fuel in H-Canyon. • Hanford – Review development of the C-106 sluicing of high-heat waste to Tank AY-102. • RFETS – Assess the adequacy of storage of residues not being shipped to WIPP. • ORNL – Review the removal of uranium deposits in charcoal bed filters at the Molten Salt Reactor Experiment. 	<p>III-A.2.b.(2)</p> <p>III-A.3.a</p> <p>III-A.2.b(1)</p> <p>III-A.1.a(1)</p> <p>III-A.1.d</p>	<p>Determine the adequacy of DOE’s preparations for waste operations: SRS – Review preparations to commence operations at the Replacement High-Level Waste Evaporator.</p> <p>Determine the adequacy of DOE’s preparations for spent fuel processing operations: SRS – Review preparations to commence Phase III processing of spent nuclear fuel in H-Canyon.</p> <p>Determine the adequacy of DOE’s preparations for waste operations: Hanford – Review development of the C-106 sluicing of high-heat waste to Tank AY-102.</p> <p>Review activities to address plutonium and plutonium-bearing material: RFETS – Assess the adequacy of DOE’s progress on characterization to identify potentially hazardous conditions associated with safe processing and storage of plutonium residues.</p> <p>Review activities to address uranium-bearing salt residues: ORNL – Determine the adequacy of DOE’s preparations for the removal of uranium deposits in charcoal bed filters at the Molten Salt Reactor Experiment.</p>

**Strategic Area of Concentration III: Safe Storage and Disposition of the Remnants of Weapons Production
(Concluded)**

OLD	OLD PERFORMANCE GOAL DESCRIPTION	NEW	NEW PERFORMANCE GOAL DESCRIPTION
III-A.2.b	Determine whether DOE has adequately identified needed upgrades to facilities at ORNL, INEEL, and LANL for safe storage of U-233.	III-A.1.b.(3)	Review activities to address U-233 materials: Determine whether DOE has adequately identified needed upgrades to facilities at ORNL, INEEL, and LANL for safe storage of U-233.
III-A.3.a	<p>Review the adequacy of two designs planned for stabilization of high-risk materials. DOE presently plans installation of systems to:</p> <ul style="list-style-type: none"> • RFETS – stabilize and package plutonium metal and oxide in Building 371. • SRS – convert americium/curium solution into a stable glass form. • Hanford – stabilize plutonium. 	<p>III-A.1.a.(2)</p> <p>III-A.1.c</p> <p>III-A.1.a.(3)</p>	<p>Review activities to address plutonium and plutonium-bearing materials: RFETS – Review the adequacy of the design of systems to stabilize and package plutonium metal and oxide in Building 371.</p> <p>Review activities to address americium/curium solutions: SRS – Review the adequacy of the design of systems to convert americium/curium solution into a stable glass form.</p> <p>Review activities to address plutonium and plutonium-bearing materials: Hanford – Review the adequacy of the design of systems to stabilize plutonium-bearing materials at the Plutonium Finishing Plant.</p>
III-B.1.a	Confirm the adequacy of plans, standards, procedures, and operational activities at one DOE defense nuclear facility scheduled for early deactivation at RFETS or Hanford to reduce the risk posed by radioactive materials. Priority candidates for review include Building 779 at RFETS and Building 233-S at Hanford.	III-B.1.a	Confirm the adequacy of plans, standards, procedures, and operational activities at one DOE defense nuclear facility scheduled for early deactivation at RFETS or Hanford to reduce the risk posed by radioactive materials. Priority candidates for review include Building 779 at RFETS and Building 233-S at Hanford.
III-B.1.b	Evaluate ISM work planning processes for tapping and draining plutonium-bearing process lines in Building 771 at RFETS.	III-B.1.b	Evaluate ISM work planning processes for tapping and draining plutonium-bearing process lines in Building 771 at RFETS.

GLOSSARY

Board	Defense Nuclear Facilities Safety Board
CMR	Chemistry and Metallurgy Research (Facility)
D&I	disassembly and inspection
DEAR	DOE Acquisition Regulations
DOE	U.S. Department of Energy
EUO	Enriched Uranium Operations
FRAM	Functions, Responsibilities, and Authorities Manual
FY	Fiscal Year
GPRA	Government Performance and Results Act
INEEL	Idaho National Engineering and Environmental Laboratory
INPO	Institute of Nuclear Power Operations
ISM	Integrated Safety Management
ITP	In-Tank Precipitation
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
LEP	Life Extension Program
MEMP	Miamisburg Environmental Management Project
NES	Nuclear Explosive Safety
NTS	Nevada Test Site
ORNL	Oak Ridge National Laboratory
ORR	Operational Readiness Review
PEP	Program Execution Plan
PFP	Plutonium Finishing Plant
R&D	research and development
RFETS	Rocky Flats Environmental Technology Site
SAR	Safety Analysis Report
SNFP	Spent Nuclear Fuel Project
SNL	Sandia National Laboratories
SRS	Savannah River Site
TA	Technical Area
TEF	Tritium Extraction Facility
WIPP	Waste Isolation Pilot Plant
WSS	Weapon Safety Specification